



SHO-ME POWER ELECTRIC COOPERATIVE  
ANNUAL REPORT 2018

A Legacy of Service



SHO-ME POWER  
ELECTRIC COOPERATIVE

301 West Jackson Street  
PO Box D  
Marshfield, MO 65706

Phone  
417.859.2615

Websites  
ShoMePower.com  
ShoMeTech.com  
NeighborhoodWireless.co

SHO-ME POWER





leg·a·cy  
/ˈlegəsi/

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*Something that is part of your history or that remains from an earlier time.*

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ABOUT SHO-ME POWER

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.

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. 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.

*Our Mission: Sho-Me Power and its employees are dedicated to providing safe, reliable, low cost power and communication services to the members we serve which improves the quality of life for their members.*

*Our Vision: Sho-Me Power will provide to our members the most reliable, competitively priced power supply and highest level of service of any G&T.*

Transmission

Sho-Me Power provides service to 157 member delivery points served by 159 distribution and transmission substations through 1,033 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 227 miles of 345 kV line and three 345/161 kV substations with a combined capacity of 1,440,000 kVA owned by AECL, headquartered in Springfield, Missouri.

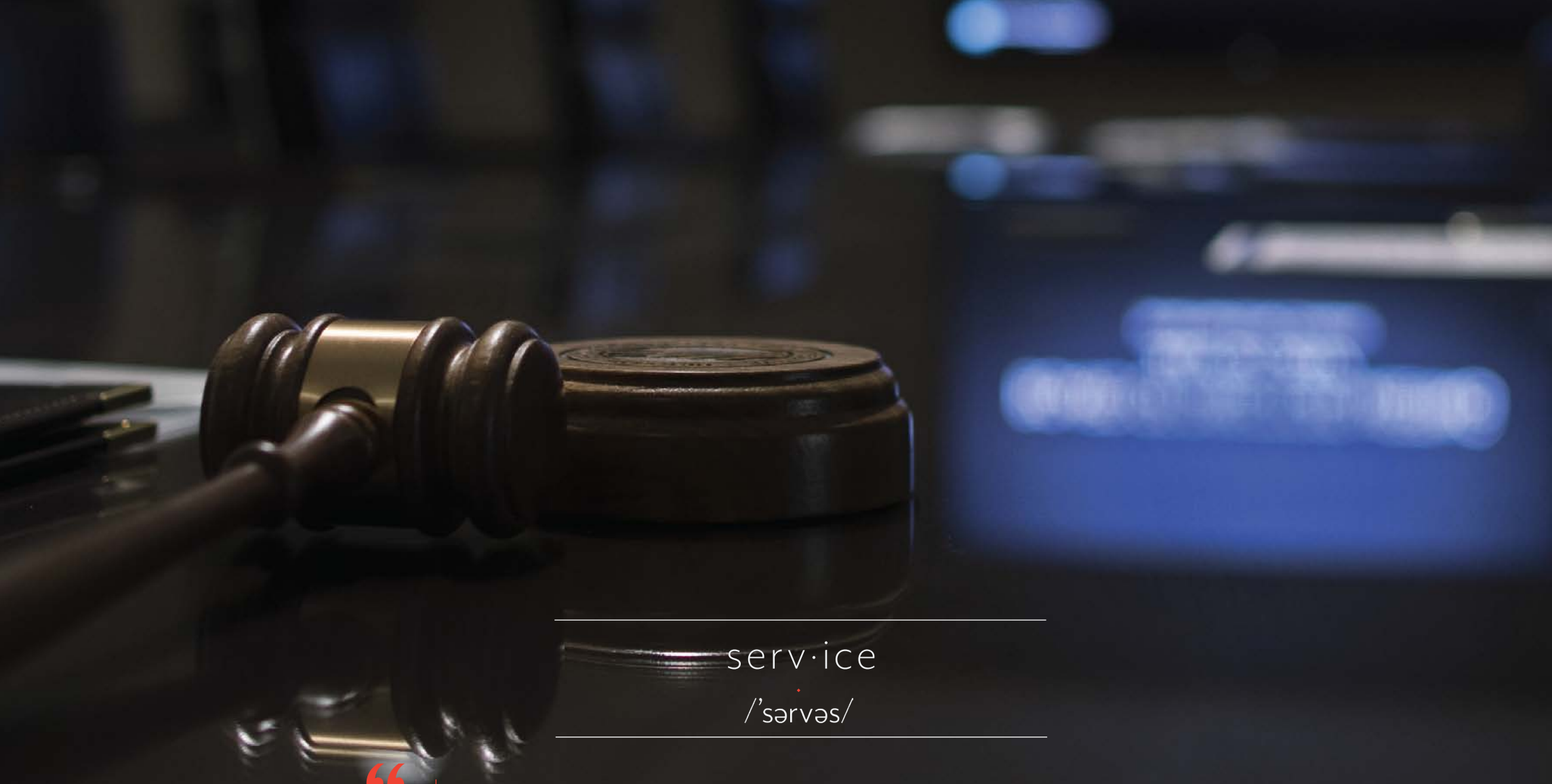
Sho-Me Technologies

Sho-Me Technologies is a subsidiary of Sho-Me Power Electric Cooperative in Marshfield, Missouri. Sho-Me Technologies operates an advanced optical network spanning electric transmission lines in Missouri. 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 Points of Presence, Sho-Me Technologies boasts the highest coverage of optical bandwidth in the area.

