THE FUTURE OF RESILIENCE

2021 ANNUAL REPORT

SHO-ME POWER ELECTRIC COOPERATIVE

CONTENTS

2021 ANNUAL REPORT

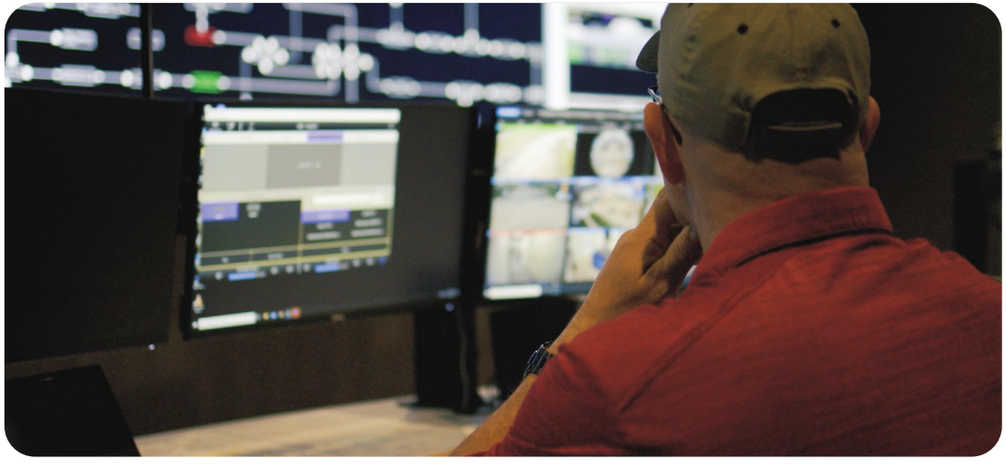
SAFE
The first of three pillars that Sho-Me's Mission Statement is founded on is providing safe electric power to the members we serve.

RELIABLE
Sho-Me is dedicated to implementing programs and building systems that continually improve efficiency and reliably deliver power to our members, now and into the future.

LOW COST
Sho-Me continues to provide our members with the lowest costs possible through careful planning, proper execution and wise management.

"Those who look only to the past or the present are certain to miss the future."

John F. Kennedy



WELCOME | ANNUAL REPORT

Welcome to our 2021 Annual Report, and thank you for taking the time to read about Sho-Me, what we have accomplished over the past 12 months, and what is ahead for us in the years to come.

The Future of Resilience is all about looking at ways to improve the delivery of safe, reliable, low cost power to our members today and tomorrow by shaping our methods in a way that will have long term benefits.

The future of Sho-Me Power is bright due to the hard work we are doing now which will have lasting benefits in all aspects of how we serve you, our members.

SHO-ME POWER | WHO WE ARE

Structure

The Missouri Cooperative Structure consists of four levels: Generation, Transmission, Distribution and the ultimate consumer, or member. The Generation Cooperative creates the power, the Transmission Cooperative delivers the power to a distribution substation, and the Distribution Cooperative then provides the power to the member-owner for final use.

The rural residents of Missouri came together in the 1930's to form local distribution cooperatives. Transmission cooperatives like Sho-Me Power were formed by their distribution cooperative owners in the 1940's to connect to various power sources. In the 1960's the transmission cooperatives banded together to create a generation cooperative, Associated Electric Cooperative, Inc. (AECI).

Organization

The predecessors of Sho-Me Power Electric Cooperative were Sho-Me Power Cooperative, formed in 1941 as an agriculture cooperative, followed by Sho-Me Power Corporation, incorporated in 1947 as a public utility. This corporate entity, fully regulated by the Missouri Public Service Commission (MoPSC), provided wholesale electric service to its nine-member distribution cooperatives as well as retail electric service to many communities until 1984, when the remaining facilities serving retail consumers were sold to four rural electric cooperatives (REC). In 1992 the Missouri Secretary of State allowed Sho-Me Power to be converted pursuant to the provisions of the Rural Electric Cooperative Act, Chapter 394, specifically §394.070 of the Revised Statutes of Missouri, 1989, as amended, and since February 27, 1992, the name has been Sho-Me Power Electric Cooperative. In September 1993 the MoPSC released Sho-Me Power from its rate regulation, leaving it free to be regulated by its nine REC member-owners.

80 Years Strong

The history of Sho-Me Power began on August 7th, 1941 when 24 leaders from electric cooperatives across Missouri came together to discuss the idea of a Generation and Transmission type electric cooperative to supply their co-ops with reliable, low cost power.

From Sho-Me's first board meeting, held just three months later, the leaders of Sho-Me have not only been looking into the future, but have had the vision to create their future by providing the resources to improve the lives of the rural electric members they serve.

"The best way to predict the future is to create it."

Abraham Lincoln

Transmission

Sho-Me Power provides service to 158 delivery points served by 156 distribution and transmission substations through 1,044 miles of 69 kV, 10 miles of 138 kV, and 419 miles of 161 kV electrical transmission line. Additionally, Sho-Me operates and maintains 139 miles of 161 kV transmission line owned by Central Electric Cooperative, headquartered in Jefferson City, Missouri, and approximately 228 miles of 345 kV line and three 345/161 kV substations with a combined capacity of 1,440,000 kVA owned by AECI, headquartered in Springfield, Missouri.

Power Supply

The Little Niangua hydroelectric project, completed in 1930, continues to provide Sho-Me Power with 3 mW of river-run power, but today that accounts for less than 1% of its energy requirements. The balance of Sho-Me's power needs are provided through an all-requirements contract with AECI that extends through May, 2050.

Sho-Me Technologies

Sho-Me Technologies, L.L.C. is a subsidiary of Sho-Me Power Electric Cooperative which was formed in 1997 to operate an advanced optical network providing state of the art communications services to the rural electric members and beyond.

Today, Sho-Me Technologies' optical network covers most of Missouri, crossing major rivers and spanning the region both in the air and underground. What began as an upgrade to the extensive internal communications network has now grown to encompass over 8,000 miles of fiber optic connectivity. With 138 communities served, Sho-Me Technologies boasts the highest coverage of optical bandwidth to rural Missouri.

Sho-Me Power is an equal opportunity provider and employer.

CRAWFORD ELECTRIC COOPERATIVE, INC.

Crawford Electric Cooperative, Inc. is located in Bourbon, MO and has been bringing their members reliable and safe power since 1940. Crawford has 20,700 connected meters with 3,000 miles of energized line in six counties.

Crawford is governed by a board comprised of nine Directors. Their President, Jim Cottrell, sits on the Sho-Me Power board and serves as the Chairman of the Telecommunications Committee. Tony Mallory is the CEO/General Manager at Crawford and serves on the Finance and Audit Committee at Sho-Me.

GASCOSAGE ELECTRIC COOPERATIVE

Gascosage Electric Cooperative started in September 1945 and calls Dixon, MO home. With over 9,900 meters served by 1,600 miles of line, Gascosage reaches the five counties of Camden, Maries, Miller, Phelps, and Pulaski. Gascosage launched a fiber-to-the-home project in 2020, bringing Internet service to 285 members with plans to expand their fiber optic network to all members in the future.

The Gascosage Electric Board of Directors is made up of nine members. Carmen Hartwell is the General Manager of Gascosage and the President of the Sho-Me Power Board of Directors. Carmen also serves on the Human Resource and Policy Committee.

HOWELL-OREGON ELECTRIC COOPERATIVE, INC.

Formed in 1939 and headquartered in West Plains, Howell-Oregon Electric Cooperative provides reliable distribution of cost-efficient electricity to 25,000 meters with 4,900 miles of energized line across the six counties of Douglas, Ozark, Texas, Shannon, Howell, and Oregon.

Howell-Oregon is led by a board of 12 Directors from across their system. Their CEO and General Manager is Dan Singletary. Dan also serves as a Director on the Sho-Me board and is the Chairman of the Finance and Audit Committee.

INTERCOUNTY ELECTRIC COOPERATIVE ASSOCIATION

Doug Lane
CEO

James White
Director, Intercounty
Director, Sho-Me Power

In 1936, Intercounty Electric Cooperative was formed and incorporated with headquarters in Licking, MO. Today, Intercounty operates in parts of 10 counties serving over 30,000 meters and energizing over 5,600 miles of line. Along with their Licking office, they operate district offices in Rolla and Mountain Grove.

Nine Directors form the board at Intercounty, with Director Jim White serving on the Sho-Me Power board. Jim sits on the Human Resource and Policy Committee at Sho-Me as well. Doug Lane is the CEO at Intercounty and serves on the Telecommunications Committee.

LACLEDE ELECTRIC COOPERATIVE

Marc Roecker
CEO/General Manager
Secretary/Treasurer, Sho-Me Power

Laclede Electric Cooperative provides power to more than 38,000 meters in Camden, Dallas, Laclede, Pulaski, Webster, & Wright counties. Based in Lebanon, Laclede began in 1938 and today has over 4,700 miles of energized line and four offices.

The Board of Directors at Laclede Electric is made up of nine members. Marc Roecker is the CEO and General Manager and serves on the Sho-Me Power board. Marc is currently the Secretary of the Board and serves as the Chairman of the Human Resource and Policy Committee.

SE-MA-NO ELECTRIC COOPERATIVE

Dan Sisco
General Manager

John Campbell
Board President, Se-Ma-No
Vice President, Sho-Me Power

Se-Ma-No Electric Cooperative was founded in 1945 by the rural residents along U.S. Route 60 stretching between the towns of Seymour, Mansfield, and Norwood, thus the concept of their name. Today, Se-Ma-No serves over 6,300 meters along 1,200 miles of energized lines in Wright, Douglas, Webster, & Texas counties and is located in a new headquarters in Mansfield.

Se-Ma-No Electric is governed by a board of nine with the President of their board, John Campbell, also serving as Vice President of the Sho-Me Board. John is also the Chairman of the Engineering and Operations committee at Sho-Me. The General Manager of Se-Ma-No is Dan Sisco. Dan also serves on the Engineering and Operations Committee.

SOUTHWEST ELECTRIC COOPERATIVE

James Ashworth
CEO/General Manager

Jack Bybee
Director, Southwest
Director, Sho-Me Power

Southwest Electric Cooperative was founded in 1939 and is headquartered in Bolivar. Southwest serves over 42,000 meters with 5,600 miles of energized line and operates out of four offices across their system.

