

Farmers Electric
Cooperative

KALONA, IA



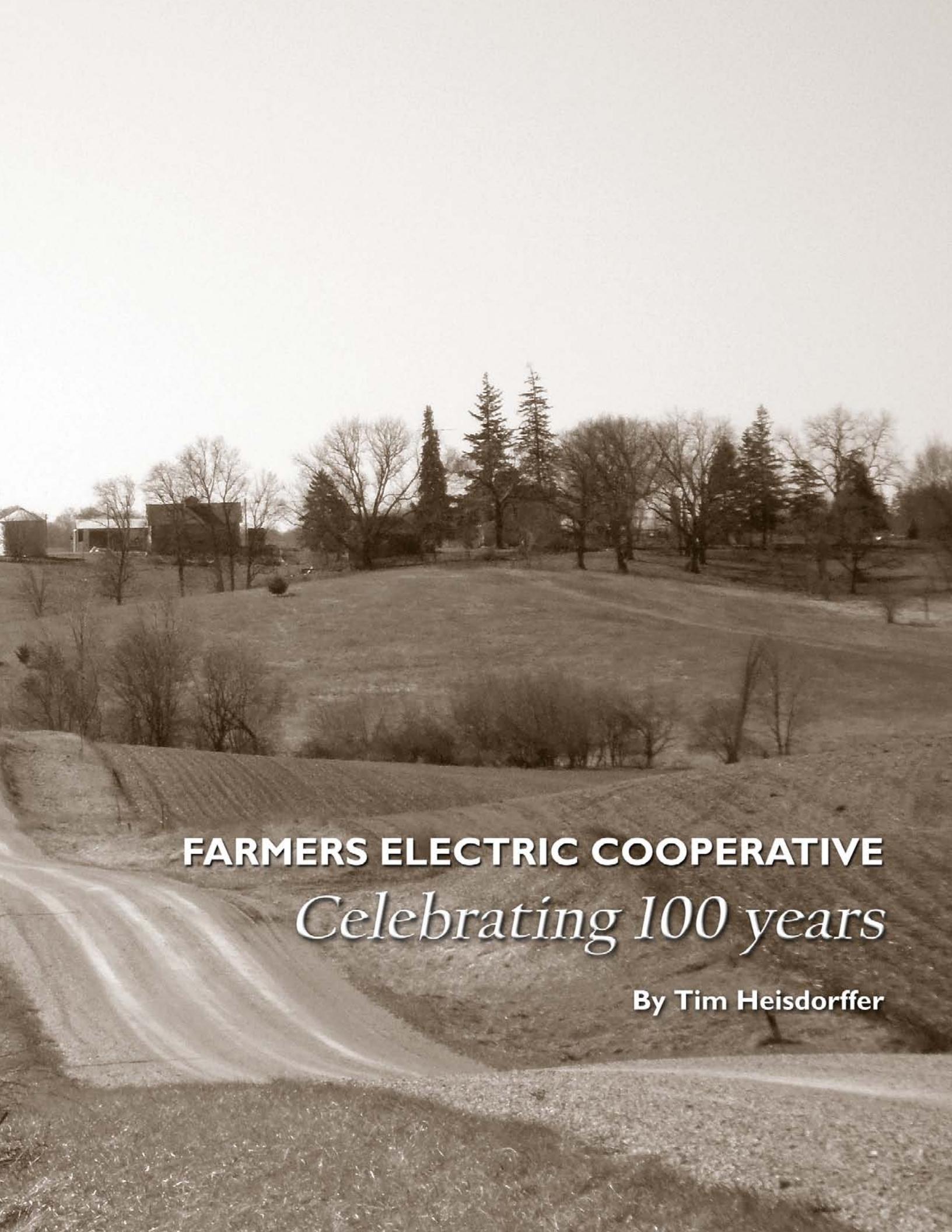
100th

Anniversary

1916 - 2016

OWNED BY THE PEOPLE WE SERVE.

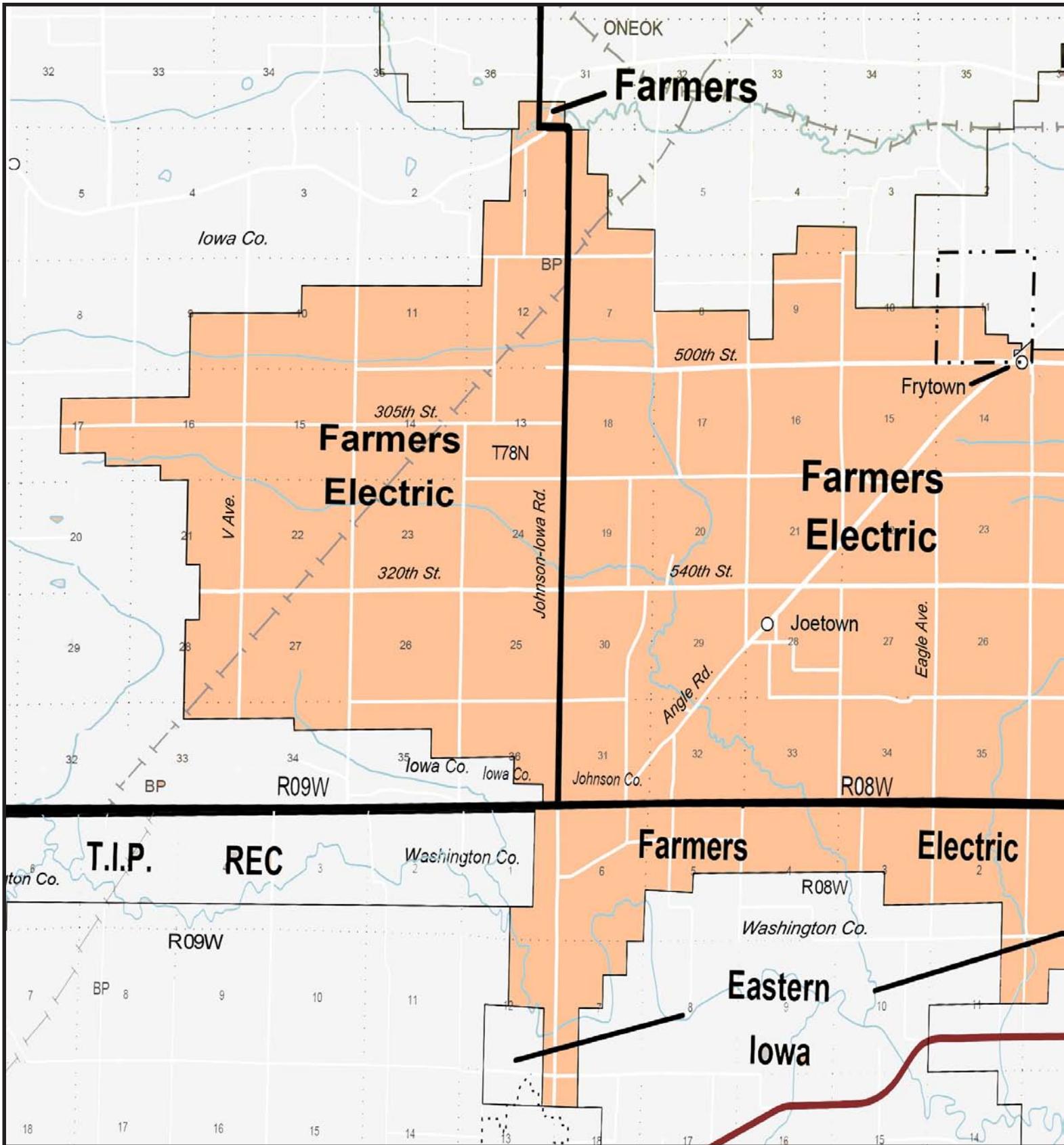


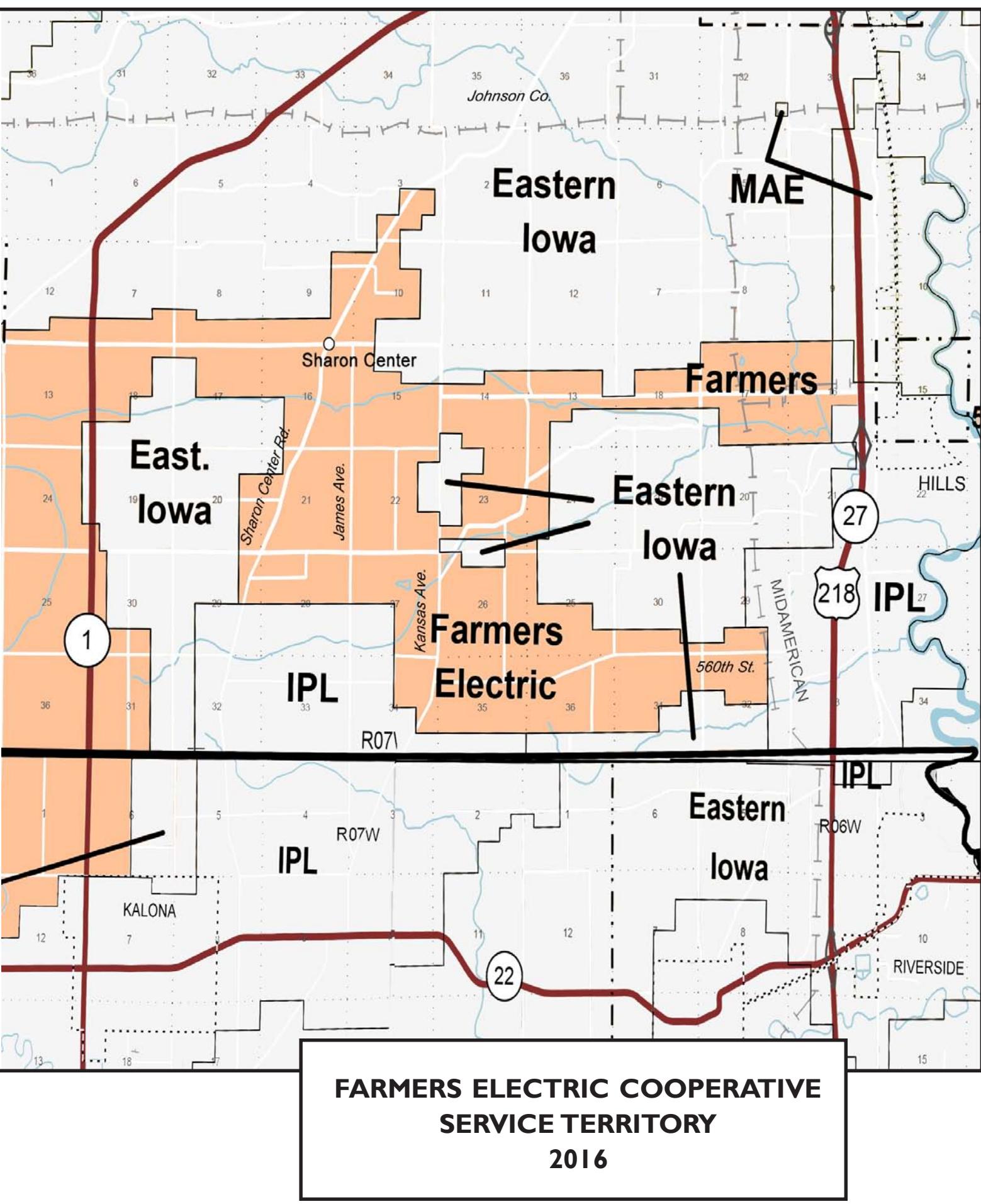


FARMERS ELECTRIC COOPERATIVE

Celebrating 100 years

By Tim Heisdorffer







Lois Schneider is surrounded by state-of-the-art equipment in the office of the Farmers' Rural Electric Cooperative in Frytown. The office and the building it inhabits is the first such facility owned by the Co-op that is probably the oldest farmers' electric co-op in the nation.

| METER READING SHEET | | | | | |
|--|---------|-------------|------------------|---------|-------------|
| Form 16041-4 49—Tipp. Press, Shelbyville, Ind. | | | | | |
| Meter No. | Size | Amp. | Volt | Type | Location |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| REMARKS: | | | | | |
| 19 | READING | AMOUNT USED | 19 | READING | AMOUNT USED |
| DATE | | | DATE | | |
| DEC. | | | NOV. | | |
| OCT. | | | SEPT. | | |
| AUG. | | | JULY | | |
| JUNE | | | MAY | | |
| APR. | | | MAR. | | |
| FEB. | | | JAN. | | |
| DEC. | | | NAME | | |
| NAME | | | NAME | | |
| NAME | | | NAME AND ADDRESS | | |

Notice of Postponement of Stockholders Meeting.
The Annual Stockholder's Meeting of the Farmers Light and Power Co. which was to be held October 14, is postponed until further notice, on account of the spread of epidemic.
D. B. Swartzendruber, Pres.
C. G. Yoder, Sec.

Kalona News: October 10, 1918

PREFACE

We felt it was important to document the 100th anniversary of Farmers Electric Cooperative to pay tribute to the company and its members for the unique place it holds in the history of electric utilities, being one of the earliest providers of rural electricity in the United States and one of the smallest. It is no small feat that a company this size has maintained its independence with a century of consolidations in the electrical industry, and without the need for government loans.

The beginning of Farmers Light & Power Company in 1916 hinged on the self-determination of a small group of farmers that continues to this day as Farmers Electric Cooperative. The original members did everything from setting the poles, stringing wire, hooking up services, and taking care of billing. That spirit of self-reliance carries through to today with FEC's commitment to member service, an example being at the forefront of renewable energy policies.

The core beliefs that started this company also carry through today. Safe, reliable, affordable electric service controlled by local leadership has always been the hallmark of Farmers Electric Cooperative, and always will be.

Dear Patrons:

Because of the increasing cost of material and operating expenses it is necessary to adjust our rates to be able to maintain adequate service and continue required construction. During the 56 year history of Farmers Electric Cooperative our rates have gone down rather than up. The last change was a decrease in 1969 which resulted in the lowest rate schedule we have been able to provide.

