CHARTING OUR COURSE

ASSOCIATED ELECTRIC COOPERATIVE 2017 ANNUAL REPORT

Charting our course

Associated Electric Cooperative's direction was set in 1961 when six generation and transmission cooperatives formed it to provide them an economical, reliable power supply and support services.

That has remained Associated's mission and role within the three-tiered system of cooperatives that collectively serve about 910,000 meters in three states.

Associated's G&T owners continue to play the critical role of building, operating and maintaining the high-voltage transmission facilities that take power generated by Associated to the top tier of cooperatives: the 51 distribution systems in Missouri, southeast Iowa and northeast Oklahoma.

These 51 local electric cooperatives serve more than two million member-consumers at the end of the line in rural and suburban communities.

Associated's resources for serving this three-tiered, member-owned system include a mix of coal, natural gas, wind and hydropower resources; an energy efficiency program that helps members save on their electric bills; an integrated, high-voltage transmission system; and about 670 full-time, skilled employees working at three main locations.

In addition, the Association of Missouri Electric Cooperatives, the Iowa Association of Electric Cooperatives and the Oklahoma Association of Electric Cooperatives are an important part of this cooperative effort to serve members.

These statewide organizations provide training, legislative support and other services to advocate for and promote electric cooperatives.

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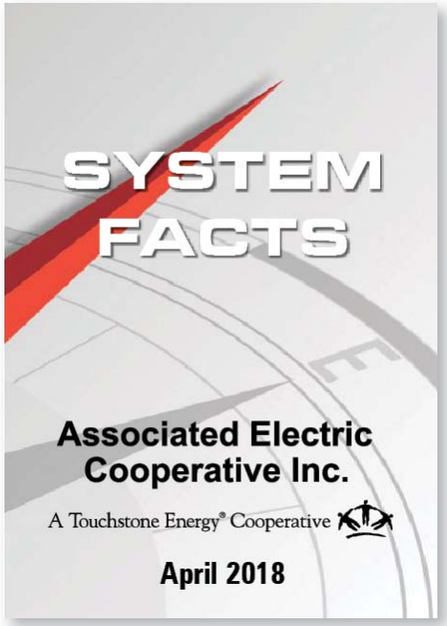

Associated's 2017 annual report was written, compiled and produced by the staff of Associated Electric Cooperative.
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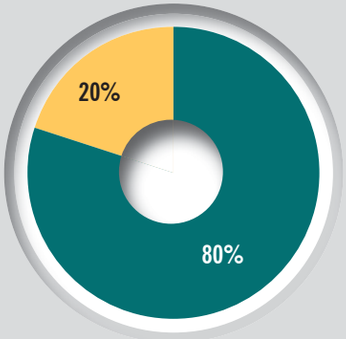
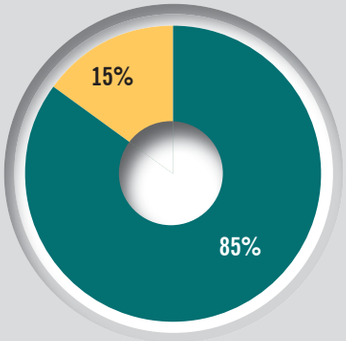


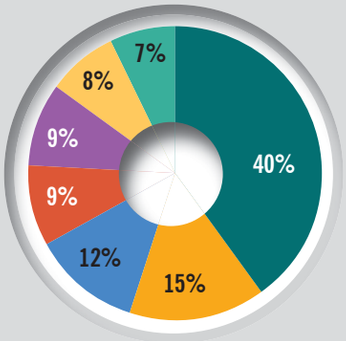
Kilowatt-hour sales (kWh in millions)

Members 17,832 Nonmembers 4,540



Operating revenue (dollars in millions)

Members $918 Nonmembers $165



Operating expenses (dollars in millions)

Generation operation $399 Contracted generation $149

Purchased power $120 Depreciation and amortization $85

Transmission $88 Generation maintenance $75

Administrative and general, taxes and accretion $69

2017 highlights

Financial (in thousands)	**2017**	2016	Increase (Decrease)	% Increase (Decrease)
Operating revenue	**$1,082,700**	$1,093,545	$(10,845)	(1.0)
Operating expenses	**984,583**	992,376	(7,793)	(0.8)
Interest expense on long-term debt (less interest capitalized)	**80,960**	80,281	679	0.8
Net nonoperating income	**26,865**	21,197	5,668	26.7
Net margin	**44,022**	42,085	1,937	4.6

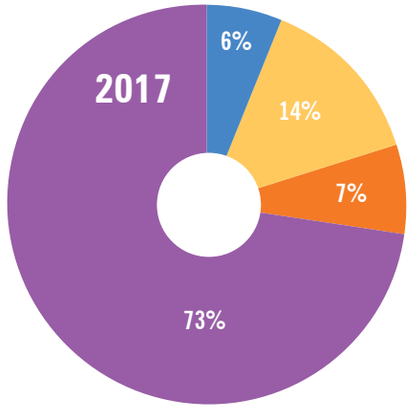
Operational				
Energy sales (MWh)				
Members	**17,832,428**	17,879,974	(47,546)	(0.3)
Nonmembers	**4,539,720**	5,098,943	(559,223)	(11.0)
Member revenue per kWh sold (mills/kWh)	**51.48**	51.57	(0.09)	(0.2)
Peak hour member demand (MW)	**4,374**	4,379	(5)	(0.1)
Total capacity (MW)	**5,700**	5,700	0	0.0
Net generation (MWh)	**19,498,550**	19,818,332	(319,782)	(1.6)

Diverse resources serve member load

Associated Electric Cooperative has built a portfolio of diverse resources, including coal, natural gas, hydropower and wind energy, that give it the flexibility to provide member systems with affordable, reliable electricity.

The cooperative uses its lowest-cost resources first to serve member load. In 2017 coal fleet availability was near record, and the cost to produce each megawatt-hour was below budget. As a result, coal provided the bulk of members' energy. Natural gas prices on average were slightly higher in 2017 than in 2016, when natural gas competed with coal for several months.

Associated contracts for wind energy from six farms totaling 750 megawatts of nameplate capacity that provided about 14 percent of members' energy in 2017.



Coal Hydropower Wind Natural gas

Charting our course

— Message from the president of the board —

In a changing environment, it can be easy to lose our sense of direction. Dense clouds may gather, obscuring the way and making it hard to tell north from south, east from west.

The utility industry operates in a constantly changing environment, and 2017 showed us once again how much can change in a short time. Of course, change can be a good thing, and the past year's achievements show Associated manages change very well.

However, as times change, it is valuable to step back, look up from the day's work, evaluate and ask where we're going. Are we on the right path? That is what we did in 2017 through our long-term strategic planning process.

The board of directors launched the long-term strategic planning process in fall 2016, a few months after CEO David Tudor joined our organization. We were fully engaged in the "LTSP" throughout 2017 – from the board of directors to executive team to numerous employees serving on cross-divisional teams or supporting those teams. Our team leaders and the depth of their involvement, research and leadership have been very impressive.

The process led our board of directors to dive deeper into issues related to the strategic direction of the organization, from learning the pros and cons of regional transmission organizations to stochastic modeling for resource planning. The information presented to the board will help us chart the course of your wholesale power generator.

Our LTSP process has only enhanced the transition in leadership, which continues to go very well. David continues to strengthen cohesion with the board of directors and among his executive team.

This contributed to good things for our members in 2017. Members' generating and transmission assets performed very well, helping Associated exceed its financial plan. Our board approved a cost-of-service plan for 2018 that left rates unchanged for our six owner G&Ts. We also approved setting aside funds into a deferred revenue account to help retain rate stability.

Associated retained its top-notch bond ratings, added an Energy Risk Management Division, strengthened its compliance and safety programs and launched an economic development program to help member systems help their communities. It was a busy year, and I invite you to read more about it in this report to members and strategic partners.

Moving forward, we expect to present the LTSP to members in June. It's been a great exercise for our organization, allowing us to deeply explore the challenges and opportunities in our industry, how we manage those issues and whether we have what we need for success tomorrow. Already, we are realizing benefits from the identification and adoption of tools and techniques.

Associated will emerge with a strategic plan to help us navigate our way in years to come. How we do things or how we get to our destination may change; however, what will not change is our true north of serving members. We are focused, on course to meet our mission and moving forward in the right direction.

As always, I count it a privilege to serve and work alongside you on this journey.

Emery O. Geisendorfer, president
Associated Electric Cooperative Board of Directors

There also is value in validation of the path we're on. I believe our long-term strategic planning will reaffirm our position and past decisions, which are a credit to the leadership and commitment of those who have built this organization.