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



Former Administrative Assistant Billie Arthur, Sho-Me employee from 1969 to 2007, stands in front of the Sho-Me Power headquarters building. Many changes and improvements have been made since the main building was constructed in 1958, including the addition of the John K. Davis Engineering Center.



serv·ice

/ˈsɜrvəs/

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*The performance of some useful act or acts  
for the benefit of another.*

## Our Board of Directors



### Seated Left to Right

John Campbell, Se-Ma-No Electric Cooperative; Tom Houston, Webster Electric Cooperative; Dan Singletary, Howell-Oregon Electric Cooperative, Inc.; James White, Intercounty Electric Cooperative Association - Vice President; Chris Hamon, White River Valley Electric Cooperative, Inc. - President; Carmen Hartwell, Gascosage Electric Cooperative - Secretary; Jack Bybee, Southwest Electric Cooperative; Marc Roecker, Laclede Electric Cooperative; James Cottrell, Crawford Electric Cooperative, Inc.

MEMBER MANAGERS



**Tony Mallory**  
CEO/General Manager

Crawford Electric Cooperative, Inc.  
Bourbon, Missouri



**Carmen Hartwell**  
General Manager

Gascosage Electric Cooperative  
Dixon, Missouri



**Dan Singletary**  
CEO/General Manager

Howell-Oregon Electric Cooperative, Inc.  
West Plains, Missouri



**Doug Lane**  
CEO/General Manager

Intercounty Electric Cooperative Association  
Licking, Missouri



**Marc Roecker**  
CEO/General Manager

Laclede Electric Cooperative  
Lebanon, Missouri



**Dan Sisco**  
General Manager

Se-Ma-No Electric Cooperative  
Mansfield, Missouri



**James Ashworth**  
CEO/General Manager

Southwest Electric Cooperative  
Bolivar, Missouri



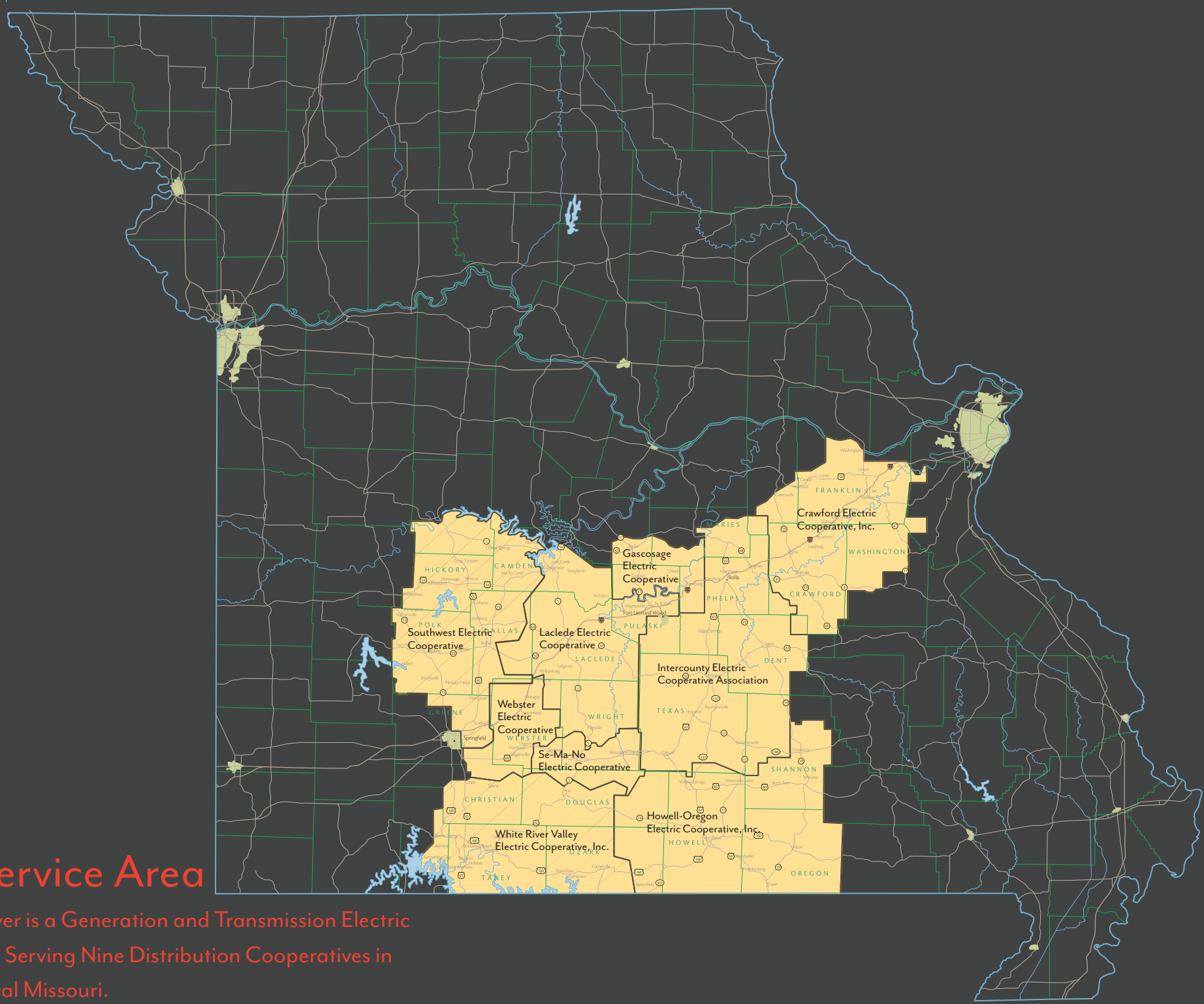
**Tom Houston**  
General Manager

Webster Electric Cooperative  
Marshfield, Missouri



**Chris Hamon**  
CEO

White River Valley Electric Cooperative, Inc.  
Branson, Missouri



Our Service Area

Sho-Me Power is a Generation and Transmission Electric Cooperative Serving Nine Distribution Cooperatives in South-Central Missouri.

SENIOR LEADERSHIP TEAM

“It’s fun working with people who know how to do stuff.”



John Richards  
CEO and General Manager



Cindy Keeler  
Executive Assistant



Chris Bolick  
Chief Operating  
Officer



Peter Dawson  
Chief Compliance  
Officer



Rebecca Gunn  
Manager,  
Human Resources



Micah Johnson  
Manager,  
IT Infrastructure



Mark Keeling  
Chief Technology  
Officer



Tim Lewis  
Manager, Member  
Services & Corporate  
Communications



Denise Stevens  
Chief Financial  
Officer

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*Teamwork is the ability to work together toward a common vision.*

Andrew Carnegie

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## MESSAGE TO OUR MEMBERS

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Chris Hamon and John Richards

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We are pleased to present the 2018 Annual Report to our members. This year's report includes what we feel are the basic requirements of an Annual Report (financial and operational results of the prior year) along with reflections on former employees, processes, innovative ideas and the infrastructure that have contributed to "A Legacy of Service".

We are proud of our past as it relates to safety. The information presented on pages 18 and 19 of this year's report accentuates our past and current efforts contributing to our Legacy of Safety, with the accompanying video segment going into greater detail.