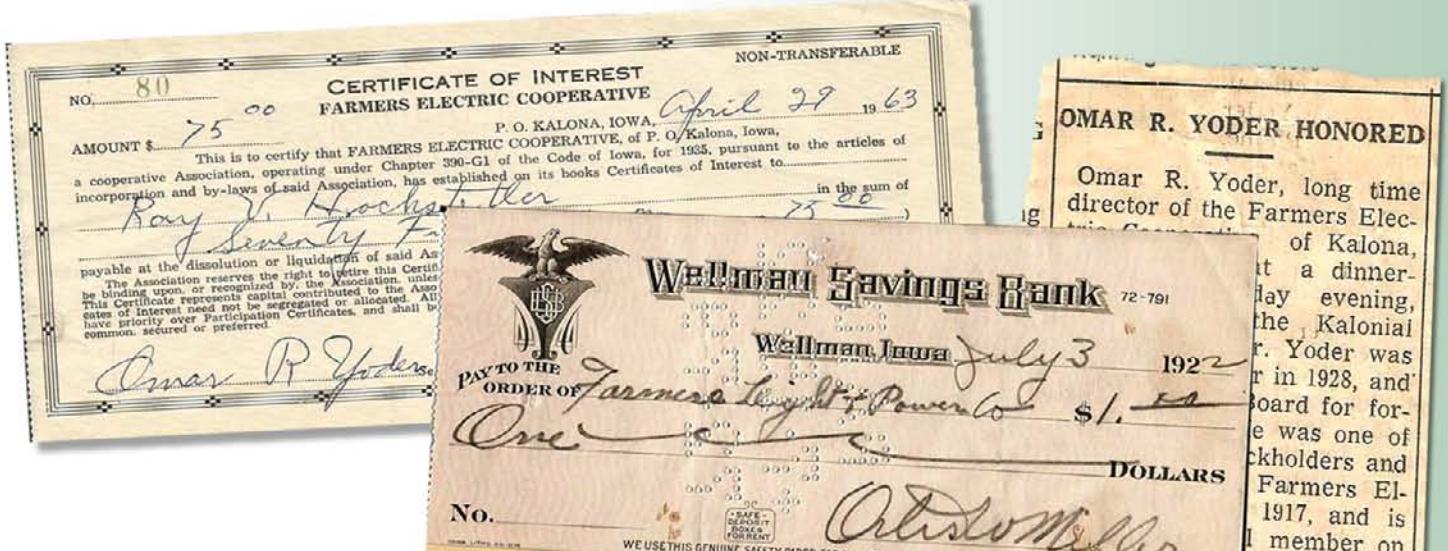
However as of July 1, 1973, the following prices, an increase of about 5% will be in effect:

Farm

| | | |
|----------|-----------------------|--------|
| Minimum | 50kwh | \$4.00 |
| next | 100kwh @ 3.5¢ per kwh | |
| next | 100kwh @ 2.5¢ per kwh | |
| next | 300kwh @ 2.0¢ per kwh | |
| all over | 550kwh @ 1.9¢ per kwh | |

Commercial

| | | |
|----------|-----------------------|--------|
| Minimum | 50kwh | \$4.00 |
| next | 100kwh @ 3.5¢ per kwh | |
| next | 100kwh @ 2.5¢ per kwh | |
| all over | 250kwh @ 2.1¢ per kwh | |



ACKNOWLEDGMENTS

For the first three months of 2016, I spent many hours sorting through board minutes, and combing through handwritten notes and news articles trying to put them in an order that made sense. The Kalona Public Library's complete database of the Kalona News editions was very helpful in my research, as was the generosity of the Kalona News staff.

For being 100 years old, Farmers Electric has had relatively few employees, and they rarely had time to photograph or document various milestones. A debt of gratitude must be paid to long-time manager Wally Fisher. He is the lone voice remaining from the 'old days.' His many visits to the office and recounting of stories, as well as fact-checking, were invaluable.

Thanks to Maria Urice for formatting the book, working with the printer, and generally putting all the pieces together. Appreciation also to Lois Gugel for her assistance, and to Hannah Liddell, who designed the cover logo and took the staff photos. Other photos were also used from Holly Berkowitz and Emma Bluemel, as well as Wally Fisher's own collection.

A final thanks to the Board of Directors who approved publishing this commemorative anniversary book.

Tim Heisdorffer

OMAR R. YODER HONORED

Omar R. Yoder, long time director of the Farmers Electric Cooperative of Kalona, it a dinner-lay evening, the Kalonia r. Yoder was in 1928, and Board for foree was one of ckholders and Farmers El- 1917, and is member on der was truly a Farmers Electric pioneer and helped promote the building of the line in the Sharon-Frytown area in 19-17.

E. on nies were related during the evening, by the forty-one friends sharing the courtesy. Steps of advancement through the years are very evident from various interesting comments. Wallace

NOTICE OF IMPROVED SERVICE
If you have a POWER FAILURE CALL:
FARMERS ELECTRIC CO-OP — 683-2510
AFTER HOURS CALL:
Wallace Fisher — 683-
Randy Miller — 683-
**IF NO ANSWER CALL — 351-
A MOBILE OPERATOR will take your message.
POINT OUT TO THE OPERATOR that your
message is for FARMERS ELECTRIC CO-OP
and leave your name and telephone number.**
PLEASE SAVE THIS CARD!!!!

The Farmers Electric board had secured Glen Yoder to select an appropriate gift for his father. In keeping with Mr. Yoder's hobby of photography, his son chose gifts in this area, including film, a slide carousel and photo book. It is planned that the honoree will provide in pictures many interesting facts for Farmers Electric concerning lines and equipment, which may be a continuing process.

Farmers Electric Cooperative is most appreciate of services, concern and support given by Mr. Yoder these many years of his activities with the Cooperative. The current board includes: Truman Erb, president; Iv-

A History of FARMERS ELECTRIC COOPERATIVE

1910s & '20s

The idea for how to get electricity to rural areas of Johnson County began to germinate with a group of farmers in 1910. By 1914, meetings were being held at Center School – southwest of Frytown – where people interested would arrive before sunrise and leave after sundown. Omar Yoder, a board member for over 40 years, told about riding his buggy seven or eight miles to attend the meetings.



Early Farmers Light & Power meetings were held in Sharon Center and Frytown, as well as Center Elementary School (pictured).

FARMERS TO USE ELECTRIC LIGHTS

Plans are well under way for an electric transmission line to be established that will supply a large number of the farmers living north of Kalona with electric light and power. L.R. Fosdick, who is making the plans and estimates for this new enterprise, states that already there are about twenty-two miles of this transmission line assured and that others will no doubt join in the project. While the first cost to farmers is high, the after cost will be but little, if any, higher than for residents of the towns. The convenience and satisfaction of using electric lights are such that the well-to-do farmer cannot and will not do without them. This plan is only just started and we expect it to grow until the farmer communities around Kalona are able to equip their homes with this modern convenience.

Many did not think a company organized by farmers to supply electricity would succeed, but on November 29, 1916 a charter was issued for a company called Farmers Light & Power Company. Shares were valued at \$175 each. The new company was the first to bring electricity to rural parts of Johnson, Washington, and Iowa counties.

Left: Kalona News Feb. 3, 1916 –
Transmission lines to furnish Kalona with power.

All construction and maintenance was carried out by the members themselves. There was no specialized training or tools in the early years; all training was strictly on-the-job. Farmers were so determined, they built six miles of line before they knew who would supply the power. Poles were hauled by farmers on wagons from the nearest railroad.

Fosdick Electric Company from Kalona emerged as the first source of electricity. By the end of 1918, lines were built from six miles west of Joetown to two miles east of Sharon Center, and down to Kalona. In 1919 a connection was made with Iowa Electric near Hills, and in 1929 Iowa Electric became the sole supplier in what turned into a long-standing partnership.

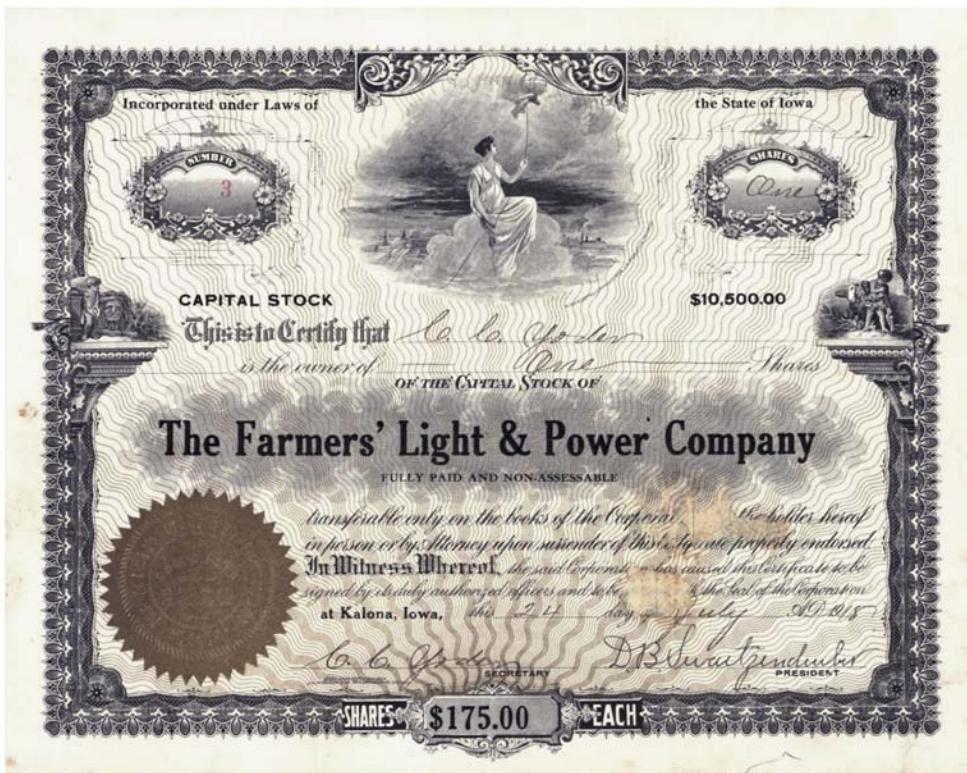


that lasted up to the year 2000. From the very beginning, Farmers Electric Cooperative has survived and thrived without the aid of government loans.

Early electric service

Service provided then would be unrecognizable today. Meters were owned by the members. Anyone needing more than a 1-1/2 horsepower transformer had to furnish it at his own expense, and it had to be disconnected from the

rural areas and small towns, many companies were created in the 1910s and 1920s. Besides Farmers Light & Power and Iowa Electric, Kalona had four other power companies come into being, independently or by consolidation: Kalona Illuminating Company, Fosdick Electric Service, North East Kalona Electric Company, and Kalona Light & Power Company. All these companies were eventually swallowed up by Iowa Electric, who was very aggressive



line when not in use. Lights were shut off at 10:00 p.m. when the Kalona generators were shut down. Churches did not have to be members to be provided electricity, but they also furnished their own transformers and meters, and paid a fixed price to Farmers Light & Power for the service.

In a rush to capitalize on the relatively new idea to electrify

in its expansion throughout the state.

1930s & '40s

The minutes from the Board of Director meetings in the 1930s and 1940s seem to reflect the difficulties of the time: deliberating over meters and electrical rates, and the handling of delinquent accounts.

1910

Discussions begin about bringing electricity to the area.

1916

Farmers Light & Power Company is organized as a stock company. Stock certificates issued at \$175 each – the equivalent of \$3,823 today.

1917

Farmers Light & Power is granted the first franchises for rural lines in Sharon and Washington Twp., and becomes the first company to bring electricity to rural areas of Johnson, Washington, and Iowa counties.

1918

Annual meeting cancelled due to flu epidemic.

1919

Fosdick Electric Company, Kalona, continues to supply power, but a connection was made in Hills with Iowa Electric.

1925

3% of rural America has electricity.

1929

All FEC electricity supplied by Iowa Electric.

1935

11% of rural America has electricity.

1936

Herman Smucker hired. Herman served as line foreman until 1950, and retired in 1952.

In 1930 if a shareholder was unable to pay, a share of his stock was applied to his bill and redeemed as soon as possible. All meters became company property in 1931, and delinquent accounts were given 60-days notice; if not settled in that time, the account was shut off.

In 1932 the rates were cut in half from where they were established in 1929, and a separate rate for those who had a 240-volt service was created. Also in 1932 the board requested all meters in inaccessible locations be relocated to a more convenient spot.

In 1933 the board allowed a \$75 per year credit for use against delinquent accounts. The credit was not to exceed \$50 after March 1, 1934, and by 1937 all delinquent accounts were to be paid down by at least 5% a month, or service would be discontinued. In 1937 delinquent users were interviewed and if a satisfactory settlement was not reached, power was shut off.

Power disruptions

In today's world, everyone depends on a consistent, reliable source of electricity. Utilities take pride in their reliability numbers. Annual reports to the Iowa Utilities Board

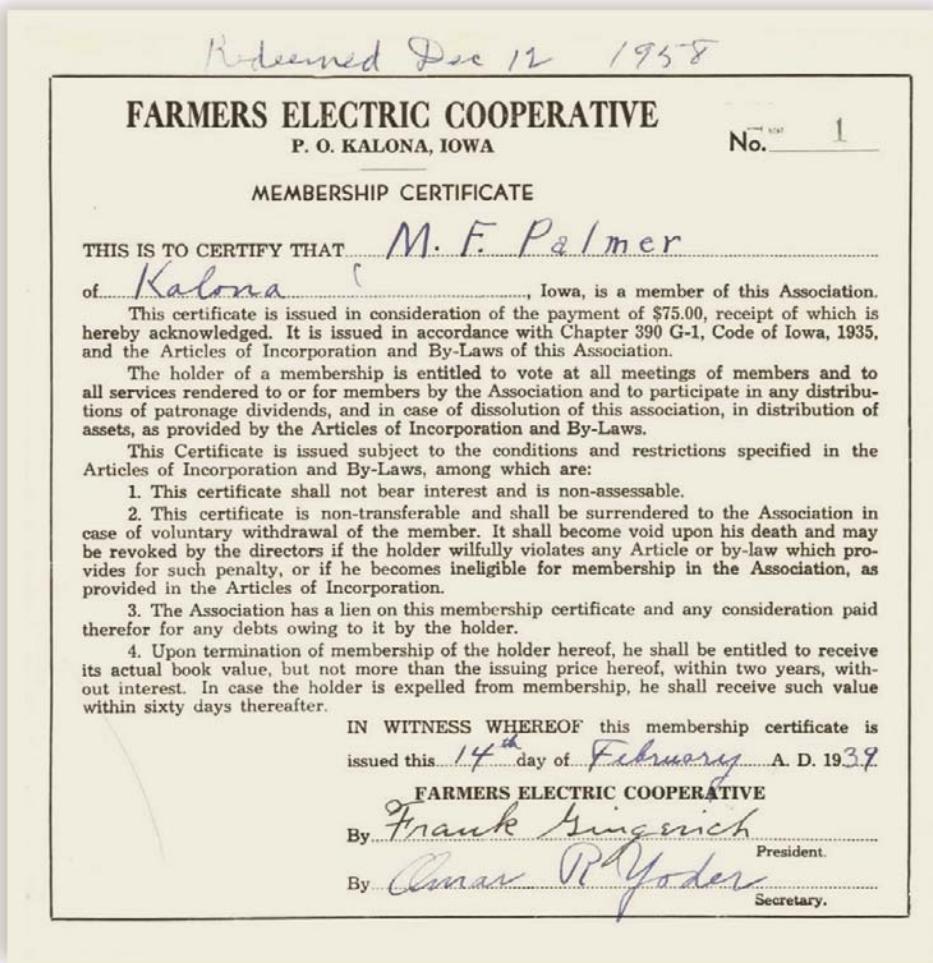
are required and include statistics for total number of outages, the number of customers affected, and the average length of outages.

Early in the industry, however, disruptions of service were quite frequent. There was no lightning protection in the early years on Farmers Light & Power's lines; now every transformer and cutout switch is protected. People who

did not grow up with electricity or wholly depend on it did not mind the interruptions.

A cooperative is formed

By the end of 1936, the original 20-year charter of Farmers Light & Power was set to expire. After some investigation, it was decided to re-incorporate under the cooperative guidelines. Membership was tentatively set at \$75. The



SOME POWER DISRUPTIONS WERE ENTIRELY MAN-MADE ...

The line superintendent in the 1930s for Farmers Light & Power, Howard Gingerich, was going to attend a baseball game one night at Bayertown. Bayertown was a rural spot consisting of a general store with a dancehall and a lighted ball field, a rarity at the time. Howard had a girlfriend in Iowa City he was picking up, and he was running late, but didn't want to miss any of the game. So on his way to Iowa City, he stopped at a pole about one mile north of the ball field and pulled the line fuse, ensuring the game would be delayed – and putting a handful of homes in the dark. He picked up his girlfriend, put the line fuse back in on his way by, and drove to the field just as the game commenced.