The Board of Directors at Southwest is made up of nine Directors. Director Jack Bybee serves on the Sho-Me Power board and is also a member of the Human Resource & Policy Committee. James Ashworth is the CEO & General Manager at Southwest and serves on the Telecommunications Committee.

WEBSTER ELECTRIC COOPERATIVE

Tom Houston
General Manager
Director, Sho-Me Power

Just over 75 years ago, a group of citizens came together to form Webster Electric Cooperative located in Marshfield. Today there are over 21,000 meters served and 2,200 miles of energized line make up the system reaching parts of Webster, Greene, Christian, Dallas, Wright, Douglas, and Laclede counties.

The Board of Directors at Webster Electric has nine members. Tom Houston is the General Manager of Webster and serves as a Director on the Sho-Me Power board. Tom also serves on the Engineering & Operations Committee.

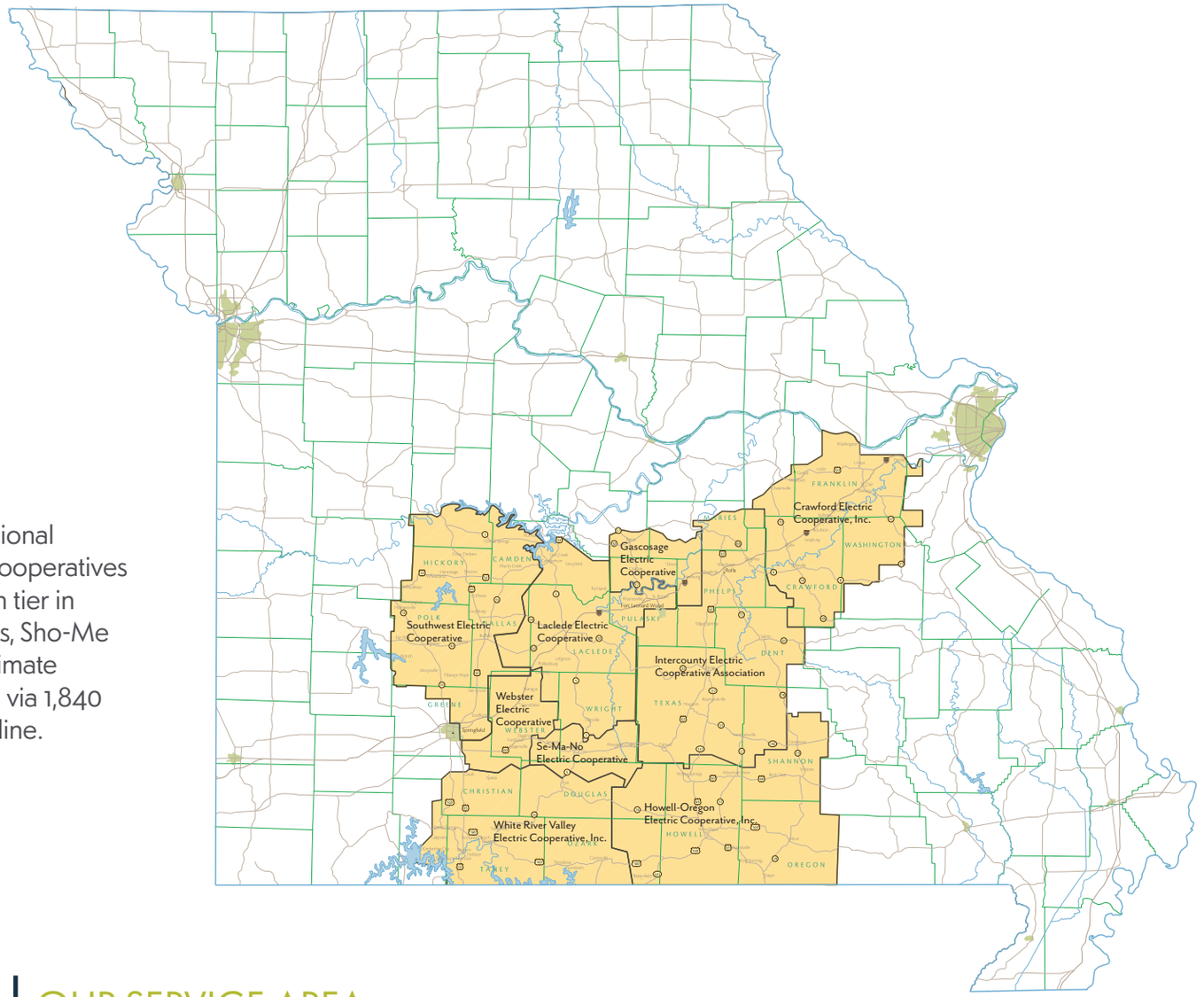
WHITE RIVER VALLEY ELECTRIC COOPERATIVE, INC.

Chris Hamon
CEO
Director, Sho-Me Power

White River Valley Electric Cooperative energized their first line in 1939, bringing 505 members electricity for the first time. Today, White River provides power to over 45, 000 meters via 5,300 miles of line. With headquarters in Branson, White River has grown to include district offices in Ava, Gainesville, Ozark, and Reeds Spring.

White River is directed by a board of nine members from across the system. Chris Hamon is the CEO and serves as a Director on the board at Sho-Me Power. Chris also is a member of the Finance and Audit Committee.

Sho-Me Power is one of six regional Generation and Transmission cooperatives which make up the transmission tier in Missouri. Serving nine members, Sho-Me provides power for 170,300 ultimate meters from 158 delivery points via 1,840 miles of energized tranmission line.



SHO-ME POWER | OUR SERVICE AREA

John Richards
Chief Executive Officer
& General Manager

"Seek wisdom, not just knowledge.
Knowledge is of the past,
wisdom is of the future."

American Indian Proverb

INTRODUCING OUR MANAGEMENT TEAM

While our team has a wide range of experience levels, their competency and ability to work together is second to none.

Cindy Keeler
Executive Assistant

Chris Bolick
Chief Operating Officer

Peter Dawson
Chief Compliance Officer

Rebecca Gunn
Human Resource Director

Micah Johnson
Chief Information Officer

Kari Harles
Chief Telecommunications Officer

Tim Lewis
Member Service &
Corporate Communications
Director

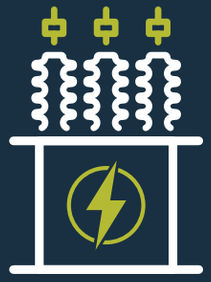
Denise Stevens
Chief Financial Officer

Sho-Me Power
Electric Cooperative
A Touchstone Energy® Cooperative

169 EMPLOYEES
ACROSS SIX LOCATIONS

9
MEMBER COOPERATIVES

$411 MILLION
TOTAL ASSETS



156
SUBSTATIONS

170,000
ULTIMATE METERS SERVED

26
COUNTIES

500,000
POPULATION SERVED

BY THE NUMBERS

3 BILLION
KILOWATT-HOURS SOLD

$6.7 MILLION
CAPITAL CREDIT RETIREMENTS TO MEMBER-OWNERS

1840 MILES
TRANSMISSION LINE OPERATED

$179 MILLION
OPERATING REVENUES

$7.9 MILLION
NET MARGIN

5.145¢
PER KILOWATT-HOUR TO MEMBER-OWNERS

John Richards
Chief Executive Officer
& General Manager

Carmen Hartwell
President, Board of Directors

LETTER TO THE MEMBERS

August 7th, 1941. It was a hot summer day in Missouri. Skies were partly cloudy with the wind light and variable. Corn was tall and rows of soybeans were a deep green. A haze hung over the Ozark mountains and cotton blooms had just started opening in the boot heel. This was the scenery as 24 electric cooperative leaders traveled across the state to converge at a predetermined location. Their destination? The first skyscraper to be erected between St. Louis and Kansas City — a 10-story building in Columbia named the Tiger Hotel. This venue not only provided a central location, but also a meeting room with much welcomed air conditioning. Their purpose? To discuss the forming of a Generation and Transmission, or G&T, cooperative.

From the time the REA was formed in 1936, the cooperatives of Missouri were busy building facilities to serve their members. By 1941, a new challenge had surfaced: the need for a low cost and reliable source of electrical energy, or what these leaders referred to as "firm power". Electric co-op members were quickly growing accustomed to the benefits of electrification, had moved past a simple electric light, and were now dependent on a reliable electrical system. This led the electric cooperatives of Missouri to come together, just as the founders of these cooperatives had done only five years earlier, to take rural electric service to the next level and build a *Future of Resilience.*

80 years later, the original vision of Sho-Me Power being the state-wide wholesale power provider for rural electric cooperatives has changed, but the mission of safe, reliable, and low-cost power remains. Today, Sho-Me serves the transmission power needs of nine electric cooperative members covering 26 counties and serving over 170,000 meters in south central Missouri. Together with five other sister G&T's, we help form the middle tier of the Three-Tiered System, serving over 1 million ultimate meters across three states. These three tiers (including generation, transmission and distribution) are all owned by the members they serve and still guarantee what the original 24 leaders set out to accomplish in 1941— a firm source of reliable, cost-stable electric power.

As we review 2021, the year brought challenges including price increases and significant product delays due to continued impacts of the COVID-19 Pandemic. Nonetheless, Sho-Me Power's focus continued to be ensuring its transmission system will provide reliable service for decades to come with continued maintenance and system build outs. Even with the challenges of 2021 and the continued focus on reliability, electric rates to Sho-Me's members remain among the nation's lowest. A relentless effort to use efficiencies in operations, finance projects with low borrowing rates, and implement cost saving strategies continues to lend to these low energy rates.

During 2021, our telecommunication subsidiary, Sho-Me Technologies, continued to build out its fiber optic network, upgrade optical network equipment, and attract new customers. Total annual 2021 revenues were the highest ever recorded since Sho-Me Technologies' inception in 1997. Sho-Me Technologies' success and expansion helps to ensure rural communities in Missouri will be connected to technological needs far into the future.

Looking toward the future, Sho-Me employees from every department have recently put into place several programs strategically aimed at addressing every angle to improve overall system resilience. Many of these programs will be highlighted in this annual report and our annual video. From the delivery of power (including transmission and substation operation) to the security of the system and its employees, from project management to cyber-security, from fiber optic communications to financial administration, and even to the education of the future generation of members, all facets of how we do things at Sho-Me have been touched by these efforts.