Innovation and Improvement are two other themes reflected within this written report and highlighted in our video. Each year there are literally thousands of new products and services that we are asked to review and evaluate. It is our belief that you can't buy everything and stay true to our missions of low cost and reliable service, but it is important to seek out meaningful advances within our industry that improve our aging infrastructure in an economical way.

One of the more popular phrases within our industry is "shared services". While some recent applications of shared services may seem novel, Sho-Me and its members have been sharing responsibilities of delivering electrical service for most of eight decades and high-speed telecommunications for parts of three decades. We continue to find new ways to improve reliability at lower costs by working together and sharing the burden of providing services that can best be enhanced by our collective efforts.

2018 was a memorable year for many reasons, but one thing happened that eclipses all others. While our Board of Directors reviews, considers and decides on a variety of issues every month of every year, no single decision was more important than when our Board demonstrated their ability to reflect on previous Boards' decisions and change course in light of new developments within our industry. Their decision to settle a long-standing legal battle was expensive, but not as costly as it could have been, and the net cost to our members was mitigated by prior years' decisions to maintain prudent levels of liability insurance. While many readers of this year's Annual Report consider the historical actions that have led to this year's theme of A Legacy of Service, future readers of our history may well regard this decision as the primary reason that Sho-Me was able to continue honoring its Mission and Vision Statements forever.

The names and faces of the employees, directors and officers of Sho-Me Power and its members may change from year to year, but one thing that is evident when compiling a historical reflection on our Legacy of Service is the unwavering commitment to make our part of Missouri as great as it can possibly be. This commitment has been performed in the past, and is carried out today, by an amazing group of talented people.

As CEO and General Manager, I am most appreciative of the leadership of our Board of Directors and the dedicated employees of Sho-Me Power that help us deliver on our promises stated within our Mission and Vision Statements.

As President, our tradition at Sho-Me is to serve as President for two years and to hand off that role to another. I am grateful for the opportunity to serve as your President for the past two years and I look forward to being able to be a part of our "Legacy of Service" for many more years to come.



CHRIS HAMON  
President

JOHN T. RICHARDS  
CEO and General Manager

FINANCIAL HIGHLIGHTS

A Summary

2018 Electric Revenues started out strong with record sales to Sho-Me Power’s member cooperatives in January 2018. Electric Revenue in 2018 totaled \$190,612,976 and was well in excess of the budgeted amount of \$185,702,849. Despite the strong 2018 electric sales, Purchased Power correlated directly with the Electric Revenue, keeping the gross margin on Electric Revenue consistent with the budgeted amount.