Herman Smucker and Orval Troyer take a break while unloading poles off a railcar in Kalona in 1947

annual meeting was postponed to January 14, 1939 at which time the new cooperative plan was explained in detail and articles of incorporation were presented for consideration. The company had 165 members, 135 of whom voted, and all 135 members voted 'yes' to the new organization. Members then adopted the name:

FARMERS ELECTRIC COOPERATIVE

Maintaining low rates continued to be a major concern through the 1940s. Rate changes took effect in 1939 and 1942. Two board members teamed with Superintendent Herman Smucker in 1944 to study meter records to determine new rates, resulting in a slight decrease. They also compared supply rates from Iowa Electric with rates from other area rural electric cooperatives.

Offers to take over the lines
Farmers Electric also had a few offers over the years to sell out or

be absorbed by larger companies. In 1937, a Mr. J.H. Wilson of Wellman presented an offer to take over the lines of the company. His offer was given "no consideration whatsoever."

Iowa Electric expressed interest in taking over the lines in 1939, and while it did not come to a vote at the annual meeting, sentiment was in favor of Farmers Electric retaining complete control.

In the fall of 1948, Eastern Iowa Electric Cooperative made a proposition to take over the lines, and it was decided at Farmers Electric's annual meeting to take it to a vote. Being taken over by Eastern Iowa REC was enticing to many members because they had newer poles, lines, and equipment – and lower rates.

A special meeting for the membership was called at Kalona High School in April 1949. The Eastern Iowa REC proposition would not be accepted unless it received a

1939

Farmers Light & Power reorganized under the cooperative plan. Renamed Farmers Electric Cooperative.

1946

First 3-phase line built from Kalona to Frytown for Yoder Feeds.
50% of rural America has electricity.

1947

Wally Fisher first hired in February, left for a short stint with Iowa Electric, then came back and started as line foreman on August 15, 1950. Wally retired in April of 1992.

1950

First boom truck purchased, Dodge Power Wagon.

1952

First power digger purchased.

1954

93% of rural America has electricity.

1955

First two-way radio installed at manager's residence and service truck.

1958

First all-electric home built, and first mercury vapor security light installed at Joetown Store.

1963

Washington Township School built, one of the earliest all-electric schools.

1965

Frytown substation built.

Farmers Electric Co-Op, In Operation 30 Years, Considers Dissolution

For more than 30 years farmers in a wide area southwest of Iowa City have operated their own electric distribution system, the Farmer's Electric Co-operative.

Within the next few weeks, however, about 300 families will have the job of deciding whether the co-operative will:

(1) Continue operating as it is, purchasing current from the Iowa Electric Co. of Cedar Rapids, a privately owned utility, or

(2) Dissolve its independent organization, becoming a part of a big REA network, the Eastern Iowa Light and Power Co-operative of Davenport.

The farmer's co-operative, organized about 1917, has about 360 meters and approximately 260 active members. Its 85 miles of line cover areas west of Hills, north and northwest of Wellman, northeast and northwest of Kalona.

Generally speaking, there are two bodies of opinion among the co-operative members on the question:

(1) That the organization should be absorbed into the big REA network, since monthly electric bills in many cases would be about a third lower.

(2) That the co-operative should maintain its present identity because

of the likelihood of better and faster service from existing line vehicles and personnel. (Some members holding this opinion suggest consideration of purchasing current from a different company.)

* * *

The co-operative held its annual meeting last Saturday and discussed the situation with a representative of the REA organization.

Tonight the board of directors will meet at the home of Omar R. Yoder, Route 3, secretary, to discuss arrangements for a special election on the dissolution issue. A representative of Iowa Electric Co. is expected to attend.

At present the co-operative ties in to Iowa Electric Co. lines at Hills, Kalona and Wellman. If it were to become a part of the REA system, it could be connected to Eastern Iowa at a point several miles west of Hills where an REA line crosses above one belonging to the co-operative.

Officers of the farmers' co-operative are emphasizing they are maintaining a neutral attitude in the controversy, leaving the question to be decided solely by vote of the members.

Iowa City Press Citizen Oct. 7, 1948

two-third majority. Out of 223 votes cast, 129 voted 'yes' to accept the takeover – nearly 58%. A "violent discussion" followed, and resolutions were presented and withdrawn. Another special meeting was scheduled to take place as soon as possible.

In between meetings, FEC board member Ivan Maas wrote and distributed a letter to all Farmers Electric members essentially reminding them of the benefits of having local governing control and employees. The second election yielded 89 'yes' and 126 'no' votes. Shortly thereafter, the Farmers Electric board met with representatives from Iowa Electric and signed a three-year contract to purchase electricity.

1950s & '60s

With the independence of Farmers Electric secured, the 1950s were a time of growth.

From 1948 to 1958 electricity sales more than doubled. Increasing customer electrical demands and new types of services spelled out a need for new rate structures:

- A customer who needed to upgrade to a 5 KVA transformer could do so without additional expense.
- The first mercury vapor security light with an automatic control was hung at the Joetown Store in 1958. It was decided this might be a feature members would be interested in, so an installation fee and monthly charge were created.
- The first all-electric home was built in 1958, with a heat rate coming into effect in 1959.
- In 1957 a commercial rate study was developed and put into place with the assistance of Iowa Electric. This rate was for country stores, garages, feed mills, and cheese factories.
- A peak demand rate was established for purchasing power from Iowa Electric in 1958, which resulted in considerable savings.

With the increasing use of automobiles and trucks, many roadways were being widened, necessitating the relocation of poles and wires to accommodate the wider rights-of-way. The first 3-phase line was built in 1946 from Kalona to Frytown, and more followed in 1956 for the FAA facility northwest of Riverside, and in 1957 from Wellman to the Iowa Mennonite School.

Upgrades

With the explosion of growth for this tiny cooperative came the need for newer equipment. The

In 1952, letters were mailed advising members to have their wiring checked if it had been a number of years since installation.



FEC's first boom truck, purchased in 1950.

company's first boom truck was purchased in 1950, with a power digger following in 1952. The first two-way radio was installed at the manager's residence and in the service truck in 1955. The radio greatly enhanced efficiency, communication, and safety as many times on outages Wally Fisher would be by himself on the line with no one knowing his whereabouts.

Maintaining a high level of customer service and safety for the consumer has always been a high priority. Farmers Electric sent surveys to customers in 1951 to determine if members' wiring and equipment were adequate.

Herman Smucker works on switching lines to a new pole during a road grading project in 1951. Omar Liebig controls the handline.



When lines were upgraded and the two-way radio installed, members were informed of this and encouraged to come up with ideas and suggestions to be presented at a board meeting.

One night in 1960, in order to minimize disturbing customers, temporary lighting was brought in as FEC worked overnight to change a 3-phase corner pole for a road grading project.

Line upgrades and 3-phase expansion continued in the 1960s. Over three miles of

3-phase line was built from Frytown down Angle Road in 1960 to tie in with the existing line by Iowa Mennonite School, and a spur was extended into Joetown. In late 1961, construction began on over 3 1/2 miles of 3-phase from Frytown to Sharon Center.

In 1963 discussion began over building a substation. The load for Iowa Electric increased to the point where they would have to



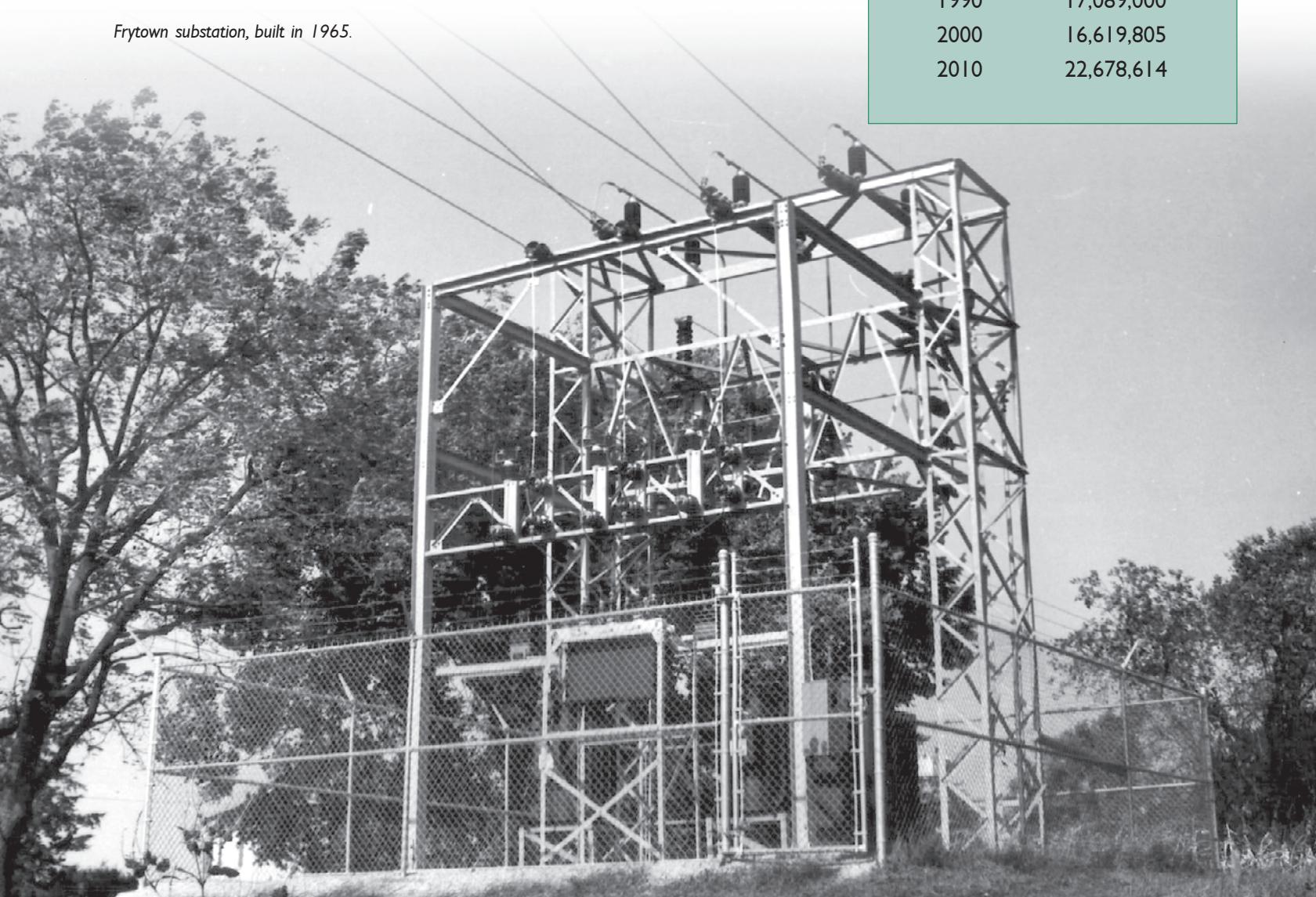
1958 Chevrolet power unit purchased in 1965 for \$5,000.

enlarge the transformer bank in Kalona, or Farmers Electric could build a new substation centrally located on their system. FEC was paying an investment fee of \$519 a month to Iowa Electric which would be eliminated if they built their own sub.

In 1965, a new substation was built in Frytown by Iowa Electric, which was tied in to the transmission line from Hills. By 1971 the substation had reached capacity, and a larger transformer had to be installed.

Farmers Electric purchased land in 1970 for pole storage and an office/warehouse on the southeast side of Frytown, moving into the facility

Frytown substation, built in 1965.



in 1972. Prior to this, poles were delivered via railroad in Kalona and stored there. There were no company offices or warehouse until this time. The company superintendents, Herman Smucker followed by Wally Fisher, kept trucks and inventory at their personal residences. Outage calls were also taken in their homes. In 1950, when Mr. Smucker stepped down as superintendent, Farmers Electric purchased his panel truck and pole trailer for \$600.

Up to 1953, the governing bodies of cities and towns had jurisdiction over electric rates – as well as gas rates and services. Iowa was one of only two states without a public

utility commission. In 1963 the Iowa Legislature added the regulation of public utilities to the Iowa Commerce Commission's responsibilities. Up to this point, the Farmers Electric board of directors – with the aid of Iowa Electric – set electric rates. Exclusive service areas for public utilities were not established until 1976.

Farmers Electric ELECTRICITY SOLD

| Year | kWhrs |
|-------------|--------------|
| 1950 | 1,781,380 |
| 1960 | 3,883,720 |
| 1970 | 7,522,300 |
| 1980 | 14,383,800 |
| 1990 | 17,089,000 |
| 2000 | 16,619,805 |
| 2010 | 22,678,614 |

1970s & '80s

Sales of electricity doubled from 1960 to 1970, and again from 1970 to 1980. Yoder Feed in Frytown constructed a new feed plant in 1969 and a 265,000-bushel grain center in 1970. Twin County Dairy also upgraded. In 1976 they replaced smaller cheese vats with 4 large ones, and in 1978 installed a 40,000-gallon milk storage tank.

The first geothermal system was installed on the Farmers Electric system in 1984. A load management system was installed in 1987, allowing the cooperative to shut off a members' electric hot water heater during peak loads in return for a small monthly credit on their bill.

1990s & '00s

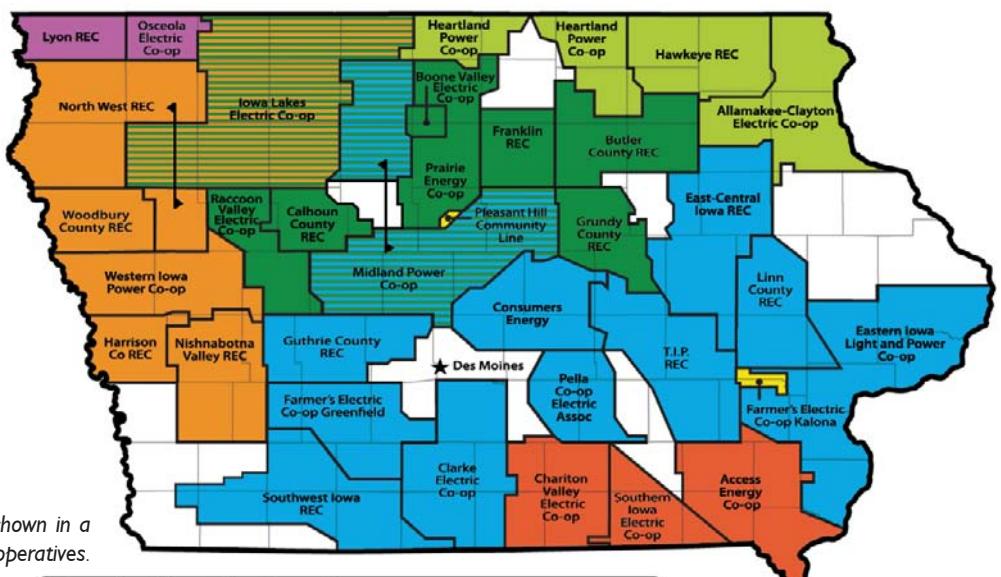


A major change in 1992 was realized when long-time manager Wally Fisher retired in April. He was originally hired in February of 1947, left for a short stint with Iowa Electric, then came back and was manager from 1950. Hired to replace him was Warren McKenna from Linn County REC.

Warren McKenna, left, and Wally Fisher with Jim Miller (standing) at FEC's 75th Anniversary celebration in 1991.

An exchange of territory in 1993 with Iowa Electric gained Farmers Electric approximately 60 customers and 20 miles of line, mostly in Iowa County. FEC gave up service area north of Kalona that was not developed, and a small swath north of Hills that had one customer at the time.

FEC's current service area, established in 1993, shown in a 2016 map of Iowa's rural electric cooperatives.



1970

Land purchased for new office/storage building.
Moved into building in 1972.

1975

System converted from delta to wye.

1984

First geothermal home.

1987

Load management system installed.

1992

Warren McKenna hired as manager.