Not only is the Management and Staff of Sho-Me focused on how their efforts will benefit the member, Sho-Me's Board of Directors actively represents members by being involved in both decisions and approvals of improvement and maintenance programs. These resilience-enhancing concepts are developed at the department level but are executed through the action of our board, including informed discussion around the board table.

Thank you for the leadership provided by the Board of Directors, the influence and direction of Sho-Me Power's management, and the dedication and vision exhibited by our employees. From the board room to the bucket truck, Sho-Me's mission of serving the member and improving their quality of life continues to drive the cooperative as we head into *The Future of Resilience.*

Carmen Hartwell
President, Board of Directors

John Richards
Chief Executive Officer
& General Manager

45.18%
Consolidated
Equity Ratio

Electric Revenue in 2021 totaled $176.9 million and was very close to the budgeted amount of $178.7 million. All-time high peak demands in February 2021 resulted in higher than anticipated energy sales for the year. These peak demands in February 2021 also increased Purchased Power costs. Another contributing factor to the increase in Sho-Me Power's 2021 bottom line was lower than anticipated Transmission Operations & Maintenance expenses.

Telecommunications Revenue in 2021 was a little more than one-million dollars over budget at $37.4 million compared to the budget of $36.2 million. Increases in End User Revenue and Internet Revenue were the main drivers of the increase. While revenues were up, so too were Operating Expenses as more General and Administrative labor hours were charged to Sho-Me Technologies than anticipated in 2021, as well as more than anticipated expenses related to Professional Services.

2021 ended with consolidated Net Margins of $7.9 million. The 2021 Net Margins were higher than the budgeted Net Margins of $6.9 million. Higher Net Margins were primarily due to lower Transmission Operations & Maintenance costs than anticipated and higher than anticipated End-User and Internet revenues.

At the end of 2021, total assets on a consolidated basis were $480.5 million and the consolidated equity ratio was solid at 45.18%. Approximately $18.8 million of plant additions were capitalized on the consolidated books of Sho-Me Power and Sho-Me Technologies during the year. During 4th Quarter 2021, Sho-Me Power strategically prepared a request to the Rural Utilities Service (RUS) asking that an additional $9.7 million be drawn against the current AA8 loan. These funds were requested and received prior to anticipated interest rate hikes. Borrowing these funds at a lower interest rate will help Sho-Me in future years as debt repayment takes place.

Overall, 2021 was another financially successful year for Sho-Me Power and Sho-Me Technologies as the companies continue to focus on providing safe, reliable, low cost power and communications services to the members they serve. As a result, at year-end 2021, Sho-Me Power is pleased to report that the financial performance met Sho-Me's indenture requirements.

$176.9 MILLION ELECTRIC REVENUE

$37.4 MILLION TECH REVENUE

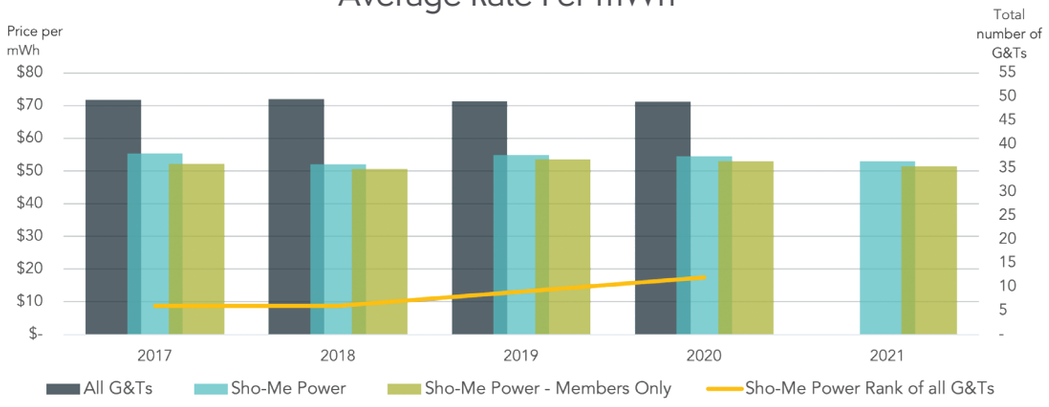
$7.9 MILLION NET MARGIN

$480.5 MILLION TOTAL ASSETS

$18.8 MILLION PLANT ADDITIONS

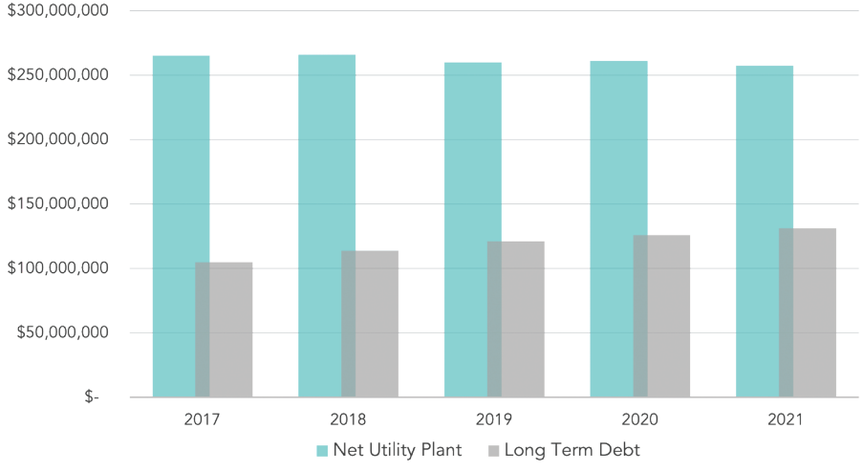
Sho-Me Power's rates to Members are nearly 25% below the national G&T average.

Average Rate Per mWh

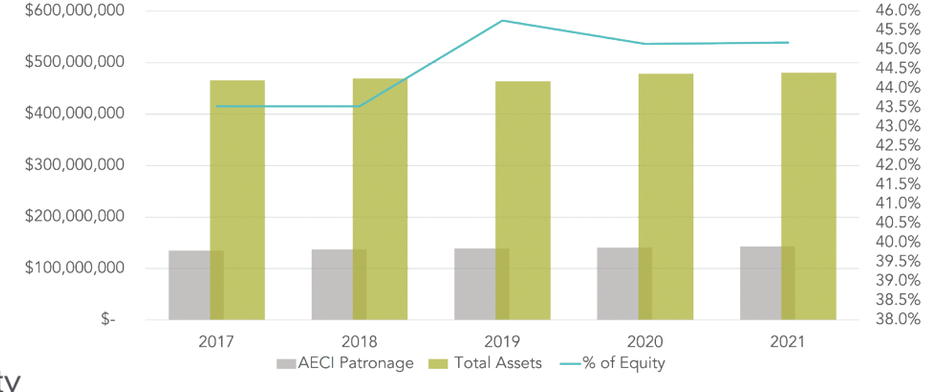


Information provided by G&T Accounting and Finance Association
**2021 G&T information not yet available*

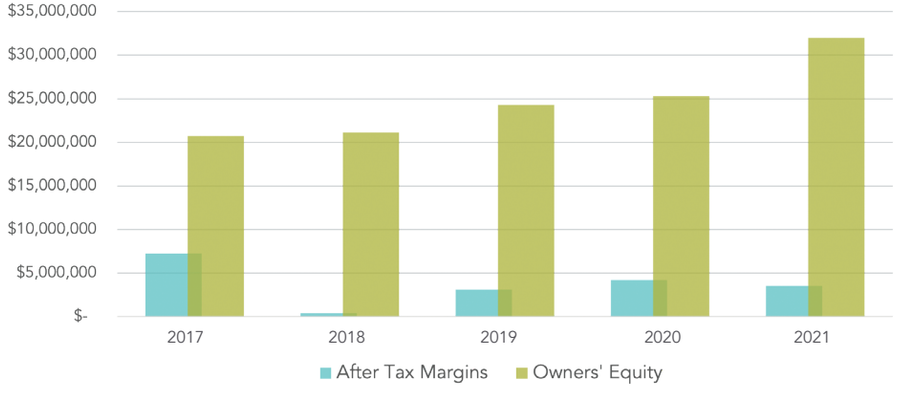
Net Utility & Long Term Debt



REC Member Equity



Sho-Me Technologies Annual Margins & Total Equity



Sho-Me Technologies' 2021 revenues were the highest ever recorded since its inception in 1997.

FIVE YEAR COMPARISON

CONSOLIDATED SUMMARY OF OPERATIONS	2017	2018	2019	2020	2021
Operating Revenue:					
Electric Revenue	$ 176,868	$ 190,613	$ 185,134	$ 171,836	$ 176,952
Telecom Revenue	33,627	34,564	35,135	36,119	37,355
Total Operating Revenue	210,495	225,177	220,269	207,955	214,307
Operating Expenses:					
Purchased Power, Net of Pooling Credits	143,751	157,128	145,772	137,734	143,657
Other Operating Expenses	66,011	73,350	72,868	72,158	74,481
Total Operating Expenses	209,762	230,478	218,640	209,892	218,138
Operating Margins	733	(5,301)	1,629	(1,937)	(3,831)
Non-Operating Margins	2,025	2,095	2,080	1,348	1,119
Margins Before G&T Capital Credits	2,758	(3,206)	3,709	(589)	(2,712)
G&T Capital Credits	7,531	8,871	8,337	8,560	8,591
Margins Before Income Taxes	10,289	5,665	12,046	7,971	5,879
Income Tax Expense	(5,567)	179	(1,808)	(2,529)	(2,001)
Net Margins	$ 15,856	$ 5,486	$ 13,854	$ 10,500	$ 7,880

CONSOLIDATED BALANCE SHEET SUMMARY	2017	2018	2019	2020	2021
Assets					
Net Utility Plant	$ 265,167	$ 265,917	$ 259,980	$ 261,063	$ 257,310
Investments	156,258	158,038	159,897	177,215	179,593
Other Assets	43,931	45,164	43,764	40,260	43,615
Total Assets	$ 465,356	$ 469,119	$ 463,641	$ 478,538	$ 480,518
Liabilities and Equity					
Members' Equity	$ 202,616	$ 204,252	$ 212,144	$ 216,054	$ 217,082
Long Term Debt	104,905	113,853	120,980	125,936	131,149
Other Liabilities	157,835	151,014	130,517	136,548	132,287
Total Liabilities and Equity	$ 465,356	$ 469,119	$ 463,641	$ 478,538	$ 480,518