The cost of power billed to member cooperatives for 2018 was \$50.60 per mWh compared to \$51.39 per mWh paid to Sho-Me’s power supplier, Associated Electric Cooperative, Inc. The low member rates were possible through the use of \$8.1 million of deferred revenue from previous periods.

Sho-Me ended the year with Net Margins of \$5,486,205. The 2018 Net Margins were lower than the budgeted Net Margins of \$7,369,830. Lower Net Margins were primarily due to the settlement of an outstanding lawsuit associated with the alleged violation of certain electric transmission easements. While Sho-Me Technologies’ Net Margins were below budget because of the settlement, overall revenue for Sho-Me Technologies was over \$34 million, which beat both the budgeted amount and the prior year sales amount.

At the end of 2018, total assets on a consolidated basis were \$469 million and the consolidated equity ratio was solid at 43.54%. Approximately \$20 million of plant additions were capitalized on the consolidated books of Sho-Me Power and Sho-Me Technologies during the year.

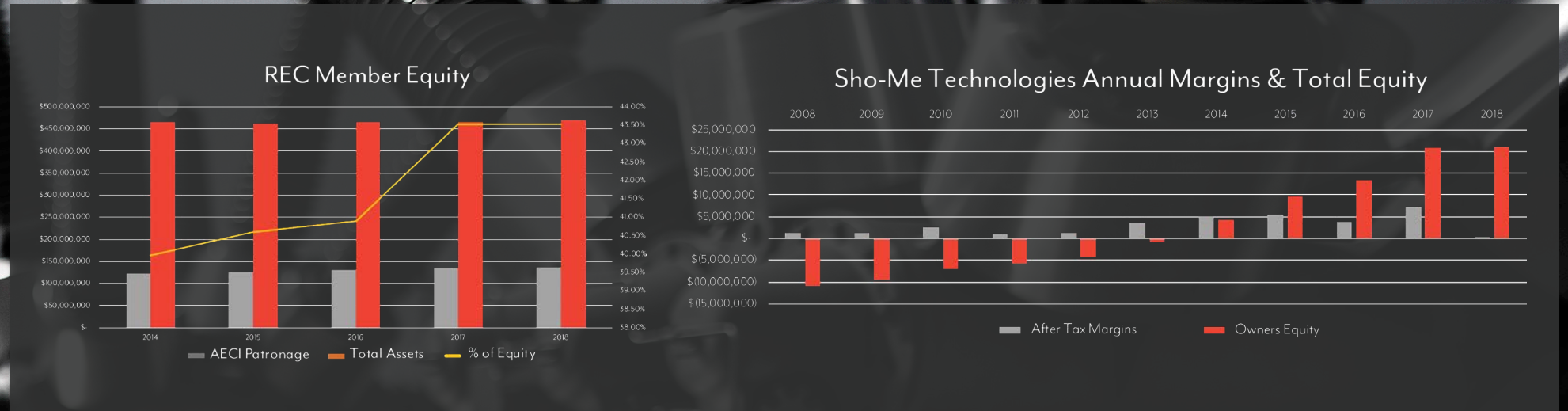
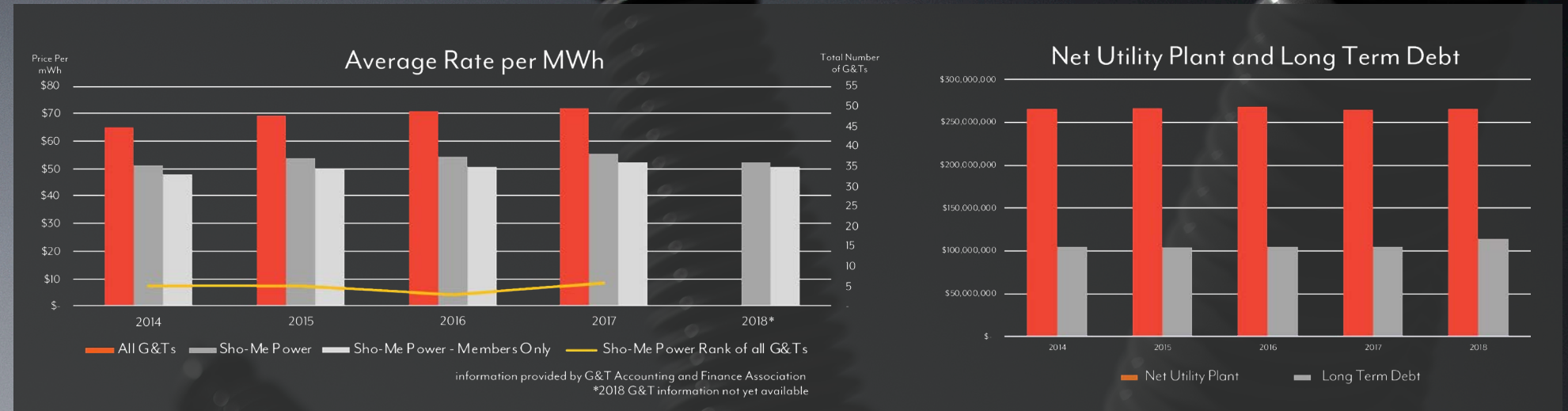
The Rural Utilities Service approved a \$48 million loan package for Sho-Me Power in 2018. The Rural Utilities Service will finalize the terms of the loan and advance funds in 2019. During 2018, Sho-Me secured a \$10 million line of credit with the National Rural Utilities Cooperative Finance Corporation in addition to the existing \$15 million line of credit. Sho-Me also has a line of credit with CoBank for \$15 million.