1997

Offices and storage moved to existing location.
Automatic meter reading (AMR) system purchased and begin installing.

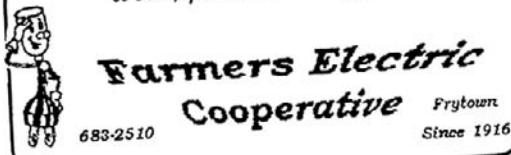
1998

FEC builds geothermal all-electric home in Joetown.

In 1995, Hallmark filmed a TV movie in the Kalona area called 'Harvest Of Fire' which aired on CBS in April of 1996. Because the movie had an Amish storyline, Farmers Electric was paid to convert a couple farms in their service area to underground.

We would like to thank Hallmark for choosing to film "Harvest of Fire" in the Kalona community.

Call us for - rafter lifting, aerial work, poles and digging



Also in the mid-1990s a small subdivision in Joetown was developed that, as of 2016, had 14 homes in it. One of those homes is an all-electric geothermal home built in 1997 by Farmers Electric to help showcase the technology and promote building in the area.

In August 1997, Farmers Electric moved to their current location. The newly remodeled facility, just west of their previous site, provided room for expansion.

Automatic meter reading

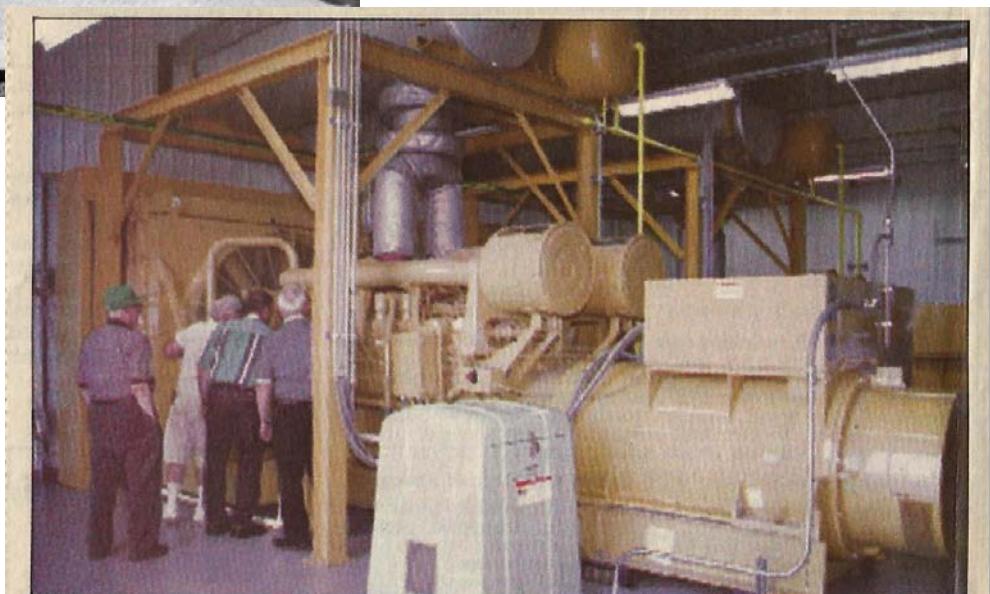
That same year, the cooperative became one of the earliest users of an automatic meter reading (AMR) system. This system utilizes a signal sent over the power lines back to a receiver in the substation, where it downloads readings from each meter that can be called up on a computer in the office. This enhanced customer service by allowing the cooperative to respond quickly and accurately to customer inquiries about usage. It also reduced meter reading time and the billing cycle.

A major expansion of Farmers Electric took place in 2000, when the substation was moved from its 500th St. location to just west of the office. New steel poles were set to re-route the transmission line. Also built was a generation facility with two 2600 horsepower diesel generators. Along with reliability, the generators allowed Farmers Electric to negotiate a more favorable purchase contract from their supplier.

The decade starting in 2000 was good for business:

- Small companies established on Farmers Electric territory like Yoder Auction Service, Turnkey Auto, Farmers All-Natural Creamery and The Water Shop.
- Record low interest rates allowed homeowners to build new or remodel, and a newer subdivision brought more homes to Frytown.

The Kalona News: A FEC ad thanks Hallmark, April 1996 (top left); Warren McKenna and Lois Schneider in new office, August 1997 (middle); new generation plant, June 2001 (below).



Approximately 250 people attended the Open House for the new generation plant for the Farmers Electric Cooperative in Frytown Saturday, June 9. The plant is operated by two 16-cylinder generators that were assembled piece by piece by the co-op's employees. "They came in kits from the manufacturers," said General Manager Warren McKenna.

Mary Zielinski



The FEC substation was moved from its former, 500th St. location to west of the office in 2000.

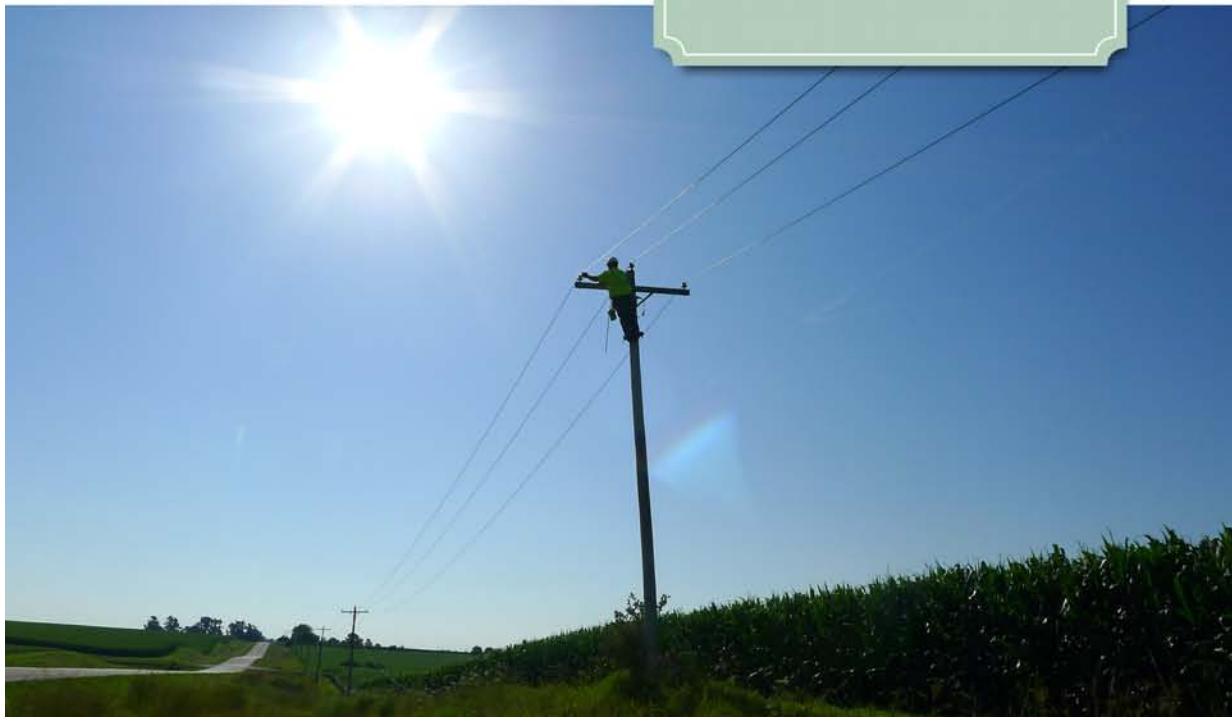
- Farmers were able to expand grain storage, dryers, and other facets of their operations.
- Iowa Mennonite School broke ground on their auditorium expansion and geothermal installation.

The largest expansion took place at Twin County Dairy. The dairy had expanded a number of times over the years, but their largest to date was the addition of a whey facility. To handle the additional load, FEC upgraded the lines to Twin County in 2006 by installing over three miles of 3-phase underground primary and a third generator at the Frytown facility.

2010s

The high-voltage underground to Twin County Dairy began a decade-long commitment to upgrade aging overhead lines and services by installing underground facilities. By the end of 2016, all but one mile of 3-phase lines will be converted. All but four 3-phase services have transitioned to underground, and almost all new services are put in underground. Because of this commitment to underground, member-owners have experienced fewer outages and interruptions, and Farmers Electric Cooperative ranks at the top in the state of Iowa for reliability of service.

Matt Slaughter removes the last of the 3-phase, overhead lines along 500th St. in July 2016.



2000

Substation moved next to office facility. Generation facility and first two generators installed adjacent to substation.

2006

Generation facility expanded with third generator installed.

2009

Solar rebate program established.

2012

FEC installs Iowa's first solar garden.

2014

FEC and Eagle Point Solar construct an 800+ KW solar farm, the largest in Iowa at the time.

2016

All but one mile of full 3-phase lines installed underground. Second half of solar farm to be completed, bringing total to 1.75 megawatts of power on the 9-acre site.



The grand opening for FEC's solar farm, July 31, 2014, drew hundreds of guests including state and national politicians and media.

Renewable energy

The growth of renewable energy began in 2010 when Farmers Electric offered a feed-in tariff. A couple of small installations grew into a solar garden where members could buy up to 10 individual panels and receive a monthly credit on their bill for the energy produced. Panels sold out quickly.

As state and federal tax incentives came into place – tied in with Farmers Electric's incentives –

many members realized the opportunity and installed their own solar arrays.

These smaller projects opened a larger opportunity to build an 800+ KW solar farm in 2014. A nine-acre plot was purchased one mile south of Frytown, and Farmers Electric entered into a power purchase agreement (PPA) with Eagle Point Solar. Under this business model, Eagle Point owns

the solar equipment for 10 years, while FEC purchases the energy produced. After 10 years, FEC will purchase the remaining assets and own the solar farm outright.

Farmers Electric's feed-in tariff, community-based solar, and solar farm have made the co-op a recognized solar leader in the electric utility industry.

FEC thanks the businesses on our line, and others, who provided support for this publication. Their business cards are displayed throughout the book.

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*Gary Hochstedler
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December 12, 1941

Then & Now

Account with Wm Slabaugh:
Cost of line construction:

Line construction 1941 & 2016

1941

| | |
|--|---------|
| 15 - 25' line poles @ \$5.35 | \$80.25 |
| 13 - 4' cross arms @ \$1.37 | 17.81 |
| 1 set 4' double cross arms | 3.07 |
| 1 - 1 1/2 KVA distribution transformer | 43.27 |

2016

| | |
|--|------------|
| 15 - 35' line poles @ \$201 | \$3,015.00 |
| 13 - 6' cross arms @ \$55.08 | 716.04 |
| 1 set 6' double cross arms | 117.21 |
| 1 - 15 KVA distribution transformer | 625.00 |
| 222 lbs. hard drawn line wire @ \$15.93 cwt. | 35.36 |
| 1 ground rod, complete | 1.59 |
| 1 anchor, complete | 2.80 |
| 1 high-voltage set fuse switches | 10.50 |
| 1 steel secondary rack complete | 1.50 |
| 60 lbs. No. 6 triple braid weatherproof wire | 12.90 |
| 2 steel pole brackets w/ insulators | 0.48 |
| 4 ft. armored entrance cable | 0.48 |
| 1 entrance cable cap | 0.44 |
| 1 - 5 amp 110v used meter | 3.60 |
| 2 screw insulators @ 0.15 | 0.30 |
| Labor | 21.55 |
| Total | \$235.90 |

Total

\$14,081.47

Labo November 26-29 December 6 and 9

Total amount due

235.90

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Keith Dickel
President

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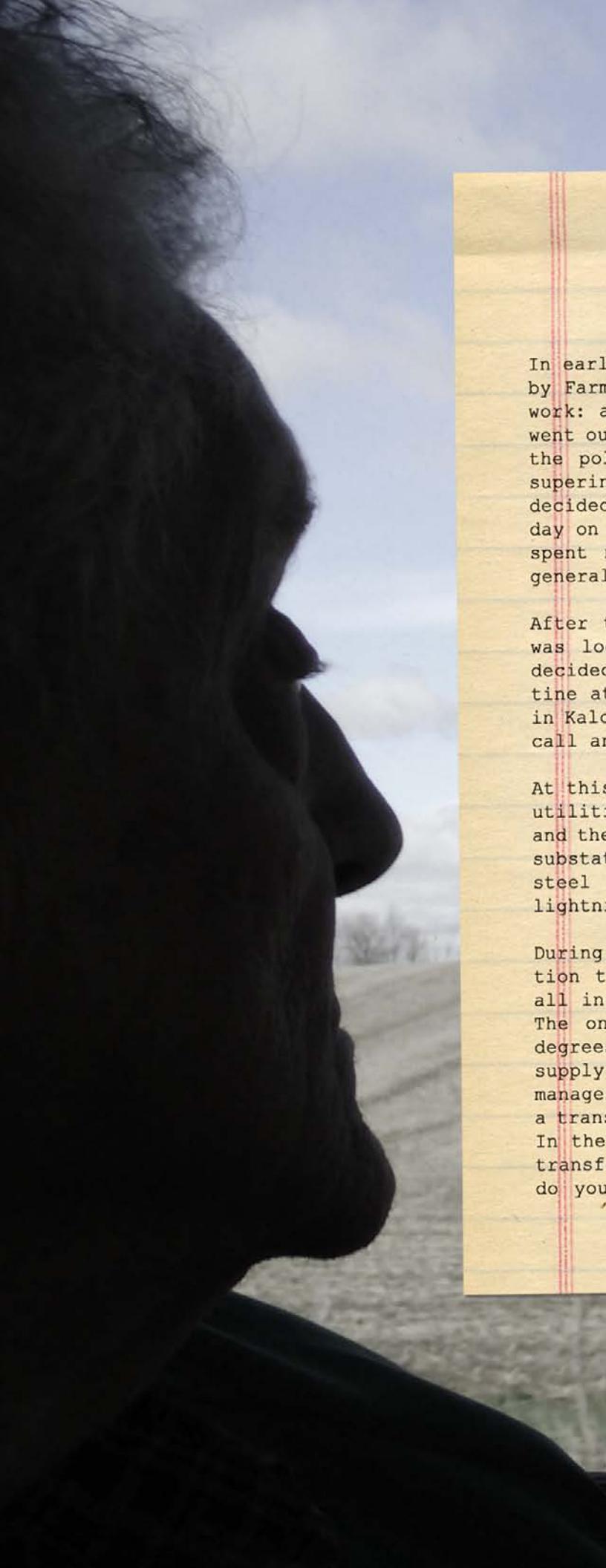
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Kalona, Iowa



EXPERIENCES WORKING ON THE LINE

Wally Fisher

In early 1947, I was looking for a job and was hired by Farmers Electric. Our equipment my first day at work: a pickup, a pole trailer, and hand tools. We went out to set a pole; dug the hole and set it, next the pole had to be climbed. Herman Smucker (line superintendent) went up once, so the next time I decided I should try it. I climbed a pole my first day on the job. During the summer of '47 and '48 we spent most of our time replacing poles and doing general repair work.

After two years at Farmers Electric, Iowa Electric was looking for a service man in this area, so I decided to work for them. Their crew was in Muscatine at that time, so I was responsible for service in Kalona, Riverside, Hills, and Lone Tree and was on call any time I could be found.

At this time the electric load was starting to grow; utilities were trying to recover from the depression and the equipment was becoming overloaded. The Hills substation had primitive fuses set on top of the steel structure and it seemed every time we had lightning I had to make a trip to Hills.