CONSOLIDATED BALANCE SHEET SUMMARY	2017	2018	2019	2020	2021
Net Cash					
Provided By Operating Activities	$ 3,513	$ 2,062	$ 26,790	$ 28,591	$ 18,213
Used In Investing Activities	(11,068)	(12,510)	(6,874)	(29,500)	(10,481)
Provided By (Used In) Financing Activities	7,576	11,308	(18,067)	(105)	(1,104)
Net Increase (Decrease) In Cash and Cash Equivalents	21	860	1,849	(1,014)	6,628
Cash and Cash Equivalents At Beginning of Year	414	435	1,295	3,144	2,130
Cash and Cash Equivalents At End of Year	$ 435	$ 1,295	$ 3,144	$ 2,130	$ 8,758

ADDITIONAL INFORMATION	2017	2018	2019	2020	2021
Margins for Interest - MFI (Required 1.10)*	2.21	1.64	3.25	2.40	1.97
Debt Service Coverage - DSC (Required 1.00)*	3.14	1.96	3.75	3.61	3.70
Energy Sales - MWh					
Member REC Sales	2,718,070	3,066,455	2,948,336	2,859,040	2,928,591
Other	277,160	254,388	252,139	246,148	244,957
Total Energy Sales	2,995,230	3,320,843	3,200,475	3,105,188	3,173,548
Systems Peaks - MW					
Winter	797	874	783	751	943
Summer	680	659	643	633	658

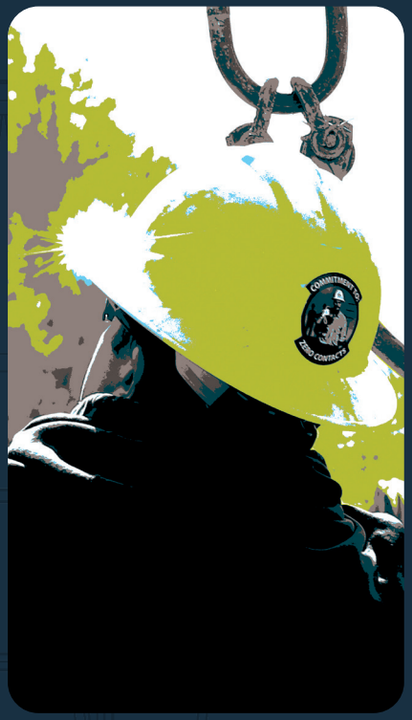
All dollars in thousands
Year ending December 31st, 2021
*Ratios are calculated per Sho-Me Power's Indenture requirements

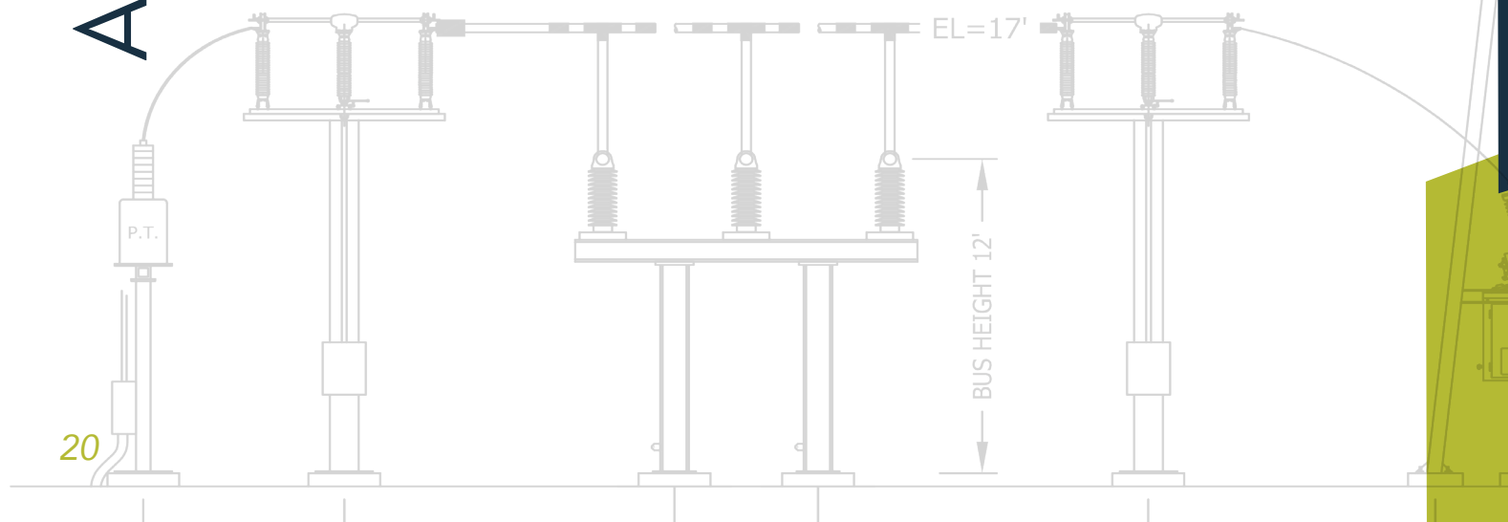
INTRODUCTION

Sho-Me Power's mission statement reminds us that we are dedicated to providing safe, reliable, low-cost power and communication services, and we are guided by a Board of Directors dedicated to continually refining the Sho-Me system. Over the past several years, this focus has locked onto improving reliability for the future.

With efforts coming from every department at Sho-Me, many programs have recently been put into place to address existing issues and help prevent potential future problems. These areas of enhancement range from hardware and software upgrades to training programs. From safety improvements to project management, resiliency and dependability are the result of proper design, careful selection of equipment, and regular maintenance. Sho-Me also monitors equipment failure trends within the industry to determine which replacement programs are required.

Focusing on reliability guided many efforts in 2021, and consistent improvement has shown these labors to be a success. What follows is a glimpse into how Sho-Me Power is building *The Future of Resilience.*





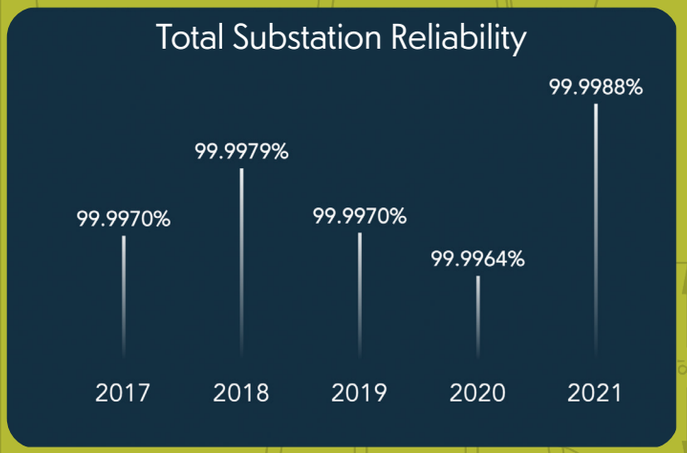
THE SUBSTATION | HEART OF THE SYSTEM

Electrical substations are the heart of energy delivery for the distribution electrical system, bridging the transmission of high voltage and the distribution of power to members served by rural electric cooperatives. Sho-Me's system consists of 156 electrical substation locations, some sites housing two substations within the same fence, bringing the total number to 165 working substations. Although the original components have changed over time, some substations on the system are over 80 years old.

Primary voltage at Sho-Me's substations ranges from 69,000 to 345,000 volts, with distribution voltages delivered to member cooperatives' systems at 4,160 volts to 26,000 volts. Small single service substations may only occupy a quarter of an acre, roughly the size of a small residential house lot, while large 345kV substations can occupy over 10 acres. Transformers within the substation vary in size as well. Electrical load ratings are designated as KVA (kilo volt ampere) or MVA (mega volt ampere), and the higher the rating, the larger a transformer's physical dimensions. On Sho-Me's system, transformers range from a small 2.5 MVA to an imposing 400 MVA, weighing in at over 550,000 pounds.

Because the heart is essential to a healthy system, constant maintenance is required on mechanical and electrical components to ensure not only the daily operation of a substation, but also its longevity. Over the next few pages we hope to give the reader some insight into the various programs Sho-Me has put into place and started executing in 2021 to improve the resiliency of our substation fleet.

Total system reliability for 2021 was just under the goal of Five-9s at 99.9988%, the highest it has been in five years. Two months in 2021 saw almost 100% system reliability.



ZERO
WEATHER RELATED OUTAGES

SEVEN YEAR SUBSTATION MAINTENENCE PROGRAM

Sho-Me's seven-year substation maintenance program has proven effective in both improving performance and extending the life of substation components. Planning, scheduling, and executing maintenance often takes several months, depending on the size of the substation. Mobile substations are placed in service to bypass major substation equipment while electric testing of the transformer is performed, enabling personnel to diagnose the transformer's health and determine the maintenance required. Subsequent maintenance often includes replacement of transformer bushings, lightning arresters, metering equipment, and older style low voltage switches. Fuses are replaced every seven years to limit the risk of major damage via short circuit. Breakers and switching devices are tested and repaired, modifications are made to foundations supporting equipment, and all equipment is inspected after lubrication and system trial.

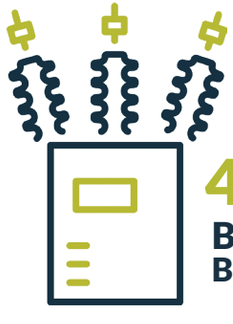
Some devices in the substation require more frequent scrutiny than the seven-year substation maintenance program and are on a more rigid schedule. Meters are tested annually. Protection relays are tested on a three-year cycle, with the first year focusing on 345, 161, and 138 kV substations, the second on 69kV substations, and the third on distribution voltage protection devices. Depending on the device, Dissolved Gas Analysis is tested every six months or once a year. Switches and breakers are operated annually. Due to the irregular conditions they experience from travel, mobile substations are tested every three years.

LOW VOLTAGE MAIN BREAKER REPLACEMENT PROGRAM

For over 40 years, Sho-Me's design for substation protection has included a low voltage main breaker (LVM) in distribution substations. The LVM breaker provides high-speed clearing of faults in the substation, which protects the transformer from damage that can occur from an overload condition. It minimizes damage to the substation buss work when a fault occurs in the buss. It provides arc flash protection for crews working on low voltage bays. The LVM also provides back-up protection for feeder faults in the event a feeder breaker fails to operate, and it reduces outage time for temporary faults in the substation when compared to fuse protection.