Overall, 2018 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 2018, Sho-Me Power is pleased to report that the financial performance met Sho-Me’s indenture requirements.



“ Sho-Me’s financial legacy dates all the way back to 1941 and the grand sum of \$1,200, accumulated when twelve separate rural electric cooperatives submitted \$100 development checks. Only a year after those checks were written, approval was received for its first \$7.5 million REA loan. From our first rate reduction in 1944 to 2013’s flexibility-providing indenture, Sho-Me’s financial efforts have continually ensured low costs for its members.

Erica Lafferty  
Controller and Risk Manager







INTRODUCTION

In the mid-1920's, a decade before Franklin D. Roosevelt issued an executive order to create the Rural Electrification Administration (REA), the Missouri Electric Power Company was connecting isolated electric systems in Missouri by means of transmission lines. While the creation of the REA led to the rapid charter of thirty-six distribution cooperatives in Missouri by the end of 1941, the same year Sho-Me Power Cooperative, Inc., was formed, it was that existing Missouri Electric system that became the core of the Sho-Me footprint.

Since the hectic beginnings of operating a Generation and Transmission Rural Electric Cooperative on its first operating day – January 1st, 1944 – Sho-Me has weathered many changes. Through the decades its name changed to Sho-Me Power Association, Sho-Me Power Corporation and finally Sho-Me Power Electric Cooperative, but the promise to provide safe, low cost, reliable power to rural Missouri never wavered.

The next few pages offer a trip down memory lane as well as a peek into the future, highlighting the early years of rural cooperative electrification while taking a long view toward coming technological improvements. Hand in hand, past experience and continual adaptability are what have formed, and will continue to form, the Legacy of Sho-Me Power.



Engineer Howard Fillmer (sixth from the right) gathers the Sho-Me crew for a picture on a cool March morning in 1950. Most of the men pictured were former employees of Missouri Electric Power Company (M.E.P.) who stayed with Sho-Me after the 1944 purchase of M.E.P.



Former Safety Coordinator Ed Varney, employee from 1951 to 1986, was an integral part of Sho-Me's legacy of safety. Ed shows us a picture of pole top rescue training from 1954 while Journeyman Lineman John Kaderly prepares for the same training 64 years later.

Employees in the current workforce are accustomed to hearing about Occupational Safety and Health Administration (OSHA) regulations, but long before that agency was created in 1970, Sho-Me was dedicated to providing a safe workspace. As early as 1949, the first editions of the Sho-Me Live Wire news publication included a Safety Score detailing monthly statistics for man hours worked and time lost due to accidents. All district offices received the first safety manuals during that same time frame, and by November of that year, regular meetings were being held to review safety practices.

During 1953, Sho-Me decided its safety program needed a slogan, and 114 suggestions were submitted before a winner was chosen. The victorious slogan was submitted by Ed Varney: *Between Life and Death is Safety*. By 1970, the same year OSHA was created, Sho-Me's dedication to safety led to top honors in the National Fleet Safety Contest conducted by the National Safety Council.

Today, Sho-Me has joined 517 other Rural Electric Cooperatives in the Commitment to Zero Contacts Initiative. Introduced in April 2018 by the NRECA, Federated Rural Electric Insurance Exchange, and electric cooperative safety leaders, this initiative is designed to provide cooperative CEOs, senior leaders, and field personnel the ideas and resources they need to help eliminate Serious Injuries and Fatalities (or SIFs) due to electrical contact. In addition, it offers enhancements to individual cooperatives' existing safety programs. Sho-Me's Board adopted the resolution to join the nationwide initiative in September, but the commitment didn't stop there. Posters bearing the resolution are now displayed in all Sho-Me facilities, as well as in meeting rooms of the headquarters building.



Ed Varney is awarded a \$25 savings bond by General Manager Charles Boulson for the winning safety slogan in 1953.



As safety initiatives look to the future, a large focus will continue to be on defining and ensuring consistent understanding of Life-Saving Rules (or LSRs), a process made easier when engaged employees and crew leaders openly communicate with supervisors and management without fear of reprisal. Above all, Sho-Me will continue to operate with the belief that *Between Life and Death is Safety*, a slogan that has held fast for 65 years.

Part of a legacy of service is a commitment to becoming more efficient, eliminating steps that become unnecessary over time while utilizing the newest and most advantageous technology. For Sho-Me employees in 1949, that meant learning to use a National Billing Machine for retail billing. Ten years later, in a quote from the 1959 Annual Report, a new and improved National Billing Machine was intended to “be a valuable factor in helping the (accounting) department meet its objective in maintaining proper records.” In 1975, renovations began to the HQ building to accommodate digital computers for the accounting department, which enabled employees to enter information into terminals for transmitting to a mainframe in St. Louis. Five years later, Sho-Me would upgrade to its own mainframe using a Univac UTS-400 for the purpose of billing and record keeping.