During my two years at Iowa Electric we lost substation transformers in Hills, Riverside, and Kalona; all in the coldest weather and late in the evening. The one at Riverside was about 11:00 p.m. and 15 degrees below zero. We had three transformers to supply power. One was burned out. I called the manager at Muscatine and he said he would try to get a transformer from Cedar Rapids and send the crew up. In the meantime I should reconnect the two existing transformers and hope they would last. I asked 'How do you do that?', and he explained over the tele-

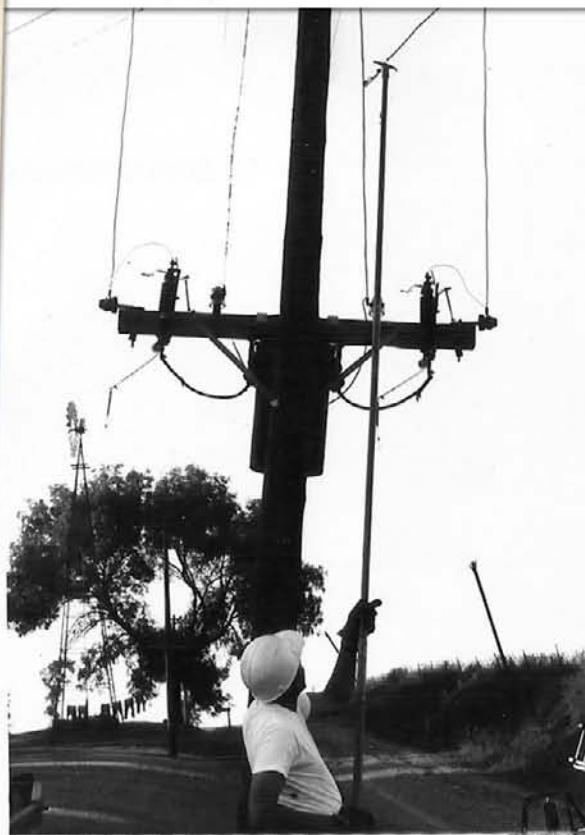
phone. I proceeded to do it, closed the switch, and luckily the lights came on.

Storms were always a challenge. One I remember was in May of 1951. When I went to work on Friday morning it was windy, and by noon we were having approximately 100 mph gusts. The crew from Muscatine was working in the area when the lights went out. The line west of Riverside was down and after several hours we had poles back up and power back on. They were called to go east of West Liberty where poles were blocking Highway 6. In the meantime, I was alone in this area. I propped up poles, switched lines and whatever else possible to keep the line on to Kalona. There was a lot of damage and I didn't see any help until noon Sunday.

In 1950, Herman Smucker's health was failing, so I came back to Farmers Electric. In the 1950's, people were getting oil furnaces and other automatic equipment and continuous service became more important. One January night about 1:00 a.m. with 25 mph wind and 28 below zero, the power went off. The high line was off, so I called Iowa Electric and started out to look for the problem. We found a line broke east of Riverside along the railroad. There were 4 of us so two of us would go up a pole at a time. About ten minutes of work each trip up and after several rounds like this we had the repairs finished and had the power back on.

Snow storms were also a problem. One night I got a call that the line one mile west of awesome corner was out. It was storming so I called Omar Liebig and picked him up to go along. We hurried and got to the switch, put a fuse in, and it stayed on. By then you could hardly see where to go as we started back. We drove with the window open and the spot light shining

continued ...



on the edge of the road beside us. We had to stop often because we couldn't see. It took us over 2 hours to drive 8 miles, and I understand how you can get lost in a storm. Later I found out that 2 men from the REA had trouble and spent the night in their truck.

One Friday night we had three storms go through this area. The first one hit about 10:00 p.m., and the lights went out. I was on my way to Kalona to switch the line to get power from the west. It was windy, but about $\frac{1}{4}$ of a mile south of the cheese factory I was almost blown off the road. I hit the brakes, the wind stopped and immediately began blowing from the opposite direction. Part of Edward F. Miller's barn blew down and was piled around his house and took our line down. It took the rest of the night to get the line back up.

There were a number of ice storms. We spent three days moving the Wahl house from Joetown to Kalona, we also moved the Mellinger house from where Freedom Security Bank is to the Ivan Wagner farm. We got a two-way radio in 1955, which was a tremendous help. We had a boom truck, but it was around 1980 when we got a basket truck, which changed the whole operation.

In the early days I learned much about the community working with Omar Liebig. We collected the bills when we read the meters, so we were in many homes every month. The contact with customers was good, and you learned to deal with many different personalities. A customer couldn't just leave just because he was unhappy with your service, so we had to relate to each other. The beautiful lightning and the beautiful star-lit sky after a storm are memories I shall always remember. These are some of the stories of my 45+ years of working on the electric lines.



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A Culture of **SAFETY**

The electric utility industry presents a unique set of challenges, and specialized skills to meet those challenges. It also presents a wide array of safety issues that all employees must recognize and be trained to address. Farmers Electric maintains a commitment to a culture of safety through diligent leadership by the board of directors and the dedication of employees.

A quick run-through of how safety permeates FEC work:

Daily 'tailgate sessions'

These sessions occur in the morning at the office and out on the job. Discussion centers on the job(s) to be done, assignments, and hazards that may arise. Truck and equipment inspections are to be done before use.

Monthly safety meetings

The previous month's projects and upcoming work are discussed at these company meetings. Each month there is an assigned safety topic, and employees read from the corresponding chapter in FEC's Operating Procedures. These

procedures are adopted from the Iowa Association of Electric Cooperatives, who review and update as needed.

Farmers Electric is also a member of the Southeast Iowa Area Safety And Support Organization (SASSO), a safety cluster affiliated with the Iowa Association of Municipal



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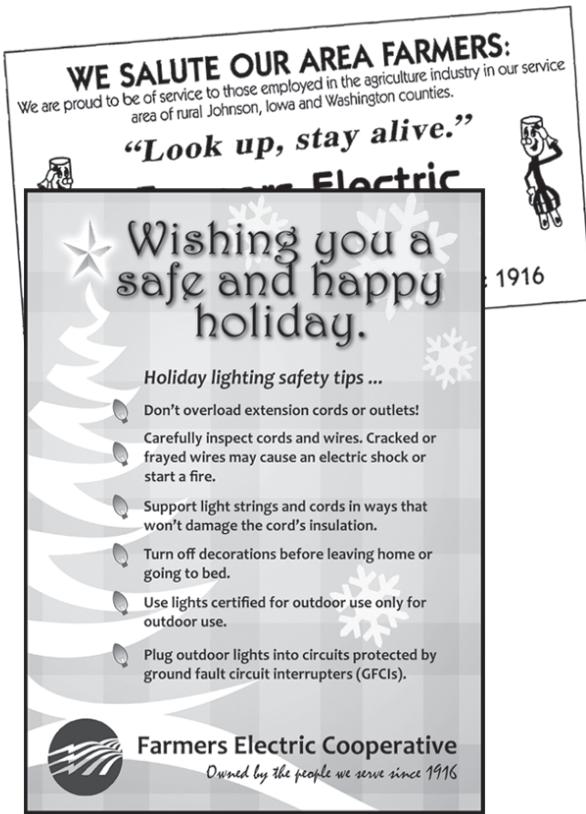
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AND COMMITMENT TO ACCIDENT
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John Divorak

Rural Electric Safety Achievement Program Administrator





Customer safety is important to FEC

Notices are placed in the local newspaper for seasonal holiday safety, One-Call notification and overhead-wire awareness. Office personnel and the FEC website offer information about bin clearance and portable generator safety.

Safety history

Early on in the electrical utility industry, 1 in 4 lineworkers suffered job-related fatalities. Even through the 1920s, Iowa Electric in Cedar Rapids was averaging three fatalities from electrocutions a year. (Source: The Palimpsest, Vol.60, #5, Sept./Oct. 1979). Being a new industry, there was not a set standard of safety guidelines or practices – those standards were created one life, one severe burn, or one accident at a time. Because of the dangers, the National Electric Safety Code was established in 1914 and dealt with worker safety. The code has expanded to include most aspects of the utility industry.

The Occupational Safety and Health Act (OSHA) was signed into law on December 29, 1970 by President Nixon after bi-partisan passage by Congress. In 1970, 14,000 workers were killed on the job per year. By 2010, that number had dropped to 4,500 per year – with employment numbers having doubled in that time. The rate of serious workplace injuries and illnesses also dropped: from 11 per 100 workers in 1972 to 3.5 per 100 workers in 2010. (osha.gov)

On-the-job training was the only option available for decades – and while it remains an integral part of any lineworker's education – a wide variety of training options

Utilities. FEC personnel attend monthly SASSO meetings and annual or bi-annual training including: First Aid/CPR, Hazard Communication, Bloodborne Pathogens, Poletop/Bucket Rescue, Competent Person, Work Zone Safety, Hearing test/Conservation, and other industry-related topics.

Annual inspections

Twenty percent of FEC's territory is inspected annually to ensure the lines and equipment meet quality guidelines. The Iowa Utilities Board then sends out a safety inspector after upgrades are completed and fills out a report of possible violations. FEC personnel then correct all issues and file a corrections report with the IUB.

The insurance company covering FEC comes in once a year to do a walk-through and offers assessments on mitigating possible issues. On top of that, the manager performs periodic crew observations to verify all safety procedures are actually followed in the field. All outside employees and the manager are licensed electricians, requiring 18 hours of training every three years.

have opened up. The International Brotherhood of Electrical Workers, larger utilities and municipals, state cooperative and municipal organizations all offer apprenticeship programs and continuing education and training for utility personnel. More technical trade schools also continue to add powerline programs to their offerings.

Unfortunately, in the early years Farmers Light & Power and Farmers Electric had its share of misfortune. Few safety standards existed for employees, and the general public did not understand the dangers that ran overhead. Also, most early construction used

25-foot poles with #8 single-strand copper wire, which did not offer much clearance or strength in snow and ice events. All of this contributed to accidents:

- In May of 1918, a fifteen-year-old boy was helping his father move a house in the Kalona area when he went to raise a primary wire over

Walter Swartzendruber Meets Tragic Death

Walter C. Swartzendruber was killed almost instantly Wednesday morning about 10 o'clock while working on a high line about eight miles north of Kalona.

He and Charles Strickler were removing a transformer from a pole of the electric line when the fatal accident occurred. Walter was at the cross arm on the pole and Charlie was working on the ground. After the happening, Charlie brought him to the ground and immediately phoned to Iowa City for the inhalator which was brought to the scene by the Fire Chief. Artificial respiration was administered, but Walter passed away shortly having never gained consciousness.

Walter was very prominent in and around Kalona. He was a member of the Kalona Fire Department and belonged to other organizations, always taking an active part in their work.

He has lived in Kalona several years and has been working for the Farmers Light and Power Co. besides doing electric work for other companies in and around Kalona. He was connected with Charley Strickler in the General Electric line of merchandise and assisted Charley in much of his service work.

Service was the word with Walter. When anything was wrong on the line he was right on the job correcting the trouble. He will be greatly missed in this community as a friend, neighbor and co-worker.

September 24, 1953

Mr. George Charlesworth
Iowa State Commerce Commission
East 12th and Court Avenue
Des Moines, Iowa

Dear Mr. Charlesworth:

It has just come to our attention that on August 25, 1953, at the intersection of a Township road running South in Section 3, Township 77, North, Range 8, West, and the County line road between Johnson and Washington Counties, said location being approximately three and one-half miles northwest of Kalona, Iowa, Mr. Herbert Swan of Wayland, Iowa was injured when he came in contact with our 6600 volt line which crosses the road at that point.

According to the information reaching us Mr. Liechty of Wayland, Iowa, was driving a truck from the west to the east and when he approached the above intersection a telephone line appeared to be too low and Mr. Swan went on top of the truck to lift the line over the truck. He about completed this operation when he raised up and contacted the 6600 volt line. The shock knocked him from the truck onto the ground where he sustained a concussion and was in the hospital at the University of Iowa for a couple of weeks. We do not know the full extent of his injuries except that he is now out of the hospital and appears to be making a good recovery.

If there is any further information you desire concerning this accident please get in touch with us.

Yours very truly,

Farmers Electric Co-op

Injured In Fall As Safety Belt Gives Away

Herman Smucker was painfully injured last Saturday afternoon when he fell 20 feet to the ground from a high line pole at the Sol Ropp farm home west of the Snake Hollow school house. Mr. Smucker, who is lineman for the Farmer's Cooperative Electric Co. was working on the new line being built to the Ropp home.

Before starting to work after he had climbed the pole, he fastened his safety belt in the usual manner, but evidently the snap was not fastened securely for then he leaned back to start to work, the belt failed to hold, letting him fall to the ground.

Mr. Smucker, who had no fractured bones, is recovering from back injuries satisfactorily at his home.

the chimney and was killed from electrical contact. The boy's father, J.W. McGinnis, brought suit against Farmers Light & Power seeking damages of \$25,000. A \$2000 verdict was eventually rendered.

- Walter Swartzendruber was a twelve-year veteran lineman for Farmers Light & Power in 1932 when he went on an outage. After climbing the pole and in the process of changing out the transformer - believing he was done with his high-

voltage gloves - took them off and came in contact with the primary wire, succumbing to his injuries shortly thereafter.

- Another incident involved Herman Smucker, line superintendent who worked for Farmers Electric from 1936 to 1952. The incident (article, previous page) accentuates workplace hazards.
- And as illustrated by the letter on previous page, sometimes the power company did not find out about line contact until weeks later.

I CAN'T BELIEVE WHAT SOMEONE WILL DO ...

This is what I found one day while out on the line. A connection had burned up in the fuse box at the meter so the customer had repaired it by connecting the wires with a vice grip ... leaving a hot vice grip exposed for a person or animal to touch and get electrocuted.

-- Wally Fisher



Safety awards

In more recent times, Farmers Electric has been acknowledged for its safe work practices. In 1980 Manager Wally Fisher was presented with a safety award by Iowa Electric in honor of 25 years of continuous service without an accident. For each calendar year there is no lost time suffered from workplace injuries or accidents, FEC receives a 'No Lost Time' certificate from its Federated Rural Electric Insurance Exchange.

Receives 25 year Safety Award

Wallace Fisher, manager of Farmer's Electric Cooperative, was presented with a 25-year safety award by Iowa Electric Light and Power Co. in honor of 25 years of continuous service without an accident. He has served as manager of Farmers Electric Cooperative and has done service work for Iowa Electric for the past thirty-three years.