Over the past few years, some of the older LVM breakers have shown poor reliability. Outage data has shown that failure of a breaker to correctly operate during a fault can extend the total outage time by an average of 65 minutes. When the LVM does not open or close properly, there is a risk of severe damage to substation equipment. This also increases potential for substation fire and causes additional safety concerns for crews dealing with higher arc flash values. With these extended outages, higher maintenance costs arise due to loss of productivity on other substation work.

There are over 70 aging LVM breakers serving Sho-Me's member load. The Engineering and Operations team has implemented a program to replace these breakers with new, more reliable breakers. As part of the Construction Work Plan, crews anticipate replacing approximately 10 breakers per year, 40 breakers in all, to add to the reliability of the system.



40
BREAKERS BEING REPLACED

TRANSFORMER BUSHING REPLACEMENT PROGRAM

The most critical component of electrical equipment used to serve member load is the substation transformer. Converting transmission voltages of 69,000 or 161,000 volts to lower voltages of 13,200 or 26,400 where electricity is delivered to the member cooperative, the transformer can supply many years of reliable service; however, the transformer is also the most expensive component in the substation. Most transformers on the system are taken out of service once every seven years for extensive testing. At the same time as this testing, related equipment in the substation is inspected, repaired, or replaced.

A major component of the substation transformer are bushings designed to insulate the connection from the internal windings of the transformer to the external conductor leads. Bushings are typically filled with mineral oil, with the external portion made of porcelain to achieve insulation from the grounded steel tank of the transformer. Historically, these bushings do not exhibit the same long-term reliability as the internal transformer windings. Manufacturing defects in older bushings can result in lengthy outages when a sudden failure occurs. To mitigate any impact from this type of failure, the Construction Work Plan now includes a program to replace aging bushings in transmission and distribution transformers.

SUBSTATION RECLOSER REPLACEMENT PROGRAM

Sho-Me uses distribution feeder breakers, also called OCRs or simply reclosers, between the distribution feeder line and LVM breakers. Oil or gas filled automatic electric switches that work like circuit breakers, reclosers will automatically reset a certain number of times. Many of Sho-Me's reclosers are over 40 years old, so when issues arise with water leakage or failures in the internal wiring, replacement is more practical than major overhaul. Aging reclosers have been recommended for inclusion in the equipment replacement program to replace reclosers that are subject to failure or have reached the end of their expected lifespan.

REGULATOR REPLACEMENT PROGRAM

Substation regulators provide voltage control at the low voltage bus and offer the end consumer-member a more constant voltage service. Sho-Me engineering personnel estimate the average life of a regulator as 30 years. Dissolved Gas Analysis (DGA) and yearly inspections reveal operating issues that help determine whether a regulator can be refurbished or replacement is necessary. Through the replacement program, regulators that are undersized for substation load capacity will be upgraded. Regulators with possible internal problems diagnosed by DGA samples will be replaced. Regulators will also be added where transformer load tap changers exhibit poor operational performance.

Upgrades to existing substations range from individual component upgrades to entire substation rebuilds. Some upgrades require unique configurations to improve reliability based on the substation and distribution lines served. Two unique substation upgrades were performed recently and were completed in 2021 at Clover Bottom and Macedonia substations.

CLOVER BOTTOM
SUBSTATION UPGRADE

To serve Crawford Electric's load in Franklin County, the Clover Bottom Substation was constructed in 1982. This substation is unique in that it's connected to Ameren's 138kV transmission line, and AECI delivers power to the substation by a contractual agreement with Ameren. From 2011 to 2018, this substation experienced 829 minutes of outage time for an average of 99.977% reliability, far below Sho-Me's goal of 99.999% reliability.

Sho-Me engineering personnel identified two upgrades that would improve reliability. With the addition of breakers and buss work, a spare transformer located on site could serve the load quickly, saving the time it normally takes to energize the spare. By routing the 138kV line in and out of the substation, Sho-Me would not be exposed to outages on Ameren's 138kV tapping structure or any lengthy outages due to the time it takes Ameren to perform switching.

AECI and Ameren negotiated on several interconnections in 2017. Sho-Me and AECI were working together with Ameren in the Rolla area, interconnecting at the Ameren Dillon Substation. Ameren was willing to make improvements to their line at Clover Bottom and allow Sho-Me to install line switches, and in turn Ameren agreed to install 138kV line structures for Sho-Me's benefit.

The new substation layout was designed to include two new line switches, 138kV bus work, and 138kV breakers on both the primary and spare 138/13kV transformers. A new control building was installed to house communications as well as relay and metering equipment. The old Remote Terminal Unit (RTU) was replaced with a Real Time Automation Controller (RTAC). Control of the substation is achieved via 54,200 feet of underground fiber optic cable constructed in 2009. This fiber optic cable also serves two commercial customers – a bank and a wireless Internet service provider (WISP) – to deliver additional services to members in the area.

54,200 FEET

Over 54,000 of new fiber buried for communication

3 MEMBERS

Reliability for three REC members has been improved

$8.1 MILLION

Total cost of both substation upgrade projects

MACEDONIA TRANSMISSION AND SUBSTATION UPGRADE

The Macedonia distribution substation, constructed in 2001, serves electric load for Intercounty Electric. With the ability to form a new interconnection with Ameren at their Dillon substation north of Rolla, reliability in this area could be enhanced. Included in the project were 1.5 miles of 138kV transmission line from the Macedonia substation to the new Ameren Dillon substation, construction of a 138kV/69kV substation adjacent to the Macedonia distribution substation, a 138/69kV 56 MVA transformer, three 69kV breakers, and a new control building.

A detailed inspection was made of all equipment at the existing Macedonia distribution substation. Regulators were increased from 333kVa to 500kVa under the Regulator Upgrade Program. The low voltage main breaker was replaced under the LVM breaker replacement program. The existing transformer was a 1968 General Electric. Oil samples indicated high levels of moisture in the oil tank, which would require gaskets to be replaced. The transformer bushings also needed to be replaced, along with all gauges and instruments. Due to the state of the transformer, a decision was made to use a spare 69/13kV transformer. This was a good opportunity to rotate the 2017-manufactured spare into service, resulting in less equipment being installed and lower labor costs than rebuilding the existing transformer.

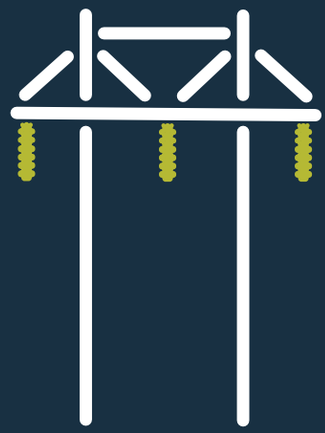
Both of these substation upgrades have improved reliability for Intercounty, Crawford, and Gascosage Electric Cooperatives' members. The Clover Bottom upgrade was completed in 2020, the Macedonia primary substation was energized in late 2021, and the 138kV transmission line between Dillon and Macedonia will be completed in early 2022.

WHAT'S THE DIFFERENCE BETWEEN AN RTU AND RTAC?

In the early days of electrical power distribution, it was quickly realized that information is important when operating a grid of any size. As the grid becomes larger and more complicated, the need for status from equipment and control of the grid becomes more urgent. This is where the Remote Terminal Unit, or RTU, is needed. An RTU has been a valuable tool in the substation for many decades, but a basic RTU is limited in the types of inputs it can accept. In the last three decades, we have had a fundamental shift away from protective devices in substations that only perform one type of task to new protective relays with microprocessors that can perform many different types of tasks. The new microprocessor relays can also communicate digitally, something that the RTU is not capable of providing.

Since each protective relay has the capability of communicating digitally, we need a device to gather the information from all the protective relays and other devices in the substation and provide a single point of communication with the dispatch center. The device that Sho-Me uses to accomplish this is a Real Time Automation Controller, or RTAC. This is a specialized device that is designed to communicate with microprocessor-based protective relays, meters, and other devices that are typically used in substations. The result is fewer individual devices improving reliability within a modern substation.

TRANSMISSION LINES | ARTERIES OF THE SYSTEM



High voltage transmission lines are the arteries of the transmission grid, carrying the energy from generation stations to interconnections with other power companies and from substation to substation. Transmission voltages on Sho-Me's 1,840 miles of transmission lines are 69kV, 161kV, 138kV, and 345kV. The system consists of both wood and steel pole structures, with the design ranging from a single pole to an H frame to a multi-pole structure.

Many of Sho-Me's lines are approaching 70 years old. As the system ages and grows, some lines need to be completely rebuilt to maintain reliability. Maintenance of these lines is a critical part of the continuing dependability of the Sho-Me system.

TRANSMISSION LINE REBUILD PROGRAM

Sho-Me engineering personnel have identified several lines that have limited capacity, perform poorly during ice storms, and will require high maintenance costs in the future. Poles and crossarms would need to be replaced, and many existing conductors are nearing end-of-life condition. Rather than continue to invest in 70-year old lines, Sho-Me has initiated a program to replace the aging transmission line infrastructure. Line rebuilds have been prioritized in order of need and will take place over the next several years. The first line rebuild under this program will be a 23-mile 69kV line from Willow Springs to Houston.