As we look to 2018, completion of the Long-term Strategic Plan is one of our top priorities. We expect to roll out the plan at the annual meeting in June. Meanwhile, we have several significant transactions being negotiated that will fit well with the LTSP, positioning Associated for continued success. With this said, we are ever mindful of who owns these generation and transmission assets and our duty to provide reliable, affordable electricity to our member-owners.

Sticking to our core values

— Message from the CEO and general manager —

It is my privilege to have been selected in 2016 to lead this organization that is guided by a strong and trusted board of directors. Together we have continued the success of Associated left by longtime and well-respected CEO Jim Jura. We obtained this by sticking to our core values, enhancing specific division functions and allocating more authority to the management team, thereby allowing the board more time to focus on longer-term challenges and strategic issues.

Associated had a very busy and successful year that started with the continuing work of internal, cross-divisional teams established to develop our Long-term Strategic Plan (LTSP), which was assigned by the board of directors in late fall 2016. Of course, this work was in addition to our day jobs of providing a reliable, low-cost power supply to our members. I am proud to say our teams stepped up and dedicated themselves to the LTSP assignments while delivering a solid year of performance in safety, unit availability, reliability and margins.

The highlight and surprise of the year was the visit by EPA Administrator Scott Pruitt to our Thomas Hill Energy Center to speak to a packed tent of our members, employees and strategic partners. His speech was very encouraging with the opening line, "The war on coal is over." The coordination of the event between Associated, the Association of Missouri Electric Cooperatives and Pruitt's team was remarkable. Among those in attendance were U.S. Sen. Roy Blunt; U.S. Reps. Vicky Hartzler and Blaine Luetkemeyer; and Jim Matheson, CEO of the National Rural Electric Cooperative Association. We will likely not see such an event again in our lifetimes.

In addition to this significant event, Associated had the following successes:

- Set an all-time record of 1,554 days with no lost-time accidents at the New Madrid Power Plant.
- Obtained an 86.3 percent availability rate for its coal plants and 84.2 percent availability for its gas plants.
- Signed two 25-year wind power purchase agreements at very competitive fixed pricing for a total addition of 389 megawatts with targeted initial flow dates in 2020.
- Obtained confirmation of its best-in-class bond ratings.
- Negotiated a new commercial load agreement that will bring value from existing assets.
- Worked with a neighboring balancing authority to extend terms of a reserve-sharing agreement.
- Secured $200 million in long-term debt at attractive rates to fund capital plans for the future.
- Signed a four-year contract extension with the International Brotherhood of Electrical Workers.
- Registered the units at Dell Power Plant into the MISO market with the objective of increasing unit run rates and related margins.
- Negotiated contract with Babcock & Wilcox to provide a set of boiler parts for maintenance on one of the New Madrid units.
- Brought the full load of Northeast Oklahoma Electric Cooperative on board.
- Secured $44 million in margins that included above-budget nonmember sales.
- Added $10 million to the deferred revenue account, bringing the total to $14.6 million for future rate stabilization purposes.
- Announced Associated's 2018 budget would leave rates unchanged.

Associated's employees clearly delivered on the cooperative's core values again in 2017.

David J. Tudor
CEO and general manager

Conditioning core strengths

On any journey, staying strong and flexible helps overcome obstacles, recognize opportunities and arrive at the destination in safe, sound condition.

Financial strength and flexibility have long been core to Associated Electric Cooperative's strategy for meeting its mission of providing an economical, reliable power supply and support services to members.

That mission was accomplished again in 2017 as Associated:

- Returned $12.5 million in patronage capital to its six owner generation and transmission cooperatives, bringing total returned since 1993 to $200.4 million.
- Recorded a net margin of $44 million, exceeding the financial plan.
- Deferred $10 million at the board's direction, setting aside funds for future member rate stability. This fund now totals $14.6 million. Associated also has $112.9 million set aside in its Generation, Environmental and Insurance Reserve Fund for unplanned costs in these areas.

A number of factors helped Associated on the road to a positive financial outcome:

- Members' coal units performed efficiently, costing less to produce each megawatt-hour than expected. Coal and rail transportation were below budget. Overall, generation and operating expenses were down 4.2 percent from 2016.
- The natural gas fleet performed well, generating more than budgeted at slightly less cost.
- Operations and maintenance were well managed, particularly with movement from 2018 into 2017 of a planned maintenance outage on the 600-MW New Madrid Unit 2. This $5.5 million expense was not budgeted for 2017.

On the other hand, member energy sales were 6.5 percent below budget, resulting in $37.4 million less-than-budgeted revenue. While many member systems continue to see minimal load growth, a trend experienced since 2008, mild weather was the key driver in 2017.

Helping to counter low loads were above-budget nonmember transactions. Associated's energy portfolio management team works daily to maximize members' assets, selling energy not needed by members to reduce the costs of those resources otherwise borne by members. Helped by efficient coal fleet operations, staff exceeded budget on nonmember sales volume and revenue in a market where energy and natural gas prices remained low.

Also having an impact was a 2 percent rate increase, approved by the board and effective April 1, 2017, to offset lower member loads; loss of transmission revenue after closure of Noranda Aluminum in southeast Missouri; and lower energy market prices that limited nonmember revenue.

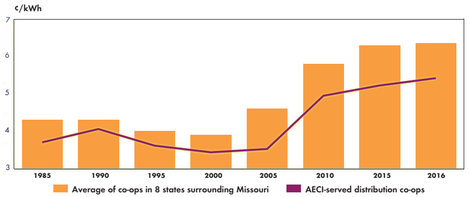
Any rate increase is a difficult decision. Associated's board, keenly aware of the impact of low loads and rate increases on member systems, balances all needs of the three-tiered system, including financial strength and flexibility for Associated, members' wholesale power generator. Associated is well-positioned for the journey due to the leadership of its board and executive team, and its rates were unchanged for 2018.

Accounting & Finance Division highlights:

- Obtained an unmodified opinion on the 2017 audit, confirming the accuracy of the cooperative's financial records. This successful review is a testimony to the day-to-day, yearlong work of the team.
- Continued to effectively manage costs of insurance programs, which include general liability and directors' and officers' coverage for member systems.
- Procurement led a complex negotiation for boiler parts for one of the plants. Staff consistently manages relationships and uses sound negotiating skills when acquiring the goods and services needed to run the cooperative, supporting all areas of Associated and saving members millions of dollars annually.

Members at AECI's 2017 annual meeting

Co-ops offer competitive rates



Member distribution cooperatives served by Associated Electric Cooperative and its six owner G&Ts overall continue to buy power at a lower cost than the average paid by nonmember distribution cooperatives in eight states surrounding the three-tiered system, according to the latest data from the National Rural Utilities Cooperative Finance Corp.

System attracts full load of Oklahoma co-op

The competitiveness of the three-tiered system was affirmed with the addition of the full load of Northeast Oklahoma Electric Cooperative June 1, 2017.

Historically, KAMO Power supplied about 5 percent of NEO's power requirements, with the remainder served by the Grand River Dam Authority. As the distribution cooperative looked at its power supply, it worked with KAMO to move all its load to the G&T – a testament to the cooperative model, value and competitive rates of the system served by Associated.

KAMO now serves 100 percent of NEO's load, a peak of about 180 MW, adding about four years of normal expected load growth across the three-tiered footprint. As part of the move, KAMO purchased 21 substations and about 100 miles of 69-kV transmission lines from the Oklahoma distribution cooperative that serves 38,712 meters.

Employees in Engineering and Operations and Information Services worked meticulously to add 23 ties to integrate the load and KAMO's new transmission assets into Associated's system.

A newer communications technology was employed to provide more data points, higher precision and better situational awareness for system operators. Staff also analyzed the process for creating ties and found ways to automate the process and reduce manual entry of code and data links from meters and remote telemetry units.

Chief Financial Officer David McNabb visits with staff during monthly "Brown bag with the CFO."

— Senior VP message —

Mission takes us down a different path

Associated is informed by the world but not following it.

I have had the opportunity to work for two large investor-owned utilities, which were both good companies with good co-workers. However, the focus was different.

Our members determine our path, which makes our cooperative business model different – and motivating. While most companies, not just utilities, work to grow revenues and profits, at Associated we work to reduce revenue required from members. We work for an organization that helps people by lowering their cost of power. In doing that, we can positively impact their quality of life. That is a reason to get out of bed every morning!

In 2017, Associated was $37 million below budget on member revenue and yet met its margin target. That means we made ends meet and required less of our members' money. That's good for member systems and for their members at the end of the line.

While we look at the world differently, we are very aware of what we need to do to remain members' best option for wholesale power supply.

We will continue to work hard every day to be strong, flexible, well-positioned and prepared for members' present and future needs. I love being a part of that mission.