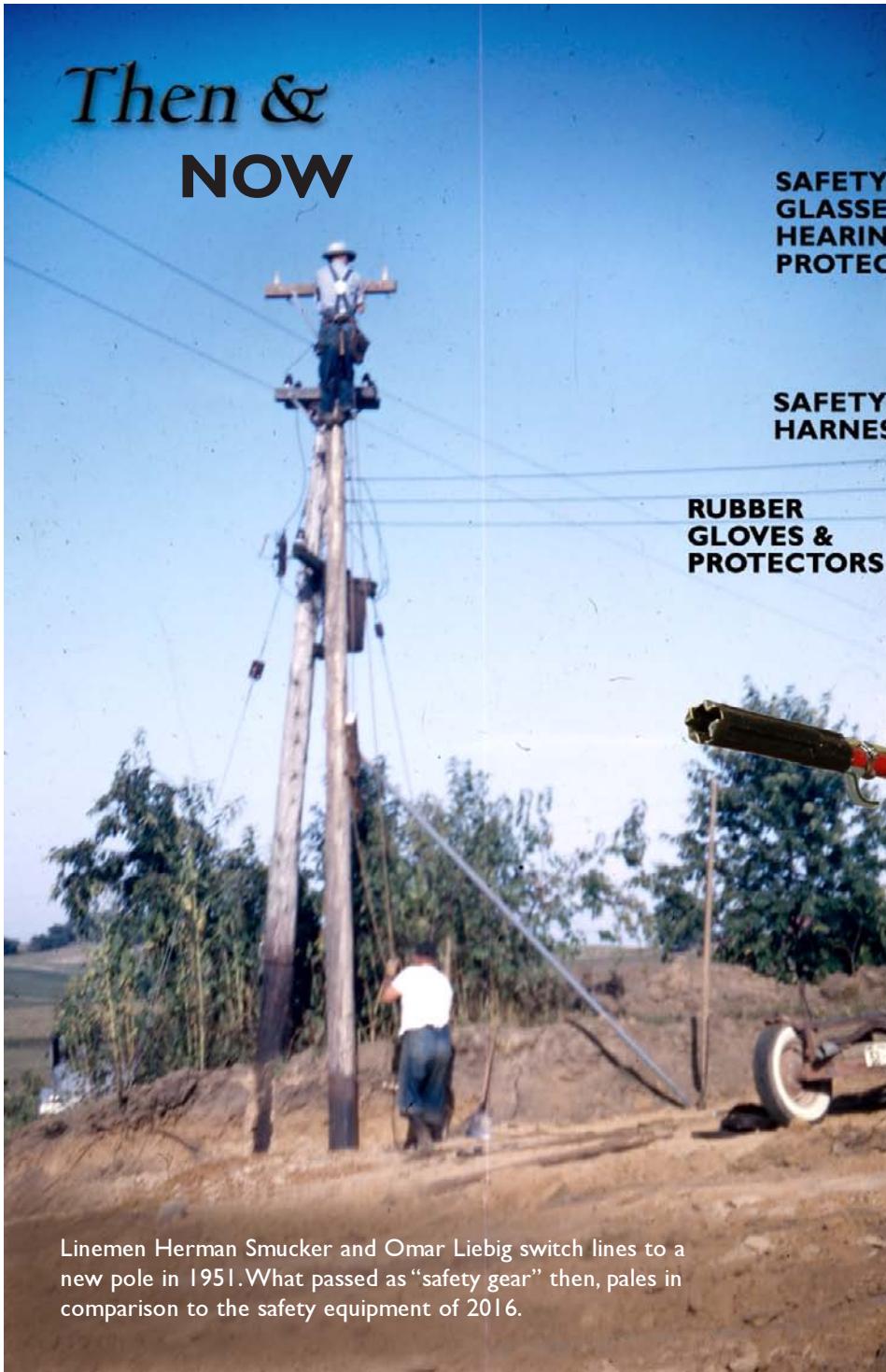
Mike Yoder, lineman at Farmers Electric Cooperative, Inc., Kalona, received a safety award in recognition of the cooperative's three years of operation without a lost time accident. Glenn Long, executive vice-president of the Iowa Association of Electric Cooperatives, Des Moines, presented the "No Lost Time" awards during the association's spring meeting. The Farmers Electric Cooperative serves 580 customers with 105 miles of line in Johnson, Washington and Iowa counties.



Jim Miller of the Farmers Electric Cooperative accepts the award given to the Cooperative for its winning safety record. Cooperative employees were recognized for working seven years without a disabling accident. The Frytown based firm is one of 26 honored statewide in a ceremony in Des Moines sponsored by the Iowa Association of Electric Cooperatives (IAEC). The local company had more than 59000 hours worked by employees without a loss-time accident.

Kalona News articles:
Fisher - June 1980
Miller - April 1992
Yoder - May 1988

Then & NOW



Linemen Herman Smucker and Omar Liebig switch lines to a new pole in 1951. What passed as "safety gear" then, pales in comparison to the safety equipment of 2016.





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Our RENEWABLE ENERGY *Story*

As a rural electric cooperative, we strive to live by the seven cooperative principles. The most important at our cooperative is the last, which reads: “concern for community – while focusing on member needs, cooperatives work for the sustainable development of their communities through policies accepted by their members.” This principle defines why we are shifting a part of our cooperative’s focus toward site-based renewable energy.

A major factor shaping our efforts in Iowa is, like many places across the nation, the difficulty of getting new coal or nuclear plants permitted, much less built. Energy generation capacity needs are projected to increase 30 percent over the next 20 years. The options for holding member kilowatt-per-hour costs down favors more locally generated renewable energy.

A factor in our cooperative deciding to promote renewable energy through incentive rate structures is to allow our membership to take advantage of federal and state tax credits. We also decided to meter each installation separately, a move that enables us to set the rate we pay these renewable energy generators now and into the future.

Our members are very receptive to both funding and installing site-based renewable energy. These projects create local jobs, enlarge the tax base, and increase the economic multiplier – which is the number of times each dollar is re-spent in our local community. We will refine our rates and continue down our renewable growth path.

Farmers Electric Cooperative has become a nationally-recognized solar energy leader. One of the smallest utilities in the nation, FEC was the subject of a case study by the Solar Electric Power Association (SEPA) in October of 2015. The case study is reprinted on pages 29-32.

FEC renewable energy stats:

- 2.5 KW of local solar per customer/member.
- 20% + of our customer/members own solar locally.
- 11% of our kwhrs per year are generated with local solar.
- 5% of kwhrs per year are from wind purchased through Iowa wind renewable energy credits.
- 10% customer/member participation in our Green Power Project (NREL top 10).
- 75% of the time solar produces energy during our peak demand, helping to keep rates low.

FEC Solar Initiatives

Solar Schools Program

Farmers Electric received a grant from the Washington County Riverboat Foundation to support the installation of a 1.8 KW solar tracker at Washington Township, an elementary school in the Mid-Prairie district. As part of this grant, the University Of Northern Iowa's Center For Energy And Environmental Education (CEEE) worked with school staff on classroom curriculum integration.

At Iowa Mennonite School, FEC worked with teacher Dick Yoder-Short to install a 1.8 KW solar tracker. The following year Mr. Yoder-Short, with help from his class and parents, designed and constructed a 50 KW solar field at the school.

Community Solar Garden

There are over 100 different owners of this 50+ KW community solar garden. Members of FEC are offered the opportunity to own up to 10 solar modules in this garden located on cooperative property. These modules are installed and maintained by the cooperative and the energy produced is credited back to the customer on their monthly bill.

Member Site-Based Solar

30 customer sites across FEC's three-county territory feed power into the FEC grid under a feed-in tariff designed to help these installations pay off in less than 10 years. An estimated 500 KW of solar capacity is sold to FEC monthly.

Solar Farm - Eagle Point 2 Sunstation

This 800 KW solar farm covers 4.5 acres and was completed in 2014 by Eagle Point Solar. At time of completion, it was the largest solar installation in Iowa. FEC purchases the power produced under a 10-year power purchase agreement (PPA) with Eagle Point. After 10 years, the cooperative will purchase the remaining assets and obtain ownership.

A 900 KW installation north of the existing arrays will be added in late 2016.

Off-Grid Solar

Farmers Electric contracted with area phone companies that needed power to roughly 25 point-of-use systems after they upgraded to fiber optic lines. These installations serve phone sites for the area Amish community. FEC has also designed and installed a couple of small lighting projects.



IMS students helped construct the school's solar field.



McKenna explains the Solar Garden to a tour group.



FEC's first site-based solar at the Ken Bender residence.



Off-grid solar at an Amish phone booth.



Site-based solar at Keith Troyer farm.



TV news interview at Solar Farm grand opening.

Nationally recognized

- In 2011, the National Renewable Energy Laboratory (NREL) released their Utility Green Power Leaders list for 2010. They had various categories, and for 'Customer Participation Rate' FEC was 3rd in the country with a rate of 11.2% behind Palo Alto and Portland.
- In 2015 the NREL rankings had Farmers Electric 4th in the country in 2014 for 'Customer Participation Rate' at 10.46% behind Portland, Sacramento, and Wellesley, MA.
- In 2015 the Solar Electric Power Association (SEPA) released rankings for the year 2014 from over 1,000 utilities in the country for solar installed and cumulatively. Farmers Electric ranked 2nd nationally with 1,158 watts-per-customer installed in 2014 and 1,653 cumulative-watts-per-customer.
- In 2015 SEPA also named Farmers Electric Cooperative General Manager Warren McKenna as their Utility CEO of the Year for 2014.

The Des Moines

Iowa's largest solar farm

By DONNELLE ELLER | The Des Moi



modules. I don't know how many m homes, businesses, and pig and cattl

Farmers Electric's new farm adds 2 powered energy. Eagle Point Solar will buy the power and take posses

The farm will generate up to 1.1 m about 120 homes.

Josh Mandelbaum, an attorney at I said the farm is a good example, a solar can be a good investment for

The Gazette

Iowa's biggest solar farm opens in Kalona

By ORLAN LOVE | Cedar Rapids G



Leighton Yoder of Kalona and his son of a solar module Thursday during th

KALONA — The opening of the s growth in Iowa, state renewable.

"This takes us to a new level," sa state legislators attending a ribbo array of 2,900 solar panels capab each year.

"Just six years ago Iowa's larges Hogg, a leader in the effort to pr

The Kalona News

Grand opening for Iowa's largest solar farm

JULY 30, 2014

The grand opening of Iowa's largest solar farm will be at 10 a.m. Thursday, July 31, with a number of national and international figures attending.

With the completion of this project, Farmers Electric Cooperative - one of the oldest cooperatives in the nation - is poised to be the country's leading utility in the amount of solar energy produced per capita, at more than 1,800 watts per customer. The project will also help the utility reach its goal of securing 15 percent of its energy from renewable sources by 2025.

The ceremony will take place at the solar array at 1956 520th St., rural Kalona.

Iowa Deputy Secretary of Agriculture Michael Naig, retired Air Force General Ronald E. Keys and Manager of the World Bank's Global Agriculture Practice Mark Cackler will join Farmers Electric Cooperative and Eagle Point Solar for the grand opening. The project, which boasts 2,900 solar panels on approximately four acres, is almost triple the size of the state's second largest solar farm in Decorah.

Also at the event will be Warren McKenna, general manager/CEO of Farmers Electric Cooperative; Barry Shear, president of Eagle Point Solar, the project's developer; Tim Dwight, president of Iowa Solar Energy Trade Association; and Ernie Shea, project coordinator of 25x25 Alliance.

With its new solar array, the 650-member Farmers Electric Cooperative can generate up to 1800 watts of solar power per customer, giving it the highest per capita solar generation rate of any utility in the country.

SEPA Honors Warren McKenna as Utility CEO of the Year

Farmers Electric Cooperative Brings Solar to Rural Customers with Feed-In Tariffs, Community Solar and Iowa's Largest Privately Funded Solar Project

Las Vegas, Oct. 21, 2014 – The Solar Electric Power Association (SEPA), an educational nonprofit organization focused on helping utilities integrate solar electric power into their energy portfolios, today named Warren McKenna, general manager of Farmers Electric Cooperative of Kalona, Iowa, as its Utility CEO of the Year. The award was announced during SEPA's Utility Awards Luncheon at Solar Power International in Las Vegas.

Founded in 2005, SEPA's Utility Awards recognize organizations and individuals advancing utility innovation, industry collaboration and leadership in the solar energy sector. Last year, SEPA honored Kaua'i Island Utility Cooperative's David Bissell as Utility CEO of the year.

McKenna earned the 2014 award as a result of his leadership in making one of the smallest utilities in the United States – Farmers has about 650 members -- a national model for a hands-on, keep-it-simple approach to financing and building solar energy projects. The co-op helped a Mennonite high school install a 51-kilowatt (kW) solar system, with students and their families pitching in on the construction. Farmers also launched a local feed-in-tariff to support member-owned installations at farms and homes and built out a community solar garden that always has a waiting list. Farmers also recently powered up its first solar project that is privately financed through a PPA set up so that after 10 years the cooperative will own the 800-kW plant -- currently the largest in Iowa. As a founding member of the Iowa Solar Energy Trade Association, McKenna also has become a statewide voice for solar.

"Warren McKenna is proof that industry-leading innovation can come to life at the smallest of utilities," says Julia Hamm, president and CEO of the Solar Electric Power Association. "Warren has provided his co-op members with the opportunity to invest in local solar in ways that build a supply of clean power for the benefit of the entire utility. He also sets a great example of how utilities and solar providers can work together in win-win business partnerships."

**Dale Yoder-Short
319-683-2547**

dyodersh@gmail.com



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Farm Supply Inc.
Sharon Center, Iowa**

Steve Haman

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Produced as a publication resource under the Solar Outreach Partnership (SolarOPs), this case study is the first in a four-part series aimed at documenting how nonprofit utilities—both municipal and cooperative power providers—have overcome the financial challenges to solar deployment. These case studies will spotlight success stories of small utilities effectively and creatively leveraging local opportunities for solar financing and stakeholder engagement.

Solar Success for Nonprofit Utilities

FARMERS ELECTRIC COOPERATIVE: A SMALL RURAL COOPERATIVE BECOMES A SOLAR LEADER

YEAR ESTABLISHED: 1916
NUMBER OF MEMBERS: 650
MILES OF LINE: OVER 110

Located in the southeast corner of Iowa and in the heart of one of the largest Amish and Mennonite communities west of the Mississippi River, the Farmers Electric Cooperative has a hands-on, keep-it-simple approach to financing and building solar energy projects. The 650-member cooperative in the town of Kalona has established a varied and mostly self-financed portfolio of solar and clean energy programs since 2008.

It is also a national leader in installed solar watts per customer, with a cumulative solar capacity of more than 1,800 watts per co-op member.

Farmers' solar success can be attributed to the wide array of options for going solar offered to its members. Co-op members installing solar on their homes or farms can receive a feed-in-tariff for self-generation or opt for an up-front rebate based on the size of their systems. Those not wanting or unable to install a system can instead buy power from solar panels they own as part of a community solar "garden" that has grown from an original 13.8 kilowatts (kW) to 40 kW and is continuously oversubscribed.

Members can also help expand Farmers' use of renewable energy through the co-op's Green Power Program, paying an extra \$3 fee on their monthly bills. The co-op has set a target of reducing its use of fossil fuels 25 percent by 2025, and the money from the Green Power Program is used to buy biodiesel fuel for Farmers' back-up generators and offset some of the costs of its solar programs.

Most recently, Farmers powered up its first project privately financed through a power purchase agreement (PPA) with a local solar installer. As part of this deal, the cooperative will own the 800-kW solar farm—currently the largest in the state—after ten years.

The co-op has even won over some of the area's Amish and Mennonite farmers, who do not have electricity or telephones in their homes but often install solar-powered phone booths or individual modules on their farms so they can conduct business. About 25 local phone booths are now powered with individual solar panels, each with battery storage, which the co-op has installed as part of an off-grid program.



FARMER'S SOLAR GARDEN

Keeping panel purchases and installation in-house has allowed Farmers to set relatively low buy-in costs for the solar garden project. Members pay \$375 for their first panel and \$475 for any additional panels up to a maximum of 10.



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SOLAR INSTALLATION AT
WASHINGTON TOWNSHIP
ELEMENTARY SCHOOL

To get community buy-in, Farmers tested out its first small installations, 1.8 kilowatts each, at two area schools, a public elementary school and Kalona's private Mennonite high school, which has since installed its own 50-kW system.

"The phone company pays us," said Warren McKenna, the cooperative's general manager, noting that off-grid solar is a fast-growing segment—and could be yet another business opportunity—for small utilities in rural markets.

How this rural co-operative has become a national model, McKenna said, is by keeping things small, gradual and local—and by framing its solar programs as a matter of smart, sensible economics, with a payoff in both bottom-line cost savings and customer retention.

Through its membership in a larger, regional buying group, the Resale Power Group of Iowa, Farmers is tied into buying 50 percent of its power from fossil fuel sources, most of which is coal. This reliance on coal and other outside energy sources represents "over \$1 million a year, getting sucked out of the community for power," McKenna said.