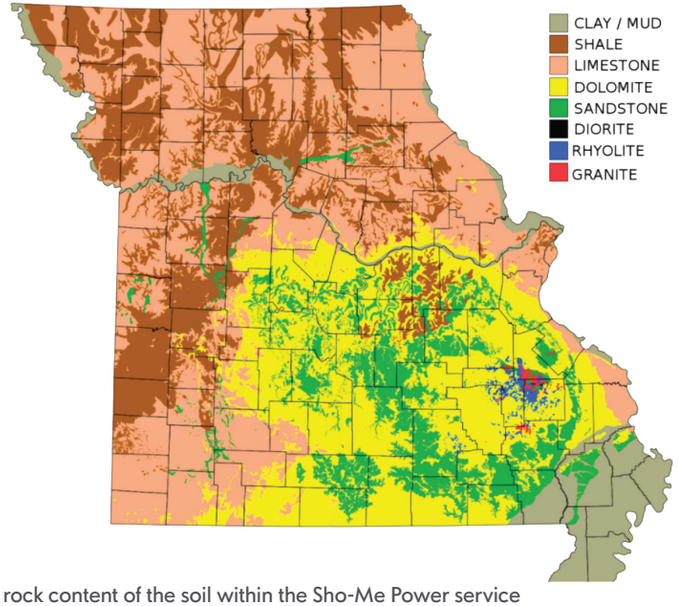
IMPROVED TRANSMISSION STRUCTURE
GROUNDING PILOT PROGRAM

Over the past six years, Sho-Me engineering personnel have been collecting momentary outage data on the transmission lines maintained by Sho-Me. Outage data from the North American Transmission Forum (NATF) reveals that Sho-Me has 30-40% more momentary outages than the industry average. The vast majority of these outages are caused by lightning striking the overhead ground wire, which causes "back-flashing" from the structure to the energized phase conductors. This lightning backflash then creates an insulation breakdown of the air, initiating a power system short circuit which must be interrupted by the circuit breakers that protect the line.

Short circuits on the power system negatively impact power quality and service reliability in a number of ways. First, if circuit breakers do not close properly during a fault, wide area outages could occur. Second, short circuits create very large internal forces in transformers, possibly reducing their expected service life. Third, circuit breakers that interrupt large, short circuit currents experience more wear on the internal main contacts and require additional major maintenance. Finally, power quality is lower given that service to customers will "blink" for the momentary two-second outages while line breakers open and reclose. Many transmission owners in the industry have initiated facility upgrades to reduce the number of blinks on their systems.

The frequency of lightning backflash is related to how the line is designed to withstand a voltage spike, or impulse, known as the Basic Impulse Level (BIL). The more separation between the energized phase conductors and grounded components on the structure, the higher the BIL and better lightning performance. The number of lightning backflash events is also dependent upon the ground resistance at each structure. If the ground resistance is low throughout the line, it is more likely that the energy of the lightning strike will be diverted into the ground. If ground resistance is high, there is a much higher probability that lightning will backflash to the phase conductors.

After evaluating options to improve lightning performance, Sho-Me has determined that the ground resistance at structures is significantly higher than industry-accepted values of 15 to 25 Ohms. A pilot program will be implemented to determine the effectiveness of the chosen solution. The Mansfield to Mountain Grove 3 161/69kV double circuit line will be the test candidate, where crews will trench a horizontal conductor surrounded by ground enhancement material.



The rock content of the soil within the Sho-Me Power service territory is extensive, resulting in high ground resistance especially on hilltops and hillsides where the soil is shallow.

SECURITY NOT JUST FOR BAD GUYS

803
CAMERAS

803 Omnicast Cameras Monitored

239
ACCESS CONTROLS

239 Access Control Units Connected

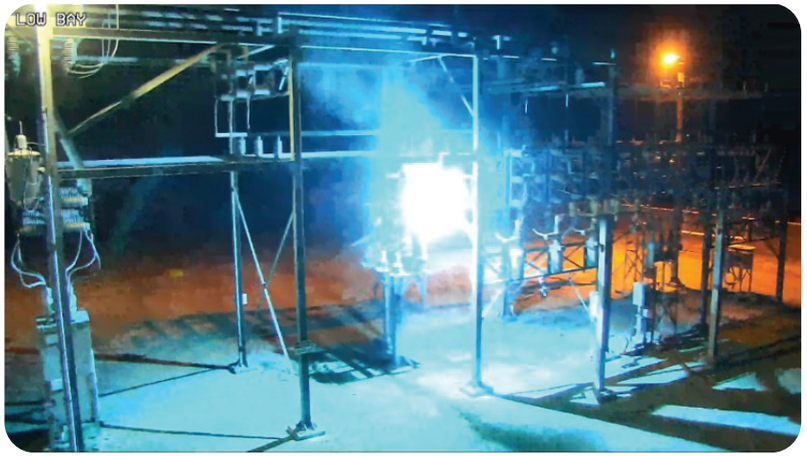
Maintaining security of the power system and facilities at Sho-Me is a key aspect of providing a resilient system. For many decades, Sho-Me has had intrusion alarms in the form of door and motion detection alarms at many facilities. In 2011, installation began of more modern security systems, with cameras at facilities and card key entry. Since the original upgrades, the security systems have continued to be refined and Security Specialists have installed more advanced equipment. Several types of cameras are in use, depending on the application, including fixed cameras, pan tilt zoom cameras, and 360-degree cameras. The latest cameras installed are capable of very high-resolution images.

It has always been our practice to notify dispatchers when crews, contractors, and member cooperatives' employees enter a substation. The security system has now made notification a requirement before entering. The system has also made it easier to see when someone has trespassed into a substation, enabling crews to be notified of the risk of cut grounds before entering.

Even though the security systems were originally installed to monitor intrusion, they have become significant tools for daily operation. Camera control and viewing is available to Sho-Me's dispatchers, and by default, cameras at substation have been set to focus on the distribution bus to provide video evidence of fault events. These videos are reviewed to aid in restoration actions and perform root-cause analyses.

Cameras also provide dispatchers the ability to investigate operations prior to crew arrival. A recent example was an incident at the Lebanon #1 substation where a regulator failed. Dispatchers were able to see the evidence of failure due to smoke "escaping" and therefore performed no additional actions until crews arrived. Prior to camera installations, dispatchers would have tried to re-energize the sub after a fault, which could have resulted in additional damage to the faulted regulator and a possible explosion with damage to surrounding equipment.

These cameras also act as additional eyes during hazardous switching activities. Dispatchers often fix cameras on devices while crews are switching to provide an additional perspective in case something doesn't operate correctly. Cameras also offer remote field verification of equipment and system conditions, with personnel opting to look at substation equipment remotely when questions arise on equipment deployment or connections to the substation.



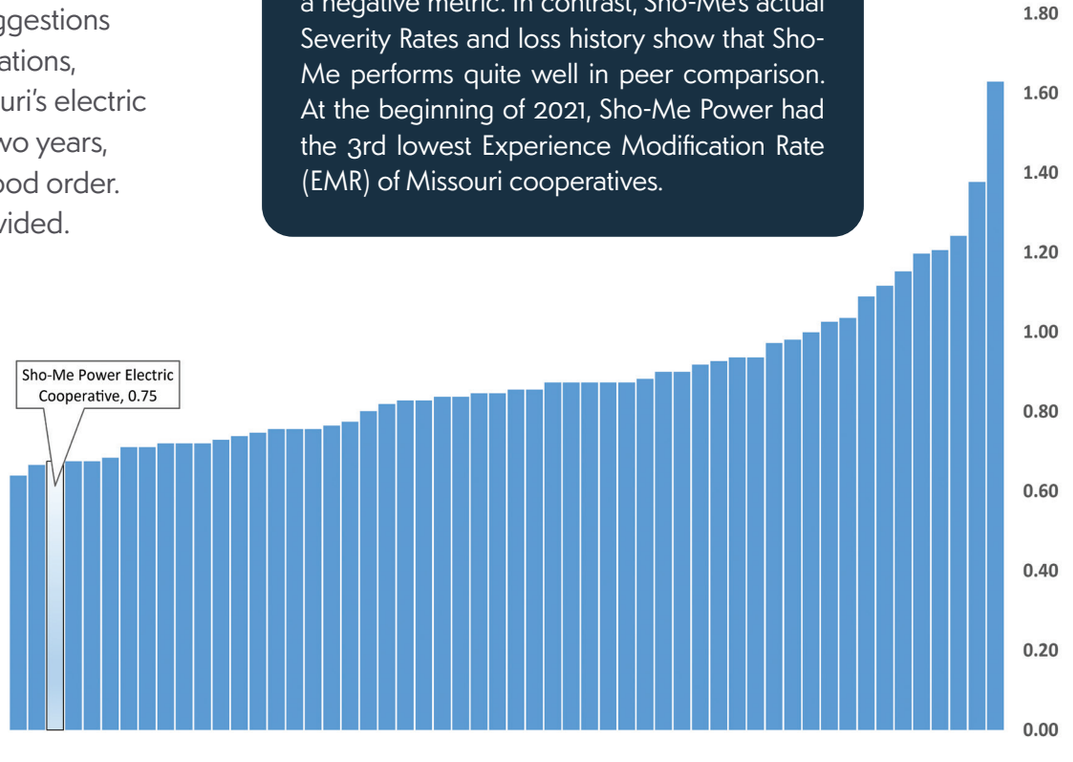
WORKING SAFELY OUR HIGHEST PRIORITY

Every four years, the Association of Missouri Electric Cooperatives (AMEC) performs a Risk Assessment of the electric operations at Sho-Me to provide information to the Associated Electric & Gas Insurance Services (AEGIS) Limited Insurance Services' Underwriting Division. This assessment details the operating practices and condition of Sho-Me's electric system to facilitate an enhanced evaluation of general liability risk exposure, loss control practices, and procedures to underwrite insurance risks on behalf of AEGIS. The results from Sho-Me's 2021 assessment came back with no suggestions, meaning no deficiencies were discovered in the evaluated areas.

Sho-Me also participates in the Missouri Electric Cooperative Insurance Plan (MECIP), and AMEC conducts an audit by reviewing safety, worker's compensation programs, and loss experience. A tour of Sho-Me's facilities is conducted, including an unannounced observation of crews working in the field. Similar to the AEGIS risk assessment, MECIP provides advisory suggestions or recommendations to promote safe facilities and operations, ultimately helping to keep insurance costs low for Missouri's electric cooperatives. This audit, performed no less than every two years, indicated that Sho-Me's vehicles and facilities were in good order. Only two recommendations for improvement were provided.

Dedication to safety continues to be a hallmark commitment at Sho-Me, in line with the long-held belief that Between Life and Death is Safety. Action is the greatest catalyst for change, and the success of Sho-Me's safety program continues to come from employee contribution and collaboration.

Safety Metrics are helpful in benchmarking against others, but they only tell part of the story. One example is Sho-Me's heightened level of medical evaluation for potential soft tissue injuries, such as strained shoulders, knees, and backs. As a result of early intervention, a higher number of these injuries are classified as "OSHA Recordable" and could be viewed as a negative metric. In contrast, Sho-Me's actual Severity Rates and loss history show that Sho-Me performs quite well in peer comparison. At the beginning of 2021, Sho-Me Power had the 3rd lowest Experience Modification Rate (EMR) of Missouri cooperatives.