David W. McNabb, senior vice president and chief financial officer

The Accounting and Finance Division handles all accounting functions for the cooperative, as well as annual budgeting, tax reporting, procurement, maintaining the headquarters facility, risk management, finance and treasury services and long-range financial planning.

Bond ratings affirm strength and flexibility

Associated retained its top-notch bond ratings and is among the highest-rated G&Ts in the country. High ratings, which reflect an independent affirmation that Associated is financially strong and flexible, help the cooperative save on borrowing costs in the capital-intensive utility industry.

Associated used this strength to borrow $200 million in 2017 at very competitive rates for future challenges – and saved members about $1 million in fees by using its own staff to put the transaction together. The achievement is a tribute to the cooperative's strategy, methodology and strategic relationships.

Strong relationships are also in place with the USDA Rural Utilities Service. Although RUS funds were not drawn in 2017, the cooperative constantly works to access these low-interest funds when possible for the benefit of member systems.

At right: Associated Electric Cooperative was unique when its board members joined the team that annually visits the bond rating agencies, illustrating the informed member governance strength often cited by the agencies. In 2017, making the trip were, from left, Buster Geisendorfer, board president; Barb Economon, manager, finance and treasury; Brian Prestwood, senior vice president, general counsel and chief compliance officer; David Tudor, CEO and general manager; Doug Aeilts, board member; and David McNabb, senior vice president and chief financial officer.

AA
Standard & Poor's Financial Services

AA-
Fitch Ratings

Aa3
Moody's

Long-term strategic planning sets direction for tomorrow

Associated launched a multifaceted, long-term strategic planning effort to provide a road map for the future success of the wholesale power cooperative and its members. The initiative was approved by the board mid-2016, and employees across the organization were fully immersed in the process throughout 2017.

Members of the LTSP Power Team tour an energy storage battery facility to learn about new technologies.

Past planning efforts have kept Associated well-positioned in the industry. Its leadership, business strategy and solid performance contribute to its being one of the top G&Ts in the nation.

The course ahead, though, is filled with obstacles: accelerating change in the industry; increasing cybersecurity threats, reliability and environmental regulations; aging generation and transmission assets; new technologies; changing consumer needs; distributed generation and more.

The Long-Term Strategic Plan was an opportunity for Associated to proactively manage its future, rather than potentially face a future that manages the organization.

Mapping the way forward, employees investigated many aspects of the business, including current generating and transmission assets, long-term fuel contract viability, the pros and cons of joining a regional transmission organization or remaining an independent balancing authority. They took an extensive look at tools, processes and resources.

A steering committee comprised of executive members guided 10 teams of employees, chosen for their knowledge of the subject matter, innovation and strategic thinking. Teams included financial planning; fuels; regional transmission organizations; portfolio assessment; power plants; communications; human resources, legal and information services; transmission; document retention; and innovation. Vendors were hired where needed to provide research and expertise.

At the same time, employees performed their regular responsibilities to ensure safety, low-cost and reliable operations, member satisfaction and financial strength.

As work progressed, the world continued to change. EPA Administrator Scott Pruitt and his agency slowed some environmental regulatory pressures. Other opportunities arose out of sequence with the long-term planning but could not be ignored, including significant maintenance on a coal unit, a new commercial load, new wind power purchase agreements, compliance audits and market opportunities.

Associated will roll out the plan to members mid-2018, but already the cooperative and its members have reaped benefits from the deep dive into strategy, working together across division lines and exploring new tools and avenues.

Whether or not members see big changes in the near future, the process has created a stronger, more agile and cohesive organization for member-owners today and in the years to come. Whatever market, regulatory and technology challenges it faces, Associated will be fit and ready to climb those peaks on behalf of members and employees.

System operator Glenn Lamb

SERC certifies upgraded energy management system

Teams from accounting, engineering and information services completed a two-year initiative to upgrade the cooperative's energy management system, incorporating changes to make future upgrades in smaller, predictable increments over time.

The new system, designed from the "operator-out" perspective, included hardware and software to replace the five-year-old system. It provided tools for better situational awareness and faster data access. Improvements significantly enhanced system operators' real-time ability to manage the power grid.

Staff successfully cut over to the new system, which connects to all six G&Ts' substation telemetry and shared data processes, in late November without a hitch at the main system operations center and then the backup control center. Key to the process was the review and successful certification by both SERC Reliability Corp. and North American Electric Reliability Corp.

E&O evolves to meet member needs

Engineering and Operations is constantly evolving, adapting its strategies and adopting new techniques, tools and technology to manage and mitigate risks, leverage assets and capture opportunities.

All this helps Associated make decisions that result in reliable energy for members in the face of uncertainties inherent to energy markets, fuel commodities and operating in a regulated industry.

In 2017, that focus was evident in a number of achievements:

• Staff researched stochastic analysis tools, which are complex models designed to evaluate a wider range of variables and uncertainties, for integrated resource planning that will improve data for decision-making on myriad issues.

• Staff negotiated terms for capacity, energy and transmission services for a new commercial load in southeast Missouri, consolidating efforts around credit, risk and financial analytics.

• A cross-divisional team restructured processes to expand energy marketing opportunities by placing Associated's Dell Power Plant into the Midcontinent Independent System Operator energy market, effective Dec. 1, 2017. Operating as a market participant on a voluntary basis, the plant is still available for member load when needed.

• Continuing down the path of a diverse resource portfolio, Associated completed an exhaustive process of requests for proposals to acquire additional wind energy. Staff successfully negotiated two wind power purchase agreements that will provide members fixed, competitively priced wind energy for 25 years. Contracts were timed to seize advances in wind energy technology and dwindling tax credits.

Resiliency reigns

Associated continued to invest in, study and identify ways to improve the resiliency of its transmission system and its ability to recover from and react to unexpected circumstances.

• A ground-floor participant in developing the Regional Equipment Sharing for Transmission Outage Restoration, or RESTORE, Associated will share equipment with 18 utilities after events that cause major damage to transmission facilities. Overall, the program increases availability of equipment, which is expensive and has long lead times, and improves resiliency of the nation's transmission grid.

• Working closely with technical staff at its six owner G&Ts, Associated implemented automated outage request software to improve coordination of planned transmission outages. Efficiency is gained by automatic flow of information from the six G&Ts to Associated to the Tennessee Valley Authority, Associated's reliability coordinator.

• Staff explored issues that could affect reliability and recovery of the high-voltage transmission system. Going beyond studying the loss of one element of the transmission system, called N-1, staff studied the loss of two elements at the same time and evaluated results to ensure best industry practices are in place.

• In step with the long-term strategic planning initiative, staff went beyond traditional review of the system at high loads to study minimum load impacts, as well as extreme changes in generation dispatch. Understanding every contingency surrounding various generation dispatch was important to analysis of alternatives and solutions.

• The resiliency of the transmission system was tested in spring 2017, when rivers crested at levels that toppled 100-year-old records and took down 345-kV transmission structures in areas served by Central Electric Power Cooperative and Sho-Me Power Electric Cooperative.

The loss of certain line segments increased risk of low-voltage conditions and line overload issues. In response, system operators coordinated with the G&Ts, and engineers ran studies to determine transmission reconfiguration solutions. G&T crews inspected, repaired issues and returned lines to service. Then, the G&Ts rebuilt sections of the Salem-to-Fletcher, Franks-to-Fort Leonard Wood and Franks-to-Salem lines.

New Madrid Power Plant transmission facilities

Tool enhances troubleshooting on transmission lines

Engineering and Operations and Information Services divisions collaborated on in-house development of real-time contingency analysis tools for Associated and its six G&T owners. Using these tools, system operators can detect potential problems on the system, and then study the actions and associated risks to prevent failures.

Associated already had this ability for 138-kV and above lines through the Tennessee Valley Authority, its reliability coordinator. However, the six G&Ts needed it to evaluate conditions on their more than 6,900 miles of 69-kV lines integral to the system.

At the request of the G&T Operations Committee, comprised of staff from the six G&Ts, Associated replicated TVA reliability modeling and added analysis of the 69-kV system. Having the extended tool in-house enhances maintenance planning and coordination with the G&Ts, provides backup to monitoring done by TVA on 138-kV lines and above and allows Associated and TVA to work together to identify the best mitigations on issues.

At managers' meeting are, from left, Jeff Harrison, manager of engineering and operations, Bill Alkier, supervisor of resource planning, Brian Ackermann, manager, resource planning and marketing, and Roger Clark, senior vice president and chief commercial officer.

— Senior VP message —

E&O moves beyond status quo

I learned the value of analyzing threats while looking for opportunities as an Air Force pilot, and my experience as a distribution cooperative manager deepened my understanding of our mission to serve members.