*Billing clerk Mary Hobson sits at the billing machine in the early 50's*

Those things that were technologically relevant at the time almost seem archaic now, reiterating the necessity of adapting to new standards and modes of maintaining efficiency. Today that trend is tipping towards the elimination of paper waste and the utilization of automated processes. Sho-Me continues to rise to the occasion with its new automated electronic accounts payable system, which eliminates the need to print or route paper invoices for approval. Rather than purchase an outside cookie cutter software package, in-house software developers customized a system designed specifically for Sho-Me's needs. In addition to providing the electronic accounts payable system in the short term, the experience gained during implementation will enable Sho-Me to move forward with developing more programs to automate internal processes.

Along with streamlining efforts to save time and resources, Sho-Me is also exploring new ways to bring people closer together. Through further investment in the Cloud services of Office365, instant messaging and group collaboration are possible using Microsoft Teams. In conjunction with the utilization of that service, all conference rooms have been equipped with Wireless computers and large format displays. With the further addition of webcams in some areas, members of the Sho-Me team now have video conferencing capabilities as another means of connecting from a distance.



**Evelyn Whitehurst began her career at Sho-Me in 1957 as an Accounting Department secretary. She holds a photo of herself working in the first Sho-Me headquarters building while standing in the last office she occupied prior to retirement in 2007.**

As the first G&T in the state of Missouri, Sho-Me has been a pioneer since its earliest days. In 1941, operating a generation and transmission cooperative was a new approach to serving the electric needs of rural electric cooperatives. As electricity stretched into unreached areas and the lights came on in homes across rural Missouri, the requirements to serve those needs at the lowest cost possible had to be constantly reevaluated. In 1957, the creation of a new 11,340 square foot warehouse for housing supplies cut down on both costs and service time, but there were still concerns about cooperative members' power demands in the future. Sho-Me and the five other cooperative G&Ts in Missouri began exploring a unified type of generation cooperative in 1958, and from that collaboration, Associated Electric Cooperative Inc. (AECI) was formed in February 1961. Only a year into AECI's operation, the rural electric cooperatives of Missouri had an abundant supply of low-cost wholesale electricity available for their members.

Today, Sho-Me remains dedicated to reliable low cost power, and part of the way it continues the legacy of innovation is in cutting edge additions to the power system. One of the most recent projects, a Fuse Saving Scheme at the substation in Raymondville, was made possible through previous modernization using fiber optics. Faults occurring in substations sometimes result in extended outages, depending on the time it takes for a crew to arrive and make repairs. Whether from major damage or a temporary condition resulting from lightning or contact made by an animal, lengthy outages would often result. The new Fuse Saving Scheme adds high speed relaying to a fused substation, enabling a breaker at a neighboring substation to open the line before fuses blow. If the fault is temporary, the line to the substation can be re-energized without dispatching a crew for fuse replacement. This system, developed internally at Sho-Me, will soon be rolled out to nine other substations to reduce the risk of avoidable outages.

Another unique project initiated by Sho-Me's substation designers enables High Side Breaker testing and servicing without an outage. That pilot project is currently being utilized at the Marshfield #5 substation with plans to expand in the future. Meanwhile, on 69kV and 161kV H-frame transmission structures, linemen have replaced some existing wood transmission arms with fiberglass. Upon investigating new construction components that offer superior performance or longevity at a justifiable cost, Sho-Me's Transmission Engineers elected to work with a manufacturer to develop fiberglass arms. These arms share the exact dimensions of their wood counterparts while providing better electrical properties than either steel or wood. Because these fiberglass arms have worked as promised, Sho-Me now has another tool in its arsenal should wood arms go up in price or become difficult to obtain, or should the fiberglass prove over time to provide a longer life span.

**Former Substation Foreman Lloyd Poor, Sho-Me employee from 1962 to 1994, holds a photo of construction on Sho-Me's first substation in rural Marshfield while standing in the latest substation on the Sho-Me Power system, Marshfield #5.**

From the moment Sho-Me Power began delivering electric power to its members and customers, Dispatching has been the nerve center of Sho-Me's operations. Four different buildings have housed dispatchers over the years, with several renovations made to those buildings to keep up with the growing system, improved technology, and regulatory requirements. The current dispatching center has been active since 2003.

Many advancements have been made in the industry over the past fifteen years, changing the preferred way of handling operations and utilizing the available tools. The North American Electric Reliability Corporation (NERC) has established a lengthy set of requirements for control centers that possess the ability to impact the reliability of the electric grid. In light of these guidelines, Sho-Me's Engineering & Operations, Regulatory Services, Information Technologies, and Executive groups were tasked with reanalyzing the best path forward for Sho-Me's Regional Dispatch Center (RDC).