After his first visit to a small, nearby solar installation in 2008, McKenna quickly saw solar as an energy source that would transform the landscape for power companies as the cell phone had for telecommunications. He also understood that for small co-ops such as Farmers, developing a range of solar options for their members would be a matter of survival.

"The technology is coming," he said. "You're either going to embrace it, or a third party is going to come in and serve that load and you're going to lose that load."

McKenna's first step was to develop in-house and local expertise. He and an area school teacher, who is also an electrician, completed a Midwest Renewable Energy Association training course to learn the basics of site assessment and other solar essentials.

To get community buy-in, Farmers tested out its first small installations, 1.8 kilowatts each, at two area schools, a public elementary school and Kalona's private Mennonite high school, which has since installed its own 50-kW system.

To keep costs low, the co-op purchased the panels itself and used its own staff, most of whom are state-licensed electricians, for the installation. According to McKenna, these cost-saving measures have become standard practice for Farmers' community solar garden.

"Don't gold-plate it," McKenna said, when asked his advice for other co-ops. "You're going out for the most expensive option. When you can, do it yourself with your own labor force."

"The technology is coming.
You're either going to
embrace it, or a third party
is going to come in"

Keith Troyer, a turkey and hog farmer who has been a member of the co-op's volunteer board since 1997, recalled some members' initial skepticism about solar. Farmers also looked into developing a wind project, he said, but found it came with even higher costs and greater risks for significant technical pitfalls.

"I like wind, but I know something with moving parts will take repairs," he said. "I always felt good about solar, but it was expensive. [McKenna] told us there would be a long-term return and we needed to get started in green energy. I think everyone felt pretty positive to try a small unit like we did."



DISTRIBUTED SOLAR AT BUSINESSES

"Members installing solar on their properties can choose to receive a feed-in-tariff for self-generation or upfront rebate on the system."

Farmers established its feed-in tariff, one of the first in the nation, in 2009, along with a solar rebate program. Members installing residential or farm solar can chose one of the two incentives.

The up-front rebates—valued at 50 cents per watt—are available up to a maximum incentive of \$2,500.

Co-op members choosing the feed-in tariff get two electric meters, one to measure monthly energy consumption and the other to track monthly solar output. They are then billed a flat rate of 12.5 cents per kilowatt hour (kWh) for all the power they use, which is offset by a credit for their solar production, based on a sliding scale of compensation.

For solar production up to 100 percent of a member's monthly consumption, the credit is figured at the cooperative's retail rate, 12.5 cents per kWh. Above 100 percent, the member is paid a rate of 6 cents per kWh.

Consumption and generation are netted on a monthly basis. At the end of each year, members who have generated more power than they use receive a dollar credit which rarely runs more than \$10-\$20.

Contracts for the feed-in tariff are for 10 years after which the incentive rate will likely float between 8 cents and 10 cents per kWh. That figure takes into account the installed costs of solar in the area—which continue to fall—plus state and federal tax credits, McKenna said.

"A feed-in tariff doesn't have to be higher than the current retail credit," he said. "It's designed to pay back the installation. We want to pull in the tax credit for our members that own the cooperative and hopefully pay them back within five to seven years."

Troyer installed a 20-kW ground-mounted system on his 400-acre farm in 2013 and has seen his electric bills drop by more than a third, he said. With the feed-in tariff and tax credits, he expects to recoup his investment in five to six years.

As part of the feed-in tariff agreement, Farmers gets the renewable energy credits (RECs) from the members' solar installations, which the co-op is banking, as Iowa currently has no market demand for solar RECs.

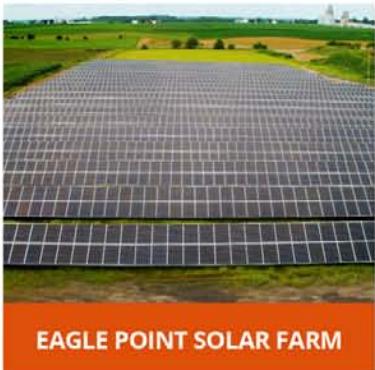
FROM SOLAR GARDEN TO EAGLE POINT SOLAR FARM

Farmers launched its first solar garden in 2012 with an initial offering of 20 panels that sold out in two days, McKenna said. With strong community support, the first phase of the garden topped out at 13.8 kW. The project continues to grow with periodic expansions—and it always has a waiting list.

Keeping panel purchases and installation in-house has allowed Farmers to set relatively low buy-in costs for the project. Members pay \$375 for their first panel and \$475 for any additional panels up to a maximum of 10. They then receive an offset on their bill for the power produced by their share of the project. Two panels are reserved for low-income members who receive a credit on their bills for the power, with no up-front buy-in.

Now 40 kW in size, the garden covers about one-half acre at the co-op, McKenna said. Farmers plans to add about 10 kW a year, until the plot is completely covered.

"A feed-in tariff doesn't have to be higher than the current retail credit," he said. "It's designed to pay back the installation. We want to pull in the tax credit for our members that own the cooperative and hopefully pay them back within five to seven years."



EAGLE POINT SOLAR FARM

At 800 kW, Farmers' new Eagle Point 2 solar farm is now the largest in the state. The co-op flipped the switch on the project July 30 with a public ceremony that generated local, state and national media coverage.

THIS STUDY WAS FUNDED BY



solar electric power association

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The combined result of the solar garden and Farmers' rooftop solar incentives gives the co-op "over 10 percent of our kilowatt hours from solar, with 20 percent of our membership owning that solar," McKenna said.

"The genius of it all is in the fact that there has been no up-front investment by the cooperative itself, so no debt incurred and no capital investment on our part," he said.

Farmers' new 800-kW solar farm, Eagle Point, is currently the largest in the state. The co-op flipped the switch on the project July 30th with a public ceremony that generated local, state and national media coverage.

The PPA for this project is another first for Farmers, with developer Eagle Point Solar owning the system and receiving the associated tax credits and other solar incentives for 10 years, after which the co-op will be able to buy the project.

Eagle Point owner Barry Shear declined to share exact details on the deal, but said it is not technically structured as a "flip," under which the assignment of a project's tax benefits to investors and reversion of ownership to the utility is handled through a separate, for-profit entity. The per-kilowatt hour rate is between wholesale and retail, he said.

The project also comes in the wake of an Iowa Supreme Court decision that will allow for more projects with privately funded PPAs across the state. A separate PPA Eagle Point had with the city of Dubuque had been challenged by local utility Alliant Energy, who argued that PPAs violate its regulated monopoly rights to generate power.

The Iowa Utility Board, in a March 2012 ruling, sided with Alliant, but both a state district court and the Iowa Supreme Court ruled for Eagle Point.

Shear sees PPAs as the way to go for co-ops and municipal utilities that want to add solar projects to their portfolios with a minimum of financial risk or initial outlay.

Having completed his first PPAs with Farmers and Dubuque, he expects to see increasing demand.

"The capital sources are crawling out of the woodwork right now. The underwriting risk of these deals, of doing the PPA, it's really minimal. Solar data is well known, and the arrays produce the energy we represent they will."

And with thousands of municipal buildings in Iowa, he said, "I don't see there being a saturation point."

The Solar OPS program can offer technical assistance to small cooperatives and municipal utilities interested in exploring options for developing their own solar programs. For information, contact Daisy Chung, research analyst at the Solar Electric Power Association, at dchung@solarelectricpower.org.

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Then & NOW



Renewable power in the early 20th century was generated by windmills like this relic near Rebuh Feeders' hog facility, rural Wellman. 21st-century renewable power is generated by roof-mounted solar arrays on the facility.



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A Culture of SERVICE

At the heart of any rural electric cooperative is a commitment to serve its community. RECs were founded for the purpose of enhancing rural life by bringing modernity to the countryside. Employees of the cooperatives continue that sense of service by volunteerism. All Farmers Electric employees have been active in their communities as booster members at schools, coaching youth sports, being members of area civic organizations, or being involved in their churches.

Until recent years when permanent wiring was installed, Farmers Electric employees assisted in setting up temporary lighting and outlets for the Iowa Mennonite Relief Sale held annually since 1980 at the Johnson County Fairgrounds. The Iowa sale is one of many held across the United States and Canada that raise funds to

Kalona News articles,
clockwise from lower left:
November 2012, November 2002,
August 1997, June 1994



Mary Ziellinski

The portable unit is used by the rural coop for special jobs, such as doing all the wiring for the annual Kalona Fall Festival on the Kalona Historical Village grounds the last weekend in September. This year the Festival falls on September 26 and 27.



When it came to putting up Christmas decorations November 21, Kalona obtained some help from the Farmers Rural Electric Cooperative at Frytown. The Co-op furnished a truck and an employee Tim Heisdorffer, left, to help city workers Kevin Lammer and Kenny Kempf, on sidewalk. The only thing that did not cooperate was the weather. The Farmers Cooperative also lent its truck and an employee to the Kalona Historical Village for its decorating a week earlier.



Tim Heisdorffer of Iowa Farmers Electric Coop installs Christmas lighting on the depot.



Lois Schneider of Wellman helps out with the work at Camp Courageous a part of the REC effort June 9-10. She represented the Farmers Electric Cooperative, based in Frytown.

support the worldwide relief program of the Mennonite Central Committee. The same wiring would be set up at the annual Kalona Fall Festival held at the Kalona Historical Village.

The beginning of every holiday season meant using the bucket truck to put up Christmas decorations in the area communities of Kalona, Wellman, Sharon Center, and Frytown, as well as setting up lights in the historical village.

Custom work

For many years, Farmers Electric would help its bottom line by renting out the bucket or boom trucks with a man to swing trusses for hog buildings or homes, digging holes for various projects, or trimming trees. These activities have been scaled back in recent years due to wear and tear on the trucks.

Many poles that have been retired have been retained to be resold to the public. Assistance has been given to Mid-Prairie and Iowa Mennonite schools over the years as they upgraded lighting, poles, and scoreboards at their facilities.

Other custom work has included installing underground primary to a wind generator for another utility, splicing and making up junctions for the Iowa City water department, and helping with upgrades at



Kalona News, August 2001. Photo shows Farmers Electric moving the city's fire/storm warning siren and pole.

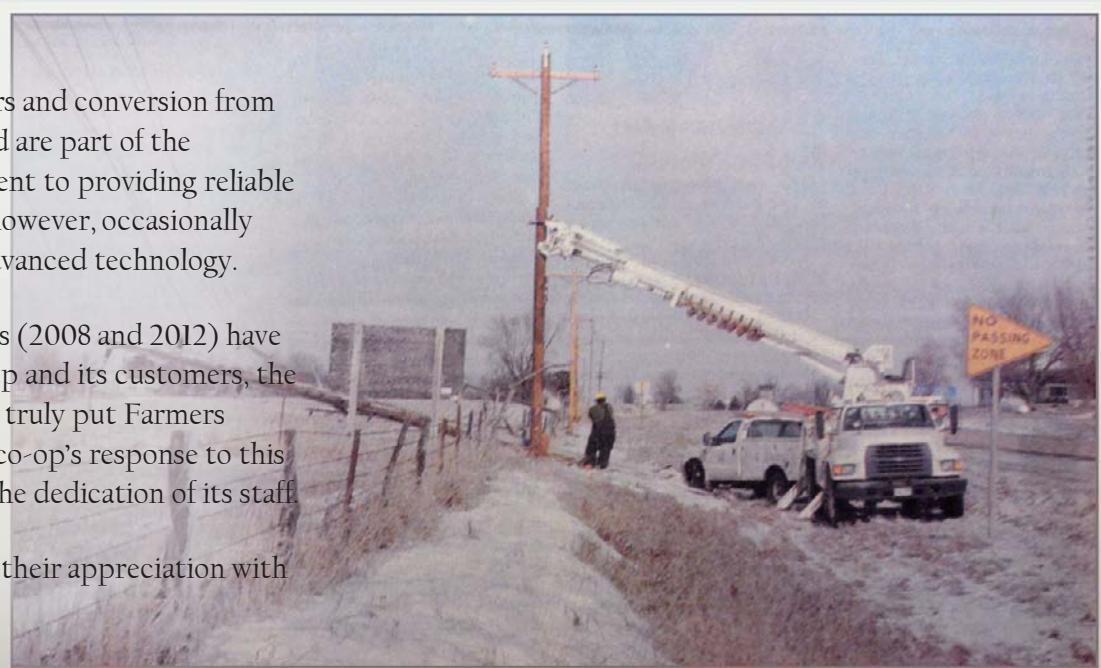
the Iowa Ammunition Plant in Middletown. As many Iowa communities upgraded their emergency sirens, Farmers Electric also traveled around assisting with installations.

Storms

FEC's back-up generators and conversion from overhead to underground are part of the cooperative's commitment to providing reliable power. Mother Nature, however, occasionally trumps even the most advanced technology.

While recent windstorms (2008 and 2012) have challenged both the co-op and its customers, the February 2007 ice storm truly put Farmers Electric to the test. The co-op's response to this epic storm exemplified the dedication of its staff.

Co-op members showed their appreciation with notes of gratitude.



Crews with Farmers Electric Cooperative of Frytown work on power lines along Highway 1 about a mile north of Kalona on Monday, Feb. 26. More than a thousand miles of lines and hundreds of poles needed replacing after a severe winter storm over the weekend cut power throughout the state.

Some of the many thank you notes received at Farmers Electric after the February 2007 ice storm ...

3-8-07

Dear Warren, & all employees,
This is a small token
of my appreciation for all of
you and your hard work last
week in efforts to restore
power, despite miserable
weather conditions. You
did a great job and went
far beyond your normal
call of duty. I just want
you to know how much
I respect you and your
great staff. Thank you!

Sincerely,
Ethel Boutteau

There is no way
I can express my
thanks to all of you.
I have always felt
our electric company
has to be the best!
friendly great service!
Bonnie Bell

Farmers Electric,

How can we thank
you all enough for what
you do! Whenever the
weather is the worst
you are all working so
hard to supply us with
the electricity we count on!

We are very happy
our electric company is
Farmers Electric!!!
The Nye Family

We've all been comparing notes about
our power companies this past week,
and I've made a lot of friends and
family jealous by describing my
service from Farmers Electric.
Thanks for having a real, live,
friendly person at the other end of
the phone no matter the hour (6:45
a.m. Sunday and 7 p.m. Thursday,
in my case), and for keeping the
power on--almost without
interruption--throughout the whole
icy week. You're great.

February 26, 2007

Warren and Staff.

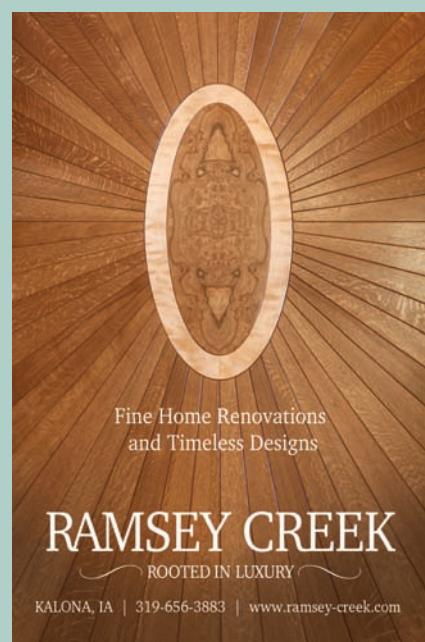
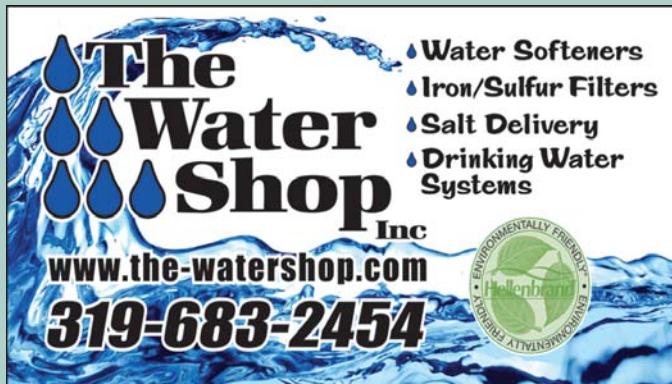
Roger and I wanted to thank you for getting our electricity back on after last weekend's storm. We appreciate everyone getting out in such awful conditions to make sure we had electricity. You never know how much you depend on Fairmeis electric until the lights go out. It was great that your phone was always answered by someone who was pleasant and professional - with some of the other electric companies, that always isn't the case. Fairmeis electric does a great job! Thank you.