Our mission today requires we broaden our view. In the last few years, we've broken out of our mold of doing things the way we always have, because status quo doesn't work in this industry. If you are not constantly pressing to improve, you will lose your strategic advantage.

Moving forward, we will continue to expand the way we look at things, the way we innovate, analyze and think of the future.

I see it in every department, whether we're talking about process or tools. We are understanding, managing and making decisions outside of the boundaries we historically set for ourselves.

Roger Clark, senior vice president and chief commercial officer

Engineering and Operations includes power marketing, contract origination, resource planning, system operations, operations planning, managing contracts on and through our transmission system and transmission planning.

— Senior VP message —

Energy marketing tracks the score

"You can't manage what you don't measure," said the scholar and teacher Dr. W. Edwards Deming.

In the Energy Risk Management Division, our key function is to identify, value, measure, monitor and report risks so that Associated is better able to manage its portfolio of resources.

Initially, our goal is to increase the flexibility of Associated's power marketing and fuels team by developing infrastructure – the people, processes and software – to support new hedging strategies that will enable the cooperative to succeed in a changing marketplace.

Building this middle office will help protect Associated from inherent market risks. I like to compare energy marketing to boxing. In other sports, you always know the score during the game, but in boxing you don't. A good middle office tries to measure the score during the match rather than just at the end when accounting tallies the numbers.

Scott Thompson, senior vice president and chief risk officer

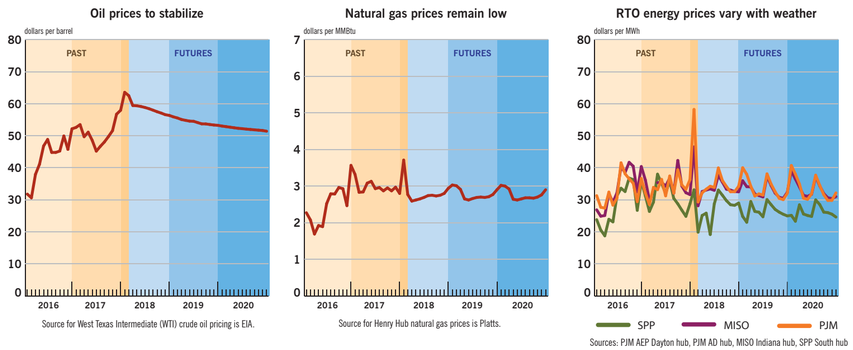
New division maps energy and risk strategies

Associated hired Scott Thompson in 2017 to develop the Energy Risk Management Division. Its purpose: provide an improved control environment and system of record for all energy commodity risks, including electricity, natural gas, diesel fuel, emissions and renewable energy credits. Centralized management of these risks improves the cooperative's ability to develop hedge strategies, monitor, manage and report on them.

While the new division is not yet fully developed, staff played a role in expanding portfolio management opportunities last year. Next steps: conduct studies to determine strategies and infrastructure to support the power marketing and fuels team. This will facilitate Associated's moving from only short-term energy commodity transactions to more mid-term (three- to five-year) transactions.

Eventually, the division will assist other teams, from providing risk reports to Accounting and Finance to generating maintenance outage risk reports for Power Production.

Diverse resources provide edge in market



Natural gas and oil prices recovered some in 2017 from historic lows in 2016. Energy commodities remain low by historical standards and will continue to be volatile based on weather.

— Senior VP message —

IS has a mission: Empower, protect, connect

Associated may be in the business of producing electricity, but every employee is an information user. Information Services works to ensure they have the tools and technologies they need, whether that is a tablet for the auxiliary operator recording data during daily rounds in the power plant or the needs of a board member accessing information remotely to evaluate strategic options.

Our staff continually scans technology changes that can improve or disrupt our competitive advantage. Recently, our focus has been on improving infrastructure and cybersecurity capabilities.

Looking ahead, we will ensure the systems that support other areas of the cooperative coincide with our strategic direction. Into the future, our focus may be "big data" analysis and learning that allows staff to incorporate algorithms to better leverage our G&T owners' assets.

We continue to collaborate with each division to seamlessly complete projects and integrate systems. We also partner with our G&T owners to provide systems we both can use to improve resiliency of the bulk electric system. We are seeing the power of integration and want to strengthen these connections to improve our overall business model.

Brent Bossi, senior vice president and chief information officer

Information Services Division supports, develops and engineers systems tied to operation of generating resources, bulk electric system, financial and business systems and core infrastructure for a productive workforce. It also protects all Associated technology resources in the categories of energy risk management, corporate network and plant controls, and researches new technology to potentially leverage within Associated.

IS partners on path forward

Information Services continued its focus of the last five years to invest in core infrastructure, cybersecurity and compliance with NERC Critical Infrastructure Protection standards. 2017 milestones included:

- Replaced and upgraded energy management system.
- Expanded network capability to meet growing needs at all locations.
- Updated back-end server architecture to improve reliability, disaster recovery and overall performance.
- Improved ability to prevent, detect and respond to cyberattacks in a manner that meets CIP compliance, sharing guidance and services with owner G&Ts as requested.

Information Services, with business partners assigned to each division, works to integrate with its internal clients and understand their business needs. This continuous interaction and learning the business is the "secret sauce" that makes projects seamless and successful.

Such was the case with projects in 2017:

- Worked with Engineering and Operations and the G&Ts to integrate a new load in Oklahoma; implement transmission planning software and transmission outage management software; and install a program for tracking substation components.
- Worked with Power Production on electronic operator rounds, time entry, energy change management and daily business partner support.
- Partnered with resource planning on a critical analysis tool for leveraging members' assets.
- Implemented initial set of tools to support the "middle office" being developed by new Energy Risk Management Division.

The cooperative continues to concentrate on its cybersecurity capabilities, increasing its budget significantly in the past three years to detect and prevent threats and protect members' assets.

Staff conducted "purple team testing" in 2017 to provide another tool in its arsenal to fight cyberattacks. Working alongside ethical hackers from a contracted firm, employees learned how hackers gain access to an organization. The resulting findings opened avenues for improvement in select areas and confirmed the cooperative's cybersecurity road map for 2018 and 2019.

Staff trains for peak performance

Like any serious athlete competing to win, Associated's leadership and workforce constantly look for and adopt best-in-class practices, track their performance, measure, improve and fine-tune their practices to ensure success.

Associated and its member systems rely on a diverse generating portfolio of coal, gas, wind and hydropower resources that provide reliability and flexibility for the cooperative in a changing industry.

Employees and leadership are focused on turning in a top performance, and the efficiency of the coal and gas fleets was instrumental to the cooperative's exceeding its financial plan in 2017.

Their efforts produced an availability factor of 86.3 percent on the coal fleet – the second best ever – and 84.2 percent availability on the gas fleet.

Contributing to this accomplishment were the reliability-centered maintenance program; no significant forced outages in 2017 due to better planning; a focus on safety; identification and mitigation of risks; better execution during outages; meticulous cost management; leadership; and a team of skilled craftsmen and women.

Reliability-centered maintenance keeps co-op in front of the pack

Safety is key to being the best in the industry. Other measures include improved availability and reliability of the units to serve native load, as well as availability for market opportunities.

Improvements in those areas are partly due to Associated's reliability-centered maintenance program, which remains on track to full implementation of a best-in-class program.

Staff made these enhancements to the reliability-centered maintenance program in 2017:

- Fully implemented an improved equipment lubrication program and began developing an enhanced motor reliability program.
- Continued to build infrastructure of the Computerized Maintenance Management System, called CMMS. Staff integrated data like plant drawings and equipment tagging into the CMMS. Integrating this data enhanced safety and enabled use of electronic tablets to improve data acquisition, accuracy and human performance.
- Developed and implemented an automated workflow process to link work orders and aid the change management process.
- Implemented invoicing with the CMMS to facilitate timely and accurate cost accounting for projects.

Additional initiatives to improve operational performance include a boiler and high-energy piping program; turbine generator program; and thermal performance program, which has focused on lowering heat rate – an indicator of unit efficiency.

New Madrid Power Plant achieved its lowest heat rate ever of 9,784 Btu/kWh, using less fuel per MWh produced. This improved performance equals about $350,000 in fuel savings. Thomas Hill Unit 1 heat rate improved with replacement of the air heater and other maintenance, equaling about $1.5 million in fuel savings.

Overall, the coal fleet had its third best year for heat rate, and work continues to make it better.

Chase Riley, auxiliary operator

Among the latest technologies for maintenance crews is a tablet-based information system. Replacing paper, it will provide technical work documents that mechanics, welders, electricians, instrumentation technicians and engineers need as they perform complex work and install updates that improve a plant's reliability.