ORGANIZATIONAL PROJECT MANAGEMENT

Since the upgrade programs put into place over the recent years are complex to plan and execute efficiently, there was a need to improve the system to manage the many different activities. Beginning in 2019, past practices were methodically analyzed to develop a more standardized approach to Organizational Project Management. More than just taking a project from inception to completion in the shortest amount of time or under budget, Organizational Project Management involves developing a framework in which all phases of project management are integrated within our own organizational culture to achieve strategic objectives.

Historically, Sho-Me passed projects between departments at various times through that project's life cycle depending upon the next task assigned. The new model of project management is a cross-divisional team led by a project manager who remains with the project from initiation to close, placing project supervision on one team member and reducing the risk of miscommunication or oversight. With the implementation of Organizational Project Management, Sho-Me will be able to coordinate increased simultaneous projects and will do so with fewer deviations from the original scope, schedule, and budget.

In 2021 Sho-Me realized several positive results of this approach. Per CEO John Richards, "What was once a very functional form of Project Management has been reborn to embrace multi-departmental, cross functional systems…Most companies that have fully embraced Organizational Project Management are quick to praise the benefits for all company members."

REQUEST RECEIVED

Gate 0

PROJECT INITIATION

Gate 1

PROJECT PLANNING & DEVELOPMENT

Gate 2

DESIGN, ENGINEERING & PERMITTING

Gate 3

PROJECT PHASE GATE MAP

Issue or need is identified. Solutions are identified or high level alternatives analysis is performed. Issue Paper is drafted and key stakeholders are identified. Project is approved or "chartered" by an Executive Sponsor.

PROJECT INITIATION

Completion of punch list items, conduct variance analysis, and review project performance metrics. Hold close-out meeting with project team and internal stakeholders. Capture and record any lessons learned and close out work orders.

CLOSEOUT

PLANNING & DEVELOPMENT

Project requirements are identified and a project team is assembled. Preliminary engineering and environmental scoping is conducted and concept layouts created. Stakeholder communication, risk procurement, resource plans, and detailed scope are developed. Baselines are set and scheduled, cost estimates and funding are refined and updated. Planning review and approvals obtained.

COMMISSIONING & ACCEPTANCE

Function and end-to-end testing performed, point-to-point SCADA checkout, review and approval of all testing. Prepare to energize by conducting pre-energization site walk-down and checklist. Update record systems and databases. NERC compliance processes conducted. Notify stakeholders, energize and release for service.

PROCUREMENT

Bids are solicited, purchase orders issued and confirmations from vendors. Pre-bid meetings are held. Bid packages, Requests for Proposals, and qualified bidder lists are reviewed. Bids are evaluated and awarded.

Engineering support groups engaged and pre-permitting design is developed. Environmental review and approval, file for permits, develop detailed design, issue design packages and prepare for commissioning testing.

DESIGN, ENGINEERING & PERMITTING

External notifications are made, resources are mobilized and pre-construction tasks completed. Site surveying and development initiated, field construction managed while monitoring and reporting status regularly.

EXECUTION AND CONSTRUCTION

PROCUREMENT — Gate 4 — EXECUTION/ CONSTRUCTION — Gate 5 — COMMISSIONING & ENERGIZATION — Gate 6 — CLOSEOUT — Gate 7

PROJECT CYBER DOME

10,000
DEVICES

10,000 Devices Monitored

1.5
TERABYTES

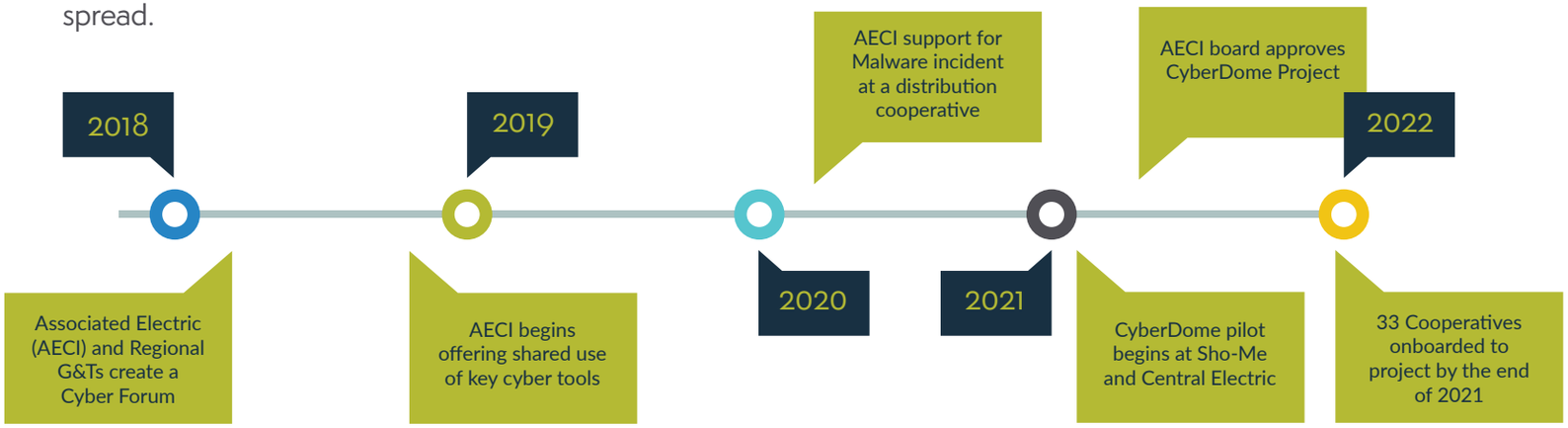
1.5 Terabytes of Data Reviewed

Wouldn't it be great if there were a Security Operations Center that catered to Missouri cooperatives? That question prompted a conversation between Sho-Me Power and AECI that led to a Cybersecurity forum with the five other Missouri Transmission G&Ts to collaborate and share ideas. By 2019, AECI had begun using new cybersecurity tooling to provide better protection for hybrid cloud environments. They started to showcase this tooling to the Missouri G&Ts. Sho-Me liked the products and made the case to move to the Microsoft security stack, soon implementing the necessary licensing to replace their older Antivirus with the same products AECI uses.

Mid 2020, one of Sho-Me's member cooperatives was hit with Emotet, a virus that spreads phishing email and can be disastrous to corporate networks, even spreading ransomware. With the help of AECI, cybersecurity tooling was installed and the infection was isolated. Working with the member and the third-party Managed Security Service Provider, we were able to determine that the malware had not spread.

Early 2021, a pilot project code named Operation Iron Dome started between AECI, Sho-Me, Gascosage Electric, another G&T, and one of their members. Around the same time, some high-profile cyber-attacks, including the Colonial Pipeline incident, prompted AECI's Board to approve the program. Now formally called Cyber Dome, this Security Operations Center program provides threat detection, rapid response, and mutual assistance across the entire three-tiered system.

AECI provides internal and third-party assistance to the six G&Ts throughout the state, who then provide that same capability to their distribution members. With 45 cooperatives enrolled today, the program currently monitors almost 10,000 devices and reviews about 1.5 Terabytes of data per month.

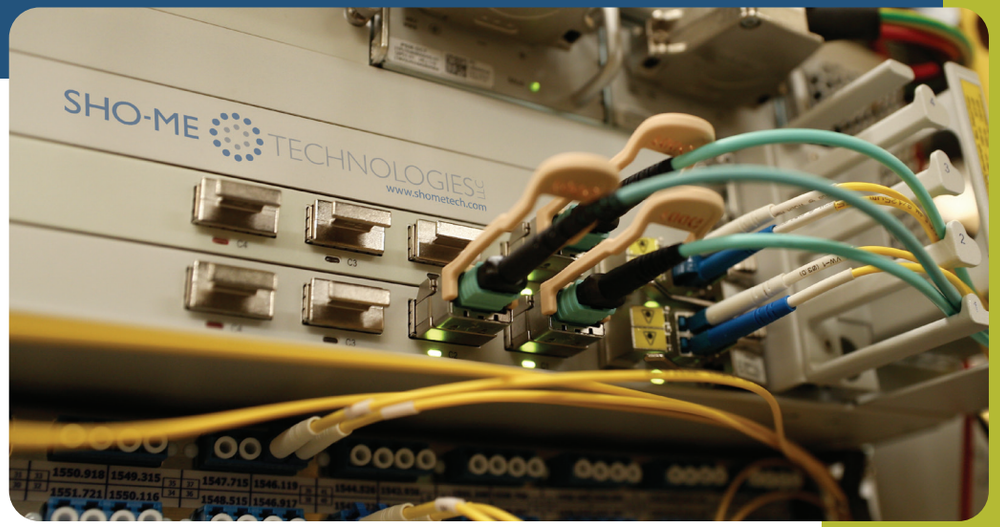


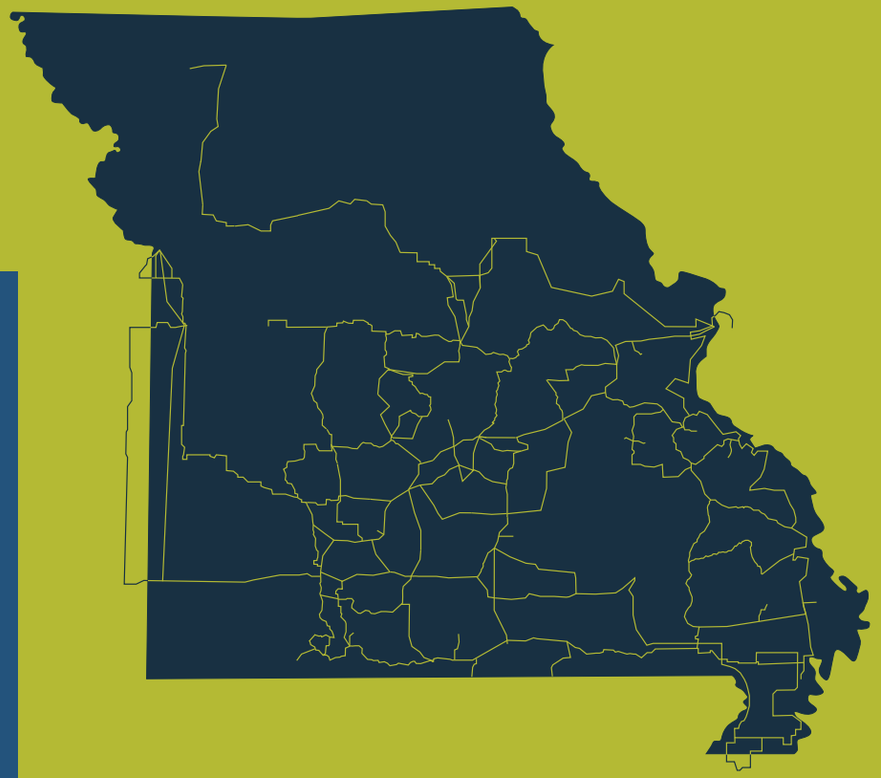
REGIONAL DISPATCH CENTER

Welcome to Sho-Me Power's new Regional Dispatch Center, more intimately known by Sho-Me personnel as the RDC. Utilizing a design by Marshall-Waters-Woody, RDC construction began on January 13, 2020 with demolition of the old communications and meter and relay building. Work on the new 11,500 square foot building was completed by Base Construction Management on August 10, 2021 at a final cost of $4,515,000. The state-of-the-art two-floor facility features a hardened control room with an advanced security perimeter, a 7-foot by 24-foot video wall with multi input video matrix, and mechanical sit-stand operator consoles. Operated 24 hours a day, 7 days a week, the RDC hosts an emergency storm shelter for operators, eight offices, and one conference room.