Roger and Daley Stutesman

From: "Benedict, Paul"
To: <sales@feckalona.com>
Sent: Monday, February 26, 2007 8:25 AM
Subject: Power Outage

I have been a customer for over 20 years. I would like to commend your crews for their work this weekend. When my power went out Saturday, I fully expected it to be down for a very long time, but your crews had it up and running in about 3 hours, working in what had to be very bad conditions. Many of my co-workers who get their power from the "big" companies (Alliant, etc) are still w/o power. Once again, thanks for a job well done.

Paul Benedict
Frytown



Then & NOW



1980s



2016

Tri-star
Basketball
Softball
Baseball



Scholarships
School Projects
Essay contest

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Dedication to MEMBER OWNERS



DeKalb Feeds



Kalona Creamery (former Cheese Factory)



Farmers Creamery



Steve's Feeds

Once farms began receiving service, businesses began sprouting up in rural areas now that electricity wasn't contained to just towns or cities. Yoder Feeds started out in a barn west of Frytown mixing feed on the floor with a shovel in 1934. In 1942, they moved to Frytown in a barn that was moved in by disassembling and re-assembling board-by-board. The first 3-phase line built by FEC was from Kalona to Frytown to serve Yoder's growing energy demand. The facility burned in 1953, and the feed mill and grain center as seen today were built in 1969 and 1970. The metal bins were added later. Straight-line winds blew the bins down in August 2012; they were quickly rebuilt. Today, the feed mill is operated by DeKalb, and the grain center by Consumer's Cooperative.



DeKalb bins: August 2012 windstorm, and after being rebuilt.

In 1946, area farmers banded together to form the Twin County Dairy Association, which built a cheese factory that started off with four employees in a 30' x 86' building, collecting approximately 18,000 pounds of milk a day to manufacture Swiss cheese. The association later sold the business to the cheesemaker they hired, John Roethlin Sr. and his sons; ultimately the



FRYTOWN PLANT

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business was owned by John Roetlin, Jr. After numerous expansions over the years, the company employed over 50 people and produced 200,000 pounds of white cheddar using nearly 2,000,000 pounds of milk each day. The business included a popular retail store for cheese curds and other products. At one point, Kraft Foods was purchasing 60 million pounds of white cheddar each year. The facility was purchased in 2015 by Open Gates Group and following extensive renovations will be a creamery showcasing organic products.

In 2004 Farmers All-Natural Creamery renovated a building and began making a whole product line of organic products. Now one of the companies under the umbrella of the Open Gates Group, Farmers Creamery started out with six workers and has expanded to employ 42 people processing 22,500 gallons of milk per day.



The lone building remaining from Yoder Feeds' Country Lane Egg facility one mile south of Frytown is now occupied by

Farmers Hen House. Purchased in 2000 by Mark Miller and now managed and co-owned by son Ryan Miller, it maintains its own organic, cage-free egg-laying facility in conjunction with cleaning, grading, and packaging eggs from area farmers surrounding Kalona and Bloomfield.



Pro Grower Solutions



FAA VORTAC facility



Johnson Co. Secondary Roads



Sharon Telephone Co. warehouse
(former FEC headqtrs.)

 A collage of logos for various local businesses. From left to right: AWESOME LOGISTICS LLC (with a stylized 'A'), FARMERS CREAMERY (with a sunburst logo), FRYTOWN (with a logo of three circles), Open Gates (with a graphic of windows), KALONA FARMS (with a logo of a tractor), KALONA ORGANICS (with a green leaf logo), PROVISION INGREDIENTS (with a blue oval logo), and KALONA CREAMERY CORNER (with a small logo).

A family of entrepreneurial companies based in Kalona, Iowa.

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Iowa Mennonite School



Washington Township School



Pathway Christian School



West Union Mennonite Church

Schools have played a big part in Farmers Electric's success. Iowa Mennonite High School, a private school for grades 9-12, held their first classes in 1945 in a house that was moved for their use across from Lower Deer Creek Church. Bricklaying for a larger structure began in 1948. The gym and another addition were added in 1953-1954. The chapel was added in 1982. In 2005, a 600-seat auditorium was built, which included a geothermal system, and more geothermal was added in the gym in 2015.



IMS Auditorium

In 1963, the all-electric Washington Township School was built, one of the earliest all-electric schools in the state. It joined the Mid-Prairie School District in 1966, and includes grades K-5. Pathway Christian School, a private K-12 school, was founded in 1979 and expanded in 1995 with a cafeteria and gymnasium.

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Beginning in the late 1990s into the early 2000s, all of the larger churches in FEC's area underwent extensive renovations. Upper Deer Creek went so far as to start over with an entirely new building. Sharon Center United Methodist, Lower Deer Creek, Fairview, East Union, and West Union all had major additions.

Public services also dot the countryside. Johnson County Secondary Roads Department has two outposts on our line. Buckeye Pipeline has a small monitoring station, Wellman Telephone has a remote, AT&T has two installations, and Sharon Telephone Company, while headquartered in Hills, has a warehouse in Frytown along with other services on the line. In 1947, the Civil Aeronautics Administration – later renamed the Federal Aviation Administration – located a very high frequency omnirange radio tactical air navigation (VORTAC) facility north of Riverside. This facility is one of over 1200 in the United States. They provide safe navigation and separation in flight for civil and military aircraft.



East Union Mennonite Church



Lower Deer Creek Mennonite Church



Sharon Center United Methodist Church



Fairview Mennonite Church



Upper Deer Creek Mennonite Church

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Frytown Trailers



Joetown Garage

Being a rural electric cooperative, and by our very name, the agricultural industry is the basis of our existence. But despite being the smallest electric cooperative in the state -- with approximately 650 members and around 120 miles of distribution line -- we provide services for three unincorporated villages (Frytown, Joetown, and Sharon Center) and a wide array of various businesses ...

If you purchase a plot of land to build a home, Dickel Construction will be glad to dig the foundation. Zook Builders or Ramsey Creek could build it with assistance from Oakland Cabinet Concepts. The Window Barn, The Water Shop, Miller Electric, and Graber Heating & Air can equip the home. You can meet all your yard work equipment needs at Mower's Plus, and when you have to haul the mower to get serviced, Frytown Trailers has a great selection. When you outgrow the garage, Martin's Mini Barns has various options to choose from. You can purchase a vehicle at Turnkey Auto and have it serviced at Hochstedler Service or

Joetown Garage.
If your vehicle gets dinged, Sharon Center Body Shop and



Ramsey Creek Woodworks

Sharon Center Welding are there to help. When your vehicle's seats or home furniture get worn, Kalona Upholstery can make it like new. And when you get tired of your belongings, you can sell them at Yoder Auction Service.

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Turnkey Auto



Yoder Auction Service

The Ron and Darlene Gingerich farm east of Sharon Center is indicative of upgrades in which many farmers have invested. The cooperative's high voltage primary underground wire comes into the padmount transformer (green box, right), then underground low voltage secondary wires go to each meter – one for the house, the other for outbuildings. Because continuity of service is so important in maintaining the lives of livestock in today's confinement operations, a generator is added for emergency back-up.

Once rural areas got electricity to the home, the expansion of farm operations in general, and milk parlors in particular, aided in the growth of Farmers Electric. A barn (right) on the Monroe and Dean Miller farm south of Sharon Center is an example of how rural electric cooperatives had an explosion of growth following World War II.

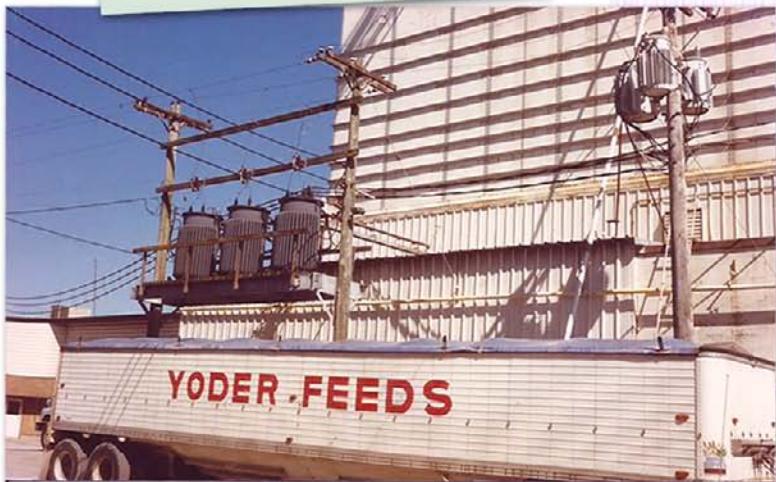
Built in 1948, the barn houses the second milk parlor established in Johnson county. The bulk milk storage tank was the 13th installed in the Midwest in 1951. A pipeline installed in 1952 ran milk from the parlor to the milk house. At its peak, over 70 cows were run through the milk parlor per day. For the hay mow floor, steel-reinforced hollow block was laid covered by 2 inches of concrete. The concrete was moved from ground level to the haymow by wheelbarrows manned by 2 men on a 40-foot ramp. The hay mow door on the north side is split in two pieces, opened by lifting a counterweight inside, and each half sliding to the side and down.



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| Phone 319 679 2211 Fax 319 679 2200 | |

Then & Now



Two overhead 3-phase transformer banks at Yoder Feeds have been replaced by one 3-phase padmount transformer at DeKalb. This set-up reduces outages and congestion, and increases safety.



Left: Jim Miller and Mike Yoder - 1980s
Right: Jim Miller and Matt Zimmerman - 2016

SHARON CENTER WELDING

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Reg Yoder ... owner

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SEVEN COOPERATIVE PRINCIPLES

Cooperatives around the world operate according to a core set of principles. These principles, along with the cooperative purpose of improving quality of life for their members, make electric cooperatives different from other electric utilities. (www.nreca.coop)

VOLUNTARY AND OPEN MEMBERSHIP

Cooperatives are voluntary organizations open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political or religious discrimination.

1

DEMOCRATIC MEMBER CONTROL

Cooperatives are democratic organizations controlled by their members, who actively participate in setting policies and making decisions. The elected representatives are accountable to the membership. In primary cooperatives, members have equal voting rights (one member, one vote) and cooperatives at other levels are organized in a democratic manner.

2

MEMBERS' ECONOMIC PARTICIPATION

Members contribute equitably to, and democratically control, the capital of their cooperative. At least part of that capital is usually the common property of the cooperative. Members usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following purposes: developing the cooperative, possibly by setting up reserves, part of which at least would be indivisible; benefitting members in proportion to their transactions with the cooperative; and supporting other activities approved by the membership.

3

AUTONOMY AND INDEPENDENCE

Cooperatives are autonomous, self-help organizations controlled by their members. If they enter into agreements with other organizations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their cooperative autonomy.

4

EDUCATION, TRAINING AND INFORMATION

Cooperatives provide education and training for their members, elected representatives, managers, and employees so that they can contribute effectively to the development of their cooperatives. They inform the general public, particularly young people and opinion leaders, about the nature and benefits of cooperation.

5

COOPERATION AMONG COOPERATIVES

Cooperatives serve their members most effectively and strengthen the cooperative movement by working together through local, national, regional and international structures.

6

CONCERN FOR COMMUNITY

While focusing on member needs, cooperatives work for the sustainable development of their communities through policies accepted by their members.

7

Farmers Electric Cooperative

BOARD OF DIRECTORS

1916 - 2016

| DIRECTOR | ELECTED | RETIRED | YEARS OF SERVICE |
|----------------------|---------|---------|------------------|
| C.C. Swartzendruber | 1916 | 1929 | 13 |
| C.C. Yoder | 1916 | 1919 | 3 |
| D.B. Swartendruber | 1916 | 1918 | 2 |
| L.J. Miller | 1916 | 1918 | 2 |
| Joe C. Brenneman | 1916 | 1918 | 2 |
| Wm. F. Gingerich | 1918 | 1935 | 17 |
| Joseph Halter | 1918 | 1929 | 11 |
| L.L. Stutzman | 1918 | 1927 | 9 |
| W.D. Berkey | 1919 | 1927 | 8 |
| Erlis Swartzendruber | 1927 | 1934 | 7 |
| W.H. Miller | 1927 | 1928 | 1 |
| Omar Yoder | 1928 | 1971 | 43 |
| Ivan Maas | 1929 | 1973 | 44 |
| U.A. Miller | 1934 | 1939 | 4 |
| Earl Erb | 1935 | 1946 | 11 |
| Frank Gingerich | 1935 | 1944 | 9 |
| Morley Palmer | 1939 | 1948 | 9 |
| Dale Liebig | 1944 | 1946 | 2 |
| Frank Gingerich | 1946 | 1950 | 4 |
| Ray Hochstetler | 1946 | 1947 | 1 |
| Truman Erb | 1947 | 1973 | 26 |
| Lester Yoder | 1948 | 1977 | 29 |
| Vernon Bontrager | 1950 | 1976 | 26 |
| Paul Stutzman | 1971 | 1978 | 7 |
| Omar Troyer | 1973 | 1974 | 1 |
| Wallace Brenneman | 1973 | 1999 | 26 |
| Tom Bailey | 1974 | 1976 | 2 |
| Monroe Miller | 1976 | 1997 | 21 |
| Jim Gingerich | 1976 | 1986 | 10 |
| Paul W. Miller | 1977 | 1995 | 18 |
| Leroy Stutzman | 1978 | 1981 | 3 |
| Fred Miller | 1981 | 1987 | 6 |
| Phil Winborn | 1986 | 1997 | 11 |
| Dale Rhodes | 1987 | 2002 | 15 |
| Doug Slaubaugh | 1995 | - | 21 |
| Keith Troyer | 1997 | - | 19 |
| Dean Miller | 1997 | - | 19 |
| John Mast | 1999 | - | 17 |
| Steve Haman | 2002 | - | 14 |

BOARD OF DIRECTORS

2016



**John Mast, Doug Slaubaugh, Warren McKenna,
Dean Miller, Steve Haman, Keith Troyer**

EMPLOYEES

2016



**Jim Miller, Matt Zimmerman, Warren McKenna,
Tim Heisdorffer, Andrea Bell, Lois Schneider**

100 YEARS OF FEC EMPLOYEES

Will Gingerich

Joe Halter

Chris Swartzendruber

Walter Swartzendruber

Howard Gingerich

Ed Hershberger

Branson Batterson

Herman Smucker

Ivan Swartzendruber

Omar Liebig

Glen Burkholder

Wally Fisher

Marvin Miller

Eileen Spicher

Gene Bontrager

Randy Miller

Jim Miller

Mike Yoder

Pat Hansen

Dan Fisher

Lois Schneider

Matt Zimmerman

Warren McKenna

Brooks Bailey

Tim Heisdorffer

Judy Smith

Andrea Bell