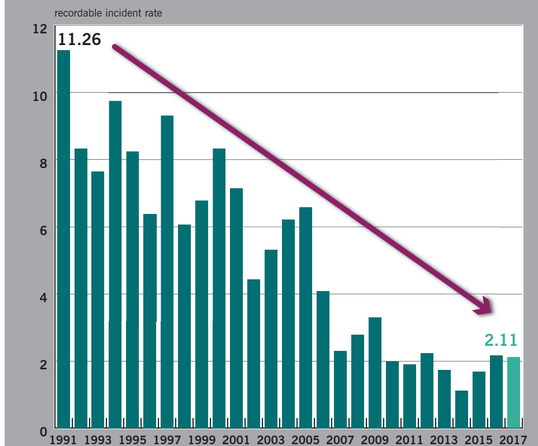
Operators use tablets to scan equipment tags that provide data. The tags were part of the infrastructure built in the computerized maintenance management system. The program caught the attention of Duke Energy, which visited in spring 2017 to observe and learn more about it.

Focus fixed on safety

Leadership and employees celebrated the record of 1,554 days without a lost-time accident, defined as an incident that causes them to miss their next scheduled work time, at the 1,200-MW New Madrid Power Plant.

The record, which extended to mid-December, illustrated the targeted trend of reducing serious injuries while working to eliminate risks that cause injuries. It also reflects frontline supervisors being more involved in the protection of craft employees under their direction.

Associated's 2017 recordable incident rate was 2.11 per 200,000 hours worked, which is consistent with the past few years but not where the cooperative wants to be. Associated continues to enhance its safety program, including lock-out, tag-out efforts, zone audits, job safety, near-miss reporting, employee feedback, a "brother's keeper" emphasis, Safety in Motion training and the launch of a human performance initiative that will continue forward in 2018.



Chief Operations Officer Ken Wilmot, left, and Steve Iwanowicz, plant manager, Thomas Hill Energy Center

— Senior VP message —

Compass set for continuous improvement

In Power Production, we've set a course of continuous improvement, focusing on four key areas: • Safety • Operational excellence • Cost control • Leadership development

In the area of safety, we continue to focus on eliminating errors, reducing complacency and human performance incidents. We're improving our change management process by documenting equipment changes and incorporating those into procedures and processes, such as lock-out, tag-out to clearly identify when equipment is out of service for maintenance. We want to ensure employees' safety, improve asset reliability and reduce maintenance costs.

Our focus will stay on communication, maintaining a questioning attitude and fostering an environment that encourages ideas and recognizes employees' contributions. Our new peer-to-peer employee mentoring program and iGen program, designed to bring forth employee ideas, already have produced benefits.

We have improved our project management process through better collaboration and communication across the division and will continue down that road.

We always look for ways to improve our performance in the areas of safety, reducing risks, lowering costs, improving reliability, communicating and focusing on strategic issues.

Ken Wilmot, senior vice president and chief operations officer

Power Production is responsible for operation and maintenance of coal and gas generating resources, continuous improvement, engineering and construction, physical security, environmental health and safety and operational compliance.

Team improves fleet reliability

At the coal and gas plants, Associated employees maintained reliable, efficient operations and completed a number of maintenance outages and projects to improve fleet performance.

Associated continually measures key performance indicators and targets improvements that improve fleet performance. For example, employees achieved an unplanned outage factor of 5.1 percent in 2017, an improvement from the three-year average and better than the industry three-year average for peer group of 8.26 percent. Other accomplishments:

- Coal fleet's capacity factor was 74.8 percent.
- Coal fleet's net heat rate was 9,810 Btu/kWh, which was aided by New Madrid plant's all-time best heat rate and its second best year for availability at 85.6 percent, and Thomas Hill Energy Center's achieving a net plant heat rate of 9,853 Btu/kWh, its third all-time best, and 88.9 percent availability, its fifth best year.

At New Madrid, maintenance challenges included 32 days of unplanned outage for boiler and cyclone tube leaks.

The team also successfully moved a 28-day outage on New Madrid Unit 2 from spring 2018 into fall 2017, illustrating the strength and flexibility of the fleet. The change was needed for connection of a new 460-ton generator step-up transformer earlier than planned. Additional work completed included generator auxiliary controls upgrade and maintenance on the precipitator, air heater, main turbine valves and actuators.

At Thomas Hill Energy Center, maintenance outages improved performance of Unit 1 selective catalytic reduction equipment that reduces nitrogen oxides emissions. On Unit 2, staff improved efficiency by restoring to full capacity two feedwater heaters, which preheat boiler water to improve thermodynamic efficiency of the system, and repaired the generator's exciter rotor.

Staff from both coal plants collaborated on a comprehensive review and rewrite of the 300-page maintenance manual, updating it with significant process improvements like use of hand-held electronic devices to record information. Training, testing and implementation of the new manual – a road map to comprehensively cover maintenance and repairs – follows in 2018.

Gas fleet targets maintenance

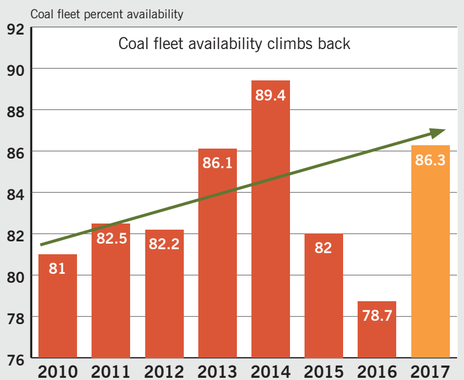
The gas fleet team achieved a number of projects and managed unplanned outages at the Essex and Dell power plants that affected the plants' availability factors.

- Staff continued to upgrade controls at all the natural gas plants. The main controls at the Chouteau 1 plant were successfully finished.
- At Chouteau Power Plant, major inspections of the gas units that first went into operation in 2000 were performed. After 100,000 hours of operation, Chouteau 11 unit was taken apart, inspected, parts cleaned, with some replaced or refurbished, and reassembled. Chouteau Unit 12 underwent a generator inspection and rotor replacement, while a 50,000-hour inspection and rotor replacement were performed on the Chouteau 10 steam turbine.
- Inspections and repairs also were performed at the second, 522-MW plant at Chouteau; the Dell and St. Francis combined-cycle power plants; and the simple-cycle Essex plant.

Yet, natural gas generation was above budget at 590,296 MWh. The fleet set a net generation record for a single day of 43,397 MWh on Jan. 7, 2017, as well as the highest generation ever for the specific month of November.

Associated marked its second best coal fleet availability due to continued focus on operational excellence. Driving factors included reliability-centered maintenance, outage planning and execution, mitigation of risks and dedicated employees.

2017 put the cooperative back on an upward trend, temporarily set back in 2015 and 2016 due to large outages at New Madrid Power Plant to perform turbine and boiler work. Associated also took advantage of low natural gas prices in 2015 and 2016 to perform maintenance on the coal units, preparing them for performance in 2017.



CPP certainty not on the map

The Obama administration issued its final Clean Power Plan in August 2015 to reduce greenhouse gas emissions. As expected, the costly plan was challenged. Feb. 9, 2016, the U.S. Supreme Court issued an unprecedented stay of the regulation until legal challenges were resolved.

The wind changed with President Trump's election and his appointment of EPA Administrator Scott Pruitt, who announced plans to withdraw the overreaching Clean Power Plan. He held listening sessions in 2017 and 2018 to gather comments.

Working with NRECA, Associated commented on the proposed Clean Power Plan replacement rule and attended the listening session in Missouri. Certainty on the issues will remain elusive as more litigation is expected on the repeal and replacement.

Meanwhile, Associated continued to manage its carbon footprint with diversification of its generating resources that include coal, gas, hydropower, wind energy and an energy efficiency program.

Environmental Protection Agency Administrator Scott Pruitt delivered good news to a receptive crowd gathered April 20 at Thomas Hill Energy Center.

'War on coal' is over

In an unprecedented turn of events, the administrator of the Environmental Protection Agency visited Associated's Thomas Hill Energy Center April 20, 2017, delivering news that brought to its feet a crowd of some 250 elected officials, members, employees and representatives of cooperative organizations and strategic alliances.

Administrator Scott Pruitt was in the state to promote his "Back to the Basics" regulatory approach and learn more about the role electric cooperatives play in powering the nation's economy. "We can do both: growth and protect our environment," Pruitt said, adding that the EPA was getting out of the business of picking winners and losers when it comes to energy sources.

Associated worked with the Association of Missouri Electric Cooperatives and the National Rural Electric Cooperative Association on the quick coordination of the event.

On short notice, Associated employees at Thomas Hill spruced up the plant and prepared for the visit.

Member Services and Corporate Communications staff coordinated the event with AMEC and Thomas Hill staff as well as handled member, employee and media relations.

Later in the year, EPA started its review of several regulations that affect Associated and its members, including coal ash handling, water quality and the Clean Power Plan to regulate greenhouse gas emissions.