In November of 2018, the Board of Directors voted to build a new RDC at Sho-Me Power's headquarters campus. In its new location, the RDC will have a hardened perimeter, dual-factor authentication at every entrance, and a series of electronic security measures to ensure the given requirements are not only met, but exceeded. In addition to safety measures, features of this new state of the art facility will include adjustable lighting, acoustic treatments, improved console design, a video wall, and space for collaboration during extreme events. Layouts for the center are currently being designed, with the building process set to begin soon.



An architectural rendering of the preliminary Regional Dispatch Center design.

Gary Dill began his career at Sho-Me in 1979 as a Communications Technician and retired in 2011 as a Dispatcher. Gary stands in Sho-Me's current dispatch center while holding a photo of Ward Harvey working Sho-Me's dispatch in 1957.



For a critical electric system, up-to-date information depends entirely on interaction from the field. As early as 1949, Sho-Me utilized two-way radio equipment to connect with crews as they moved about the service area. By 1953, seven fixed transmitters and 22 mobile units made up this radio network. Six years later, microwave radios were installed to enable communication with substations across Sho-Me's footprint. Upgrades to both the two-way radio and microwave systems were made in the 1970s and 1980s to improve communication and keep up with demand for information from the field, with new microwave towers being added in 1979. Microwave communications were replaced by fiber optic facilities before the turn of the century, creating a sophisticated data communications network for the power system by connecting all 153 substations.

A two-way radio system is still in use today, although modernization and upkeep have required the replacement of much of the equipment, and in 2018 antennas and coaxial cables were upgraded to eliminate noise and improve grounding. Because these updates enabled improvement of service area coverage, the need to deploy a new digital VHF or UHF radio system has potentially been eliminated.

Today each substation is equipped with a powerful and flexible multiplexing device, connected via fiber optic cable, which allows a vast array of different critical communications applications to be transported together over fiber optic cables. The optical networking equipment used for this purpose – the Lentronics JungleMUX by General Electric – is designed to operate in harsh environments and has proven itself robust and reliable.

As Sho-Me looks forward to the evolution of its network toward next generation Ethernet, upgrades have been made to improve the network for future Critical Infrastructure Protection (CIP) mandates. Data will be identified as critical and non-critical and partitioned accordingly into separate point-to-point circuits, enabling Supervisory Control and Data Acquisition (SCADA) and relaying traffic to be dedicated on a per substation basis so these mission critical factors are completely isolated from any other substation data traffic.

**Tom Layman** became an employee of Sho-Me in 1956 and retired as the Communications & Dispatching Superintendent in 1995. Tom stands in front of one of the many equipment racks in the Sho-Me Technologies central office while holding a picture of the 1959 construction of Sho-Me's first communication tower.



Sho-Me's electrical facilities have a history of longevity, but continued and increased longevity depends on regular preservation measures. Because the natural elements cause stress and wear on the facilities, inspection and preventative maintenance are crucial to prolonging the life of the system. Several methods have long been in place to test the integrity of facilities, such as sound testing with a hammer, prod testing with a screwdriver, and simple visual inspection to check for irregularities.



While the tried and true methods still work today, new and more modern approaches have increased the ability to spot irregularities. GoPro video cameras offer 360-degree video inspection of pole tops. GeTac rugged tablets provide a way to document structural information real-time from the field. Sho-Me also has four drones available, with twelve crew members trained to use them for visual inspections, infrared (heat) inspections, and aerial imagery.



Groundline inspection and treatment continues as part of Sho-Me's 10-year Groundline Treatment Plan. Osmose Utilities Services' inspections over the course of 2018 revealed that 83.5% of poles showed no decay while 14.5% showed serviceable decay or damage, like that caused by woodpecker holes. Only 1.9% of the wood poles were rejected based on groundline decay, while none were rejected based on pole top condition. No poles were classified priority rejects or immediate potential hazards requiring emergency replacement. All serviceable poles were internally and externally treated while poles and crossarms flagged during inspection were replaced. The low reject rate is a reflection of Sho-Me's longstanding inspection and maintenance procedures, leading to an average age per inspected pole of an impressive 39.5 years.

**Ronnie Tracy began his career on the Mountain Grove line crew as an apprentice groundman in 1964, retiring in 1997 as the Substation Maintenance Superintendent. Ronnie holds a photo of the Marshfield to Seymour 69kV line construction circa 1952 and stands along the current Marshfield to Seymour line, which still utilizes some of the original structures.**





**Darrell McKeel held several positions at Sho-Me from 1963 to 1994, one of which was Director of Information Services in the PR Department. Darrell is pictured in front of Sho-Me's Energy Efficiency trailer, used to carry displays used at annual meetings and other events, while holding a photo of the "Grey Goose" pulling Sho-Me's first energy use trailer in 1955.**

The electrification of rural Missouri created a need for information and training, and Sho-Me responded in the late 1940s by forming the Sho-Me Power Use Group. This department, which was later renamed the Missouri-Ozarks Member Service Group, was actively involved in electrical education and economic development. During that same time frame, consumer safety news was printed in the Live Wire news publication that was distributed to all members and consumers. This quote from a November 1949 Live Wire, "Never step from a car if it is in contact with a high voltage line," is still used in safety presentations today.