SHO-ME TECHNOLOGIES LLC
www.shometech.com

Created in 1997, Sho-Me Technologies was designed as a subsidiary of Sho-Me Power to provide telecommunication services. For decades, Sho-Me had used microwave communications to monitor and operate the power system. Sho-Me Technologies' fiber optic network was designed to replace the aging microwave system while providing a more resilient, future-proof communications network for the power system. To insure reliability, redundancy in the network is multifaceted. The fiber optic network is built on redundant rings to carry communication traffic, and data transmission systems are redundant. Physical equipment is backed up with multi-layered redundancy, and the Network Operation Center (NOC) is redundant with a back-up NOC in a separate location. This redundancy supports the resiliency of the power system, but also benefits the commercial customers Sho-Me Tech serves.





Today Sho-Me Tech has grown to cover most of Missouri, with over 8,000 miles of fiber optic cable carrying over 5,000 circuits for over 360 customers, generating over $37 million in annual revenue. Even though Sho-Me Tech is known as being a commercial telecommunications provider, a large portion of data traffic carried by Tech is for the power operation. While the bandwidth capacity for core business may not be as much as Tech's commercial customers, 40% of data circuits carried on the Sho-Me Tech network are for power operations. 10% of that total is for member cooperatives in the form of Internet circuits, power operation data, computer network data, and Voice over IP data.

SOUTHWEST ELECTRIC OCR PROJECT

Over the last few years, Sho-Me Tech has seen several requests from member cooperatives to provide fiber to down-line reclosers. Down-line reclosers are strategically placed on the distribution system and are designed to work the same as reclosers in substations. They help sectionalize faults so the number of members impacted is reduced, and they can be used to switch feeds from other directions when necessary. Reclosers are typically set to open and close automatically 2 times as an attempt to clear the fault, staying open on the third attempt.

In one example of distribution reclosers with fiber control, reclosers were added in 2021 to the Autumn Village subdivision in the Southwest Electric service area. The Autumn Village area holds approximately 285 meters. Southwest built fiber to the recloser cabinet and Sho-Me Tech provisioned an Ethernet circuit to their dispatch to control the device. The data provided assists the Southwest dispatchers by indicating which phase or phases are affected. Based on the electrical measurements of the fault, they can estimate distance to the fault. Remote control reenergizing of the line is available after crews have repaired the fault, which improves reliability by reducing outage time.

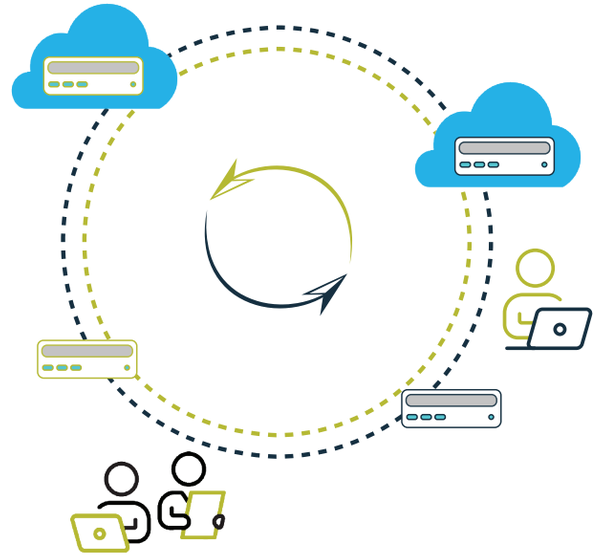
MEMBER CO-OP REDUNDANT INTERNET

Internet has become a crucial tool for businesses, and electrical cooperatives are no exception. Many services cooperatives use are Internet-based. Members can apply for services, pay their bills, report outages, or see an active service map by visiting a cooperatives' website on the Internet. Due to increased usage, bandwidth and reliability demands of the Internet have grown considerably in the last 10 years.

For many years, Sho-Me Tech has provided Internet service to its members. Service was originally provided by other Internet Service Providers and transported by Sho-Me Tech. In 2011, Sho-Me Tech started providing Dedicated Internet Access (DIA) to our members at a bandwidth of 5MB/s. Bandwidth has continually increased since that time, reaching 1 Gigabit by the end of 2020.

With the increased reliance on a stable Internet connection, Sho-Me Tech made it a goal to build an Internet network for member cooperatives that would be even more solid. This starts with the Internet backbone that benefits all Sho-Me Tech's customers, with Tier 1 Internet connections in both St. Louis and Kansas City from disparate Internet Service Providers. Redundant fiber paths are available from each Tier 1 interconnection, with delivery of the Internet backbone connections to two separate Internet routers located in separate locations on the network.

Building a redundant Internet connection for members took this a step further, with a second Gigabit Internet connection provisioned for each cooperative. The second connection is transported over separate platforms, with different delivery systems comprised of equipment from multiple vendors: two DWDM networks and two Ethernet networks. This ensures that if one system fails or is experiencing problems, the second system will continue to operate without issue. Some members asked for the second Gigabit Internet connection to be delivered to a district office to connect to their computer network, providing even more redundancy. Redundant Internet connections were provided to every member by the end of 2021.



8334 MILES
OF FIBER OPTIC

858
CELL TOWERS
SERVED

182
HOSPITALS & CLINICS
NETWORKED

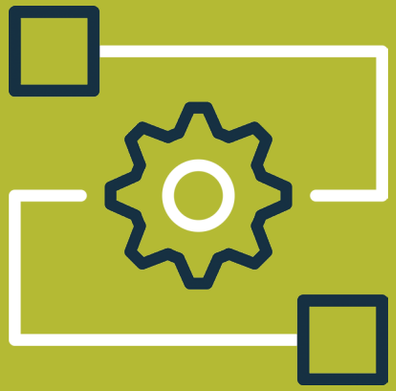
403
SCHOOLS CONNECTED

$37.4 MILLION
TOTAL REVENUE

TECH STATISTICS

355 GOVERNMENT FACILITIES SERVED

563 SERVICES TURNED UP IN 2021



5053 CIRCUITS PROVISIONED

71 MILES FIBER INSTALLED IN 2021

CAMP CO-OP

Quoting the Investopedia website, "Sustainability looks at how current generations can meet their needs without compromising that ability for future generations." One practice of sustainability for electric cooperatives is the application of Cooperative Principle #7, Concern for Community. Working with the schools in the communities they serve helps build sustainability for the cooperative by educating future generations.

Electric cooperatives have been participating in the education of young members since their formation. An early record of electric cooperatives engaging in participation with the education process is from the November 1949 Sho-Me Live Wire publication. The State Association of REA cooperatives, in conjunction with the State Teacher's Association Camp, held a Power Use Training Conference in September of 1949 at the camp at Bunker Hill Ranch in Mountain View. Relationship of Member Education Program to the Cooperative Program was one of the topics on that year's agenda.

Sho-Me has worked with our member cooperatives for over 75 years, aiding in the education of the use and safety of electricity to school children across the system. In the last 20 years, this program has expanded to include other groups of children and adults, such as school bus drivers, emergency responders, road maintenance crews, and clubs and organizations. Typically, educators from the Energy and Education group teach over 20,000 children and adults each year on electrical safety and energy efficiency.

In 2021, Sho-Me piloted a new program for elementary students called Camp Co-op. Patterned from a program provided by Grayson Rural Electric in Grayson, Kentucky, our Elementary Educator was excited about the program and eager to develop it for Sho-Me's members. Swedeborg R-III in the Gascosage Electric service area was chosen as the small elementary school for the pilot. Held on October 25th, the school approached the day as a field trip. Twenty-five students, two teachers, and one aid attended.

The 2021 Camp Co-op featured an exciting lineup of activities. After a welcome and introduction by Carmen Hartwell, General Manager at Gascosage Electric, a safety program was presented by Sho-Me. Following, participants enjoyed a tour of the cable yard and a pole top rescue training demonstration. An Electric Vehicle demonstration was given by Intercounty Electric, and AECI presented an overview of the Three-Tiered System and power generation. A trip to the field for demonstrations of placing a pole and trimming the right-of-way was led by Gascosage Electric, and Sho-Me provided a drone flight demonstration to explain drone usage in the power system. The day was rounded out with lunch, snacks, photos, and crafts.

After the success of Camp Co-op, Gascosage Electric indicated that they would like to host one every year. The program has now been presented to all general managers and member service staff of the Sho-Me member cooperatives, and additional co-ops are now considering programs for their service areas.

"It was fun and I learned a lot!"

"Thank you so much...I had fun!"

"I had a great time!"

"I liked the electric car."

"The drone was so cool!"

Students made a trip to the field to see a pole being changed out and right-of-way being cleared on the system. Operations Manager Shawn Lipscomb explains to the students what is involved in the pole change-out process. (Above) Students pose in front of the side trimmer after seeing it up close and a demonstration of how the boom arm extends. (Right)

"Thank you for having us!"

1941-2021

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