Missouri's electric cooperatives submitted more than 300,000 comments to EPA on the Clean Power Plan, denouncing higher rates and supporting a diversified energy policy that promotes economic growth. "Those comments fell on deaf ears," said Barry Hart, vice president and CEO of the Association of Missouri Electric Cooperatives. "We are encouraged to see that the Trump administration understands the concerns of people in rural America and is committed to bringing the change they want."

Stewardship stays on course

As a wholesale power supplier, Associated charts its course forward in a heavily regulated industry. Environmental regulations and compliance are part of the utility business, particularly for a cooperative that meets its mission of reliable, affordable power for members with low-cost coal units.

How a business meets applicable regulations is critical. Associated strives to do it better and more cost effectively, balanced with stewardship of natural resources that are valued by the cooperative and its member-owners.

For example, in 2017, Associated successfully participated in 19 agency reviews and inspections from state and federal environmental and safety agencies without incident or citation.

To succeed, Associated relies on proactive, innovative staff; strong, tended relationships with regulatory agencies; research and collaboration; and grass-roots efforts of its staff and members.

These strengths are exemplified by its steps to reduce mercury emissions years before requirements.

- In 1994 Associated was one of the first utilities to use 100 percent low-sulfur coal, reducing sulfur dioxide emissions 90 percent. The coal also is lower in metals, like mercury and other hazardous air pollutants.
- Beginning in 2011, Associated reduced mercury emissions another 40 percent by leading the nation with use of refined coal technology in cyclone units, and then later installed on its pulverized unit. The technology reduces fuel costs too, saving members $7.8 million last year through contracts related to a President George W. Bush-era stimulus package.
- The cooperative completed another $35 million in projects to further reduce mercury emissions and meet the Mercury Air Toxics Standards, effective in 2016.
- In 2017 staff continued to fine-tune operation of that equipment, reducing overall mercury emissions about 85 percent compared to baseline 2010 emissions – well below the mercury standards.

Associated also must meet stringent land, water and coal ash handling regulations. In 2017 it worked to meet more deadlines outlined in EPA's Coal Combustion Residuals rule, effective in fall 2015, as well as prepare for the Clean Water Act Effluent Limitation Guidelines it will meet in 2018 and 2023 as it renews discharge water permits at the coal plants.

Both rules are under review by the EPA, enabling Associated time to further review projects and save members' money.

However, a number of deadlines still must be met. Associated moved ahead on several measures to ensure its compliance amid uncertainty on regulations.

As required by the Coal Combustion Residuals rule, Associated completed the first phase of groundwater monitoring testing from a number of wells previously installed around its ash ponds and posted results on its CCR website, providing transparency. Work in 2017 included implementation of the groundwater monitoring system, background data and initial detection monitoring. Employees are analyzing data, which will determine next steps as outlined in the CCR rule.

Thomas Hill employees

Grant matched for monarchs

Associated received a $45,000 grant in 2017 from the Missouri Conservation Heritage Foundation for monarch butterfly habitat. Matching the grant with funds and in-kind labor, Associated is developing habitat on 32 acres at Thomas Hill Energy Center.

Monarch butterfly populations have declined 90 percent in the last 20 years, putting them at risk for listing as an endangered species. That could have an adverse impact on Associated and its members by creating restrictions that make it more difficult and costly to site and maintain transmission facilities and rights of way.

Instead, cooperatives allied to protect pollinators, which are important to agriculture, natural landscapes and quality of life. Associated sponsored the first Missouri Monarch and Pollinator Conservation Strategy meeting and serves on the steering committee "Missourians for Monarchs," a collaboration of citizens, conservation and agricultural organizations, government agencies, utilities and agribusinesses.

Coal yard crews move 450,000 tons for compliance

At Thomas Hill Energy Center, coal yard employees removed 450,000 tons of ash from an inactive ash pond slated for closure under the Coal Combustion Residuals rule.

Associated's coal yard crews, versus outside contractors, completed the project in two years, saving members about $1 million in labor costs and finishing ahead of the 2018 deadline. Haul trucks made close to 20,000 round trips from the excavation site to the landfill without injury or equipment damage.

Kudos to Associated employees for taking initiative on the project.


Thomas Hill Energy Center

Compliance reaches across co-op

Across the organization, staff worked to strengthen compliance, from protecting against cybersecurity threats to ensuring reliability with NERC standards.

Associated completed its third audit of federal cybersecurity standards and continued to strengthen its program for compliance with North American Electric Reliability Corp. standards. These standards are constantly being upgraded and expanded, making 100 percent compliance an ongoing challenge.

To ensure it is well-positioned, Associated's board approved hiring a third-party consultant to review, identify improvements and determine the impacts of rapidly evolving reliability standards on Associated and the three-tiered structure. The firm, SOS Intl, found Associated's in-house compliance program to be sound and effective, giving it a clean bill of health. Recommendations will strengthen compliance throughout the organization and help Associated deliver quality reliability compliance guidance to member-owners.

In Power Production, staff continued to monitor, analyze and improve response of the generating units to frequency events on the transmission system, the first year it was required under NERC standards.

To meet cybersecurity requirements, Associated installed a new monitoring platform ahead of schedule and under budget on three of the gas plants.

In another initiative, legal and member services staff worked with member systems on the emerging issue of distributed generation. Nearly all systems participated in a Joint Public Utility Regulatory Policies Act (PURPA) Implementation Plan, sending a clear signal to qualified facility generators that they have a ready-made market for power by working with Associated, which buys the power at avoided cost.

New Madrid Power Plant

— Senior VP message —

Culture and leadership drive compliance

Corporate compliance reaches across Associated, which continues to sustain and strengthen its culture and leadership in safety, human resources, cybersecurity and grid reliability compliance.

The many moving parts of compliance are embedded in the responsibilities, to some degree, of everyone at Associated. Our team works to ensure there are appropriate policies, procedures and documentation in place – our first line of defense. We also work to ensure Associated staff has the tools and information they need to stay abreast of new developments and manage ever changing compliance requirements.

Brian Prestwood, senior vice president, general counsel, chief compliance officer

The audit, compliance and legal services division is responsible for legal, reliability compliance, operational and audit activities designed to add value and improve the cooperative's operations.

Transformer travels across sea to New Madrid

After more than a 5,000-mile journey from Weiz, Austria, to New Madrid Power Plant, a new generator step-up transformer was placed and connected to ensure reliability for members. The replacement of the transformer culminated years of work by staff in Power Production.

The 460-ton transformer, which replaces one that had reached its end of life, was connected during the fall outage. M&A Electric Power Cooperative performed the 345-kilovolt disconnection at the beginning of the outage and made final reconnection after testing completed.

Associated rarely replaces a transformer this large. The transformer tank and 27 crates of parts traveled from the Siemens factory in Austria via railway, ship, barge and truck before arriving at New Madrid the end of May.

This transformer is a critical piece of Associated's member-owned generation and transmission system. It takes generation output from the plant, steps it up to transmission voltage level, and then moves it to the transmission grid. Voltage enters the transformer at 22,000 volts and exits at 345,000 volts.

HR provides tools for the course ahead

Human Resources continued to provide services and tools, ranging from dashboards to one-on-one conversations, to equip a high-performing, fast-moving workforce.

Cooperation crafts union contract

Collaboration was best illustrated with the successful four-year extension of the labor contract with employees represented by the International Brotherhood of Electrical Workers. Working together, the union and staff from Power Production, Human Resources and Executive divisions agreed on an extension, as well as issues to address, that worked for both parties. The agreement was ratified with a single vote, maintaining a harmonious working relationship for the benefit of member-owners.

In 2017, human resources also achieved these highlights:

- Launched the Learning Center – an online, centralized portal for various training needs, ranging from safety to onboarding processes, across the cooperative. The single, integrated platform provides efficiency for both administrators and employees, who can track their training.
- Enhanced salary administration module for executive team and plant managers. The module replaced manual spreadsheets with real-time data in one centralized location. Staff added a wage and salary dashboard that provides real-time reporting to assess competitiveness of an employee's pay level, pay within defined markets and merit pay impacts.
- Established a separate organizational development department to fill a growing need within the cooperative. This department will manage the employee engagement survey, talent management process, Learning Center and more.
- Continued to execute recruitment strategy to source, identify, hire and retain diverse and high-performing talent needed for the cooperative's continued success.
- Payroll team successfully processed payroll at backup control center to ensure business continuity in the event of a disaster.

Chief Human Resources Officer Shawn Calhoun, left, conducts division meeting.

— Senior VP message —

HR supports the workforce behind our top G&T ranking

In Human Resources, we are in the business of always recalibrating and re-engineering our HR products to ensure they remain viable business solutions for Associated, whether it's performance management, wage and salary toolkits, recruitment, succession planning or engagement surveys.