The first energy and efficiency trailer for use at events across the Sho-Me system was put into service in 1954, and in 1960, over 17,000 individuals from schools, extension centers, civic clubs, and church groups attended programs on safety and energy efficiency. In 1975, Member Service representatives even demonstrated an electric vehicle, the Citi Car.



Today, Sho-Me's Member Services programs are delivered to over 20,000 children and adults every year, applying the latest advancements in teaching by utilizing media, special effects, and hands-on learning experiences. Energy efficiency displays feature interactive demonstrations for beneficial energy savings tips, which have been updated to include a home automation display that enables members to operate smart home devices using an iPad. With over one million people impacted by its safety, energy use, and efficiency programs, Sho-Me continues to pursue new advances in education as technology changes the landscape of rural Missouri.

## 2018 HIGHLIGHTS



## 2018 STATISTICAL HIGHLIGHTS

	Sho-Me Power		Sho-Me Technologies	
	2018	2017	2018	2017
Total Assets	\$390,198,369	\$386,029,032	\$103,467,583	\$103,839,802
Equity Ratio	43.54%	43.54%		
Energy Sales (in megawatt hours)	3,320,843	2,995,232		
Bandwidth Sales (in megabits per second)			1,400,000	1,116,000
Employees	161	161		
Transmission Lines Maintained in miles	1,829	1,829		
Fiber Optic Cable Owned in miles			4,704	4,676
MW Peak Demands				
Winter	874	761		
Summer	659	680		
Substations Operated	159	159		
Points of Presence (POPs) in Service			138	138
System Network Elements			1,832	1,704

Dollar amounts listed above are stated prior to consolidation and eliminating entries.

### Expanded DWDM Network

The expansion of Sho-Me Technologies' Dense Wave Division Multiplexing (DWDM) network provides an increased ability to move circuits to multiple paths in and out of St. Louis. In addition to ending reliance on third party intervention, this upgrade is anticipated to save \$5,183 per month by moving data traffic from a leased path to Sho-Me Tech's own network.

### Cybersecurity Vulnerability Scanner Implementation

With the assistance of staff members at AECI, Sho-Me deployed a new product to scan its networks for potential risks. Nessus by Tenable, a vulnerability assessment solution, delivers reports and remediation steps to address both widespread and individual weaknesses. This simple, intuitive solution saves time and helps to protect the company's digital assets.

### Tunnel Dam Generation Step-Up (GSU) Transformer Project

On the banks of the Niangua River, the Tunnel Dam Hydro-Electric facility has been an integral part of Sho-Me's history. At 62 years old, the oil-filled transformer on the roof of the facility's generator building had seen a lot of that history. Due to the potential for oil spillage into the river, the existing transformer was replaced with a dry type transformer. The swap not only eliminated the potential hazard to the ecosystem, but also provided a more economical alternative to relocating the existing transformer.

### Neighborhood Wireless in Rogersville

Through an agreement with the City of Rogersville, wireless access points were installed on top of three water towers, offering 360 degrees of coverage for residents within the city limits and the surrounding countryside. As part of the agreement, Neighborhood Wireless provided wireless connectivity to the city hall, the public works building, the disaster recovery shelter, the water treatment plant, a city park, and fifteen lift stations and wells. The new connectivity resolved many of the communications issues the city previously experienced on their SCADA network. As the customer base continues to grow, Neighborhood Wireless will utilize the water towers to extend the wireless footprint to surrounding areas.

### Security Upgrades and Support

Sho-Me continues to support members with several aspects of physical security design, implementation, and support. These low cost solutions cover a wide range of concerns, including fire, burglary, theft, vandalism, and terrorism. In addition to providing these support services, security personnel upgraded thirty-seven Sho-Me sites during a nine month period to meet the new requirements of the North American Electric Reliability Corporation (NERC) CIP-003-6 standard. CIP-003-6 establishes responsibility and accountability to protect Bulk Electric System (BES) Cyber Systems.

### Gainesville Substation Upgrade and 161kV Breaker Project

Updates in the Gainesville and Protem areas provided a diverse feed for three substations, along with a new joint-owned and operated line that serves as an interconnection to KAMO Electric's system. The addition of two 161kV line breakers at Gainesville #2 will allow sectionalizing of the line between Mansfield Central and Bull Shoals without loss of the Gainesville #2 transformer. Buss work, switches, and breakers were upgraded to complete the replacement of the 161/69kV, 56MVA transformer with a new 84MVA transformer.

### Sho-Me Technologies Increases Presence in Southeast MO

In previous years, Sho-Me Technologies had crews based in Marshfield, Willow Springs, and Cuba. During 2018, that presence was expended into southeast Missouri with the purchase of a retired fire station in Cape Girardeau, Missouri. This fourth location will be the base for two field service technicians and one sales and projects coordinator.



Photo left page:  
A glimpse of a Dense Wave Division Multiplexing network element on the Sho-Me Technologies network.

Photos right page. From top to bottom:  
Work begins at Tunnel Dam Hydro facility upgrading the step-up transformer.

A snapshot of the video surveillance monitoring capabilities in Sho-Me's dispatch center.

Potential Transformers (PTs) at Gainesville #2 Substation, some of the improvements completed and energized.