We will continue our successful business partnerships with each division, as well as with the power plants, that provide a designated, trusted HR advisor who understands that division's needs and objectives.

As we strive to add value to Associated's bottom line, we will work with Information Services to deliver additional metrics that give valuable data to employees, managers and executives in a self-serve, automated format.

Our ear is to the ground, and we will continue to listen to evolving changes within our organization in order to anticipate and deliver sound products and solutions that support the employees who are behind Associated's ranking as a top G&T in the nation.

Shawn Calhoun, senior vice president and chief human resources officer

Human Resources Division provides a range of services, including attracting and recruiting candidates, salary administration, payroll, labor relations, wellness and benefit administration, leave management, compliance, employee record management, employee relations, succession planning, employee development and performance management.

Shane Bruner, senior engineer at Thomas Hill Energy Center, received Associated's 2017 Excel award for Mentor of the Year, joining 16 other employees nominated by their peers for prestigious Excel awards that recognize employees' outstanding work.

Peregrine 'power rangers' take flight from power plant

Four peregrine falcon chicks successfully hatched in a nest box on the lower ring of the Thomas Hill Unit 3 emissions stack. The chicks are the fruition of a program that began in 2004 at New Madrid Power Plant to help restore the once endangered peregrine falcon and address a pesky pigeon population. It was later expanded to Thomas Hill.

In 2017 the Missouri Department of Conservation and the U.S. Department of Agriculture teamed up to band falcon chicks at known nest sites throughout Missouri. MDC and USDA staff put one federal and one state band on each chick's leg and will enter the band numbers into a database.

AECI cultivates cohesion

No matter where Associated goes or how it gets there, its true north always will be member satisfaction, service and cohesion among the three-tiered system of cooperatives.

Keeping members informed and involved continues to be integral to Associated's business strategy for meeting industry changes that range from how electricity is generated, or stored, to how it is used by member-consumers.

While the system load is about 90 percent residential, member cooperatives serve homes, large and small farms, schools, industries, businesses, residences and tourism hot spots in three states.

The needs of members behind these meters are as diverse and dynamic as the six G&T owners and the 51 distribution cooperatives in the three-tiered system served by Associated.

Meet members' needs

Ensuring the success of member systems includes providing an economical, reliable power supply and a host of support services that differ for each cooperative.

A number of member cooperatives continue to experience flat or declining loads. Associated, in its 10-year forecast, projects 0.7 percent growth in peak demand and energy use.

This prompted creation and launch of the Power4Progress economic development program in 2017. Its objective: attract new business, expand existing businesses and create jobs, as well as electric load.

While Associated has offered economic development services since 1989, the struggle for some rural communities to recover from the 2008 economic downturn led to formation of a member-initiated economic development planning committee. Two representatives from each G&T's region serve on the committee.

Working with Associated staff, the committee researched and defined the needs and then established the Power4Progress program with four areas of focus: learning, financing resources, networking and project management. Associated's board then approved a package of economic development resources and a five-year budget.

The program is available to all six owner generation and transmission cooperatives and 51 member distribution cooperatives. Associated staff will continue to work with the staffs of member systems as they enhance key account programs and work on recruiting new loads.

Adapt with changing consumer use

Member-consumers are becoming more sophisticated about their energy use, as are meters and consumer billing systems, which led three distribution cooperatives to adopt residential demand rate structures that account for peak energy use. Another handful of member systems are studying residential demand rate structures.

Associated staff supported member systems adopting residential demand rate structures by coordinating information-sharing and a user group.

Take Control & Save

The Take Control & Save energy efficiency program continued to benefit members at the end of the line wanting to save on their electric bills. Associated and participating cooperatives have invested more than $58.8 million in the program since 2008, and the lifetime kilowatt-hour savings of the investment is estimated at 1.7 billion kWh.

Debbie Willette, a director at Crawford Electric Cooperative, asks a question during AECI's 2017 annual meeting.

Solar arrays top 1,200

Member systems and Associated reached a milestone number of solar arrays installed on the three-tiered system in 2017, topping 1,200 by year-end. Staff processed 363 contracts, a 15 percent increase compared with 2016.

Associated is a party to the contracts for distributed generation systems due to the all power requirements relationship with the G&Ts and distribution cooperatives. Excess energy sent to the grid from these systems is purchased by Associated at avoided cost. The average size of these systems is 9.57 kilowatts, and cumulative year-end 2017 totaled 12,091 kW, or 12 megawatts.

Staff, managers and boards of directors of member systems interested in knowing more about solar energy continued to request information and presentations from member energy services staff.

Associated also worked with its three statewide organizations on net metering legislation that ensures fairness for all members – those with and without solar arrays.

— Senior VP message —

Communication supports cohesion

In a changing industry and fast-paced world with emerging technologies, communication is key to keeping the three-tiered system united.

Even how communication happens keeps changing.

Our team is always looking for better ways to keep members and employees abreast and informed of the issues, whether those matters are about Associated and the challenges it faces, trends and issues that may impact them, or the products and services we can provide to serve them.

Sometimes face-to-face communication is best. Sometimes it's a new mobile application or website design. We work to make it easy.

As Associated changes to meet challenging environmental regulations, market forces, reliability requirements or changing member systems' needs, we will continue to provide members the information they need to govern their cooperatives, make good decisions and serve their members down the line.

Joe Wilkinson, right, and Dave Ramsey, manager, member energy services, discuss issues with state legislators.

Joe Wilkinson, senior vice president and chief member relations officer

Member Services and Corporate Communications includes member, employee and media communications; economic development; member energy services, marketing and advertising; and coordination with statewide organizations.

Team racks up miles to stay connected

Serving six regional and 51 local electric cooperatives, all independently owned and governed by their members, requires Associated's member services team to travel, meet and listen to members' needs and inform them about available resources.

In 2017, the team:

- Set up an exhibit about Associated resources and engaged with members at 44 of member distribution cooperatives' annual meetings, traveling from Iowa to Oklahoma.
- Gave myriad presentations to audiences ranging from cooperative boards to legislators to agricultural leaders.
- Coordinated the annual update meetings at each of the G&Ts, providing presentations on financial results, operations and long-range forecasts.
- As the Touchstone Energy regional member, represented the system on the national regional members group and the Standards and Best Practices Committee, led three Touchstone Energy training sessions at member cooperatives' offices, coordinated and hosted annual regional summit and training.
- Conducted orientation with seven new member system managers.
- Visited the offices of 34 cooperatives, making 81 trips.
- Member Services and Corporate Communications staff also coordinates Associated's annual meeting, attended by 780 members and guests last year, as well as other events.
- Division staff played a significant role in the coordination of EPA Administrator Scott Pruitt's visit to the Thomas Hill Energy Center, working closely with staff at the plant, the Association of Missouri Electric Cooperatives, as well as EPA staff, on the event. The event also provided an opportunity for Associated's executive team to meet with Pruitt on the challenges faced by electric cooperatives.

Board of directors and service area

Associated serves six G&Ts providing power to 51 distribution co-ops in three states

Northeast Missouri Electric Power Cooperative

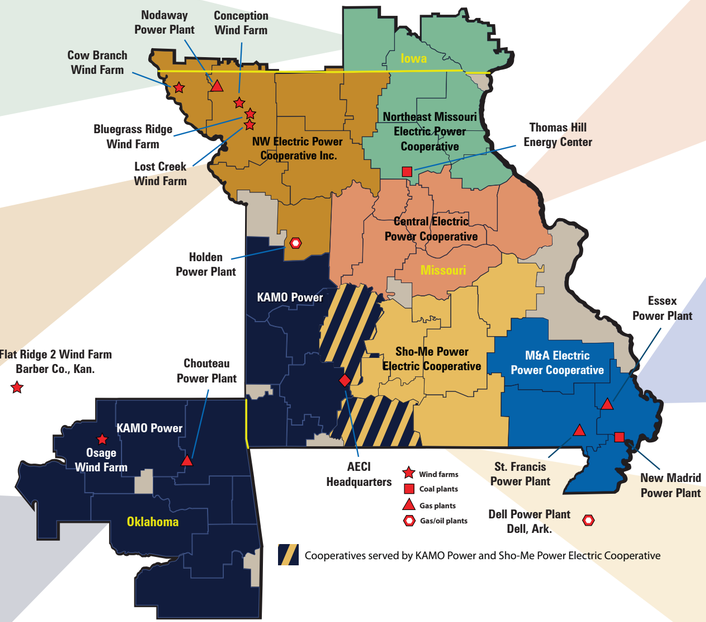
Douglas H. Aeilts and Emery O. Geisendorfer, president

NW Electric Power Cooperative Inc.

John B. Killgore, vice president, and David L. McDowell

KAMO Power

John E. Hibdon, secretary, and J. Chris Cariker



Central Electric Power Cooperative

Christopher M. Turner and Thomas W. Howard

M&A Electric Power Cooperative

T.E. "Jake" Fisher, treasurer, and Daryl R. Sorrell

Sho-Me Power Electric Cooperative

John T. Richards and Dan A. Singletary

Central Electric Power Cooperative – Jefferson City, Missouri

• Founded: 1949 • Counties served: 34 • Miles of line energized: 1,650

- Boone Electric Cooperative – Columbia, Missouri
- Callaway Electric Cooperative – Fulton, Missouri
- Central Missouri Electric Cooperative Inc. – Sedalia, Missouri
- Co-Mo Electric Cooperative Inc. – Tipton, Missouri
- Consolidated Electric Cooperative Inc. – Mexico, Missouri
- Cuivre River Electric Cooperative Inc. – Troy, Missouri
- Howard Electric Cooperative – Fayette, Missouri
- Three Rivers Electric Cooperative – Linn, Missouri

KAMO Power – Vinita, Oklahoma

• Founded: 1941 • Counties serviced: 50 • Miles of line energized: 2,594

- Barry Electric Cooperative – Cassville, Missouri
- Barton County Electric Cooperative Inc. – Lamar, Missouri
- Central Electric Cooperative – Stillwater, Oklahoma
- Cookson Hills Electric Cooperative Inc. – Stigler, Oklahoma
- East Central Oklahoma Electric Cooperative Inc. – Okmulgee, Oklahoma
- Indian Electric Cooperative Inc. – Cleveland, Oklahoma
- Kiamichi Electric Cooperative Inc. – Wilburton, Oklahoma
- Lake Region Electric Cooperative Inc. – Hulbert, Oklahoma
- New-Mac Electric Cooperative Inc. – Neosho, Missouri
- Northeast Oklahoma Electric Cooperative Inc. – Vinita, Oklahoma
- Osage Valley Electric Cooperative Association – Butler, Missouri
- Ozark Electric Cooperative – Mt. Vernon, Missouri
- Ozarks Electric Cooperative Corp. – Fayetteville, Arkansas
- Sac Osage Electric Cooperative Inc. – El Dorado Springs, Missouri
- Southwest Electric Cooperative – Bolivar, Missouri
- Verdigris Valley Electric Cooperative Inc. – Collinsville, Oklahoma
- White River Valley Electric Cooperative Inc. – Branson, Missouri

M&A Electric Power Cooperative – Poplar Bluff, Missouri

• Founded: 1948 • Counties served: 18 • Miles of line energized: 1,025

- Black River Electric Cooperative – Fredericktown, Missouri
- Ozark Border Electric Cooperative – Poplar Bluff, Missouri
- Pemiscot-Dunklin Electric Cooperative – Hayti, Missouri
- SEMO Electric Cooperative – Sikeston, Missouri

Northeast Missouri Electric Power Cooperative – Palmyra, Missouri

• Founded: 1948 • Counties served: 33 • Miles of line energized: 984

- Access Energy Cooperative – Mt. Pleasant, Iowa
- Chariton Valley Electric Cooperative Inc. – Albia, Iowa
- Lewis County Rural Electric Cooperative – Lewistown, Missouri
- Macon Electric Cooperative – Macon, Missouri
- Missouri Rural Electric Cooperative – Palmyra, Missouri
- Ralls County Electric Cooperative – New London, Missouri
- Southern Iowa Electric Cooperative Inc. – Bloomfield, Iowa
- Tri-County Electric Cooperative Association – Lancaster, Missouri

NW Electric Power Cooperative Inc. – Cameron, Missouri

• Founded: 1949 • Counties served: 32 • Miles of line energized: 1,709

- Atchison-Holt Electric Cooperative – Rock Port, Missouri
- Farmers' Electric Cooperative Inc. – Chillicothe, Missouri
- Grundy Electric Cooperative Inc. – Trenton, Missouri
- North Central Missouri Electric Cooperative Inc. – Milan, Missouri
- Platte-Clay Electric Cooperative Inc. – Kearney, Missouri
- United Electric Cooperative Inc. – Maryville and Savannah, Missouri
- West Central Electric Cooperative Inc. – Higginsville, Missouri

Sho-Me Power Electric Cooperative – Marshfield, Missouri

• Founded: 1941 • Counties served: 29 • Miles of line energized: 1,862

- Crawford Electric Cooperative Inc. – Bourbon, Missouri
- Gascosage Electric Cooperative – Dixon, Missouri
- Howell-Oregon Electric Cooperative Inc. – West Plains, Missouri
- Intercounty Electric Cooperative Association – Licking, Missouri
- Laclede Electric Cooperative – Lebanon, Missouri
- Se-Ma-No Electric Cooperative – Mansfield, Missouri
- Southwest Electric Cooperative – Bolivar, Missouri
- Webster Electric Cooperative – Marshfield, Missouri
- White River Valley Electric Cooperative Inc. – Branson, Missouri

Associated has long-term wind power purchase agreements totaling 750 megawatts of operating wind energy. It helped bring about Missouri's first utility-scale wind farms and since has contracted for 300 megawatts from Flat Ridge 2 farm in south-central Kansas and 150 MW from the Osage Wind Farm in northeast Oklahoma.

As Associated continued to consider renewable energy options that meet its member systems' needs, it negotiated power purchase agreements for additional wind energy. Early 2018, it announced the signing of a 25-year power purchase agreement for 236 megawatts of wind energy from Tenaska's Clear Creek Energy Center. Currently in development, the wind farm is on cooperative lines and located near Maryville in Nodaway County, Missouri. The wind farm is expected to be operational in 2020.

Lost Creek Wind Farm in northwest Missouri. Photo courtesy of Wind Capital Group.

Ten-year statistical summary

Year (calendar year basis)	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**2008**
Operating revenue (in thousands)	**$1,082,700**	$1,093,545	$1,090,790	$1,142,320	$1,129,752	$1,081,899	$1,083,734	$1,055,103	$988,058	$1,084,770
Sales (kWh in thousands)	**22,372,148**	22,978,917	22,519,981	22,794,455	24,122,178	23,257,842	23,366,696	23,269,001	22,352,129	23,417,139
Total member sales	**17,832,428**	17,879,974	17,924,012	18,688,056	18,330,147	18,078,911	18,603,536	18,962,284	17,866,111	18,447,072
Central Electric Power Cooperative	**3,560,201**	3,636,158	3,572,374	3,755,050	3,680,320	3,522,610	3,571,431	3,580,599	3,342,947	3,481,427
KAMO Power	**6,423,812**	6,351,957	6,537,387	6,792,200	6,528,534	6,201,160	6,436,559	6,461,680	6,098,183	6,238,584
M&A Electric Power Cooperative	**1,666,063**	1,723,722	1,706,742	1,795,459	1,737,674	1,716,541	1,729,026	1,820,964	1,627,620	1,690,910
Northeast Missouri Electric Power Cooperative	**1,462,436**	1,299,942	1,256,184	1,305,431	1,321,433	1,255,265	1,251,396	1,267,895	1,215,679	1,247,307
NW Electric Power Cooperative Inc.	**1,722,509**	1,739,503	1,730,879	1,774,683	1,780,568	1,778,823	1,869,618	1,911,351	1,705,372	1,692,162
Sho-Me Power Electric Cooperative	**2,997,407**	3,128,692	3,120,446	3,265,233	3,281,618	3,604,512	3,745,506	3,919,795	3,876,310	4,096,682
Total nonmember sales	**4,539,720**	5,098,943	4,595,969	4,106,399	5,792,031	5,178,931	4,763,160	4,306,717	4,486,018	4,970,067
Peak hour member demand (MW)	**4,374**	4,379	4,506	4,598	3,905	4,354	4,441	4,495	4,292	4,268
Member load factor (%)	**46.3**	46.1	44.7	45.8	53.1	46.7	47.3	47.6	46.9	51.1
Member load growth (%)										
Energy	**(0.3)**	(0.2)	(4.1)	2.0	1.4	(2.8)	(1.9)	6.1	(3.2)	1.1
Demand	**(0.1)**	(2.8)	(2.0)	17.7	(10.3)	(2.0)	(1.2)	4.7	0.6	0.5
Investment in facilities (original cost in thousands)	**$3,985,538**	$3,934,751	$3,852,543	$3,737,915	$3,672,637	$3,610,868	$3,546,039	$3,444,278	$3,100,486	$2,861,374
Total assets (in thousands)	**$3,083,454**	$3,047,369	$2,989,865	$2,956,254	$2,988,262	$2,972,181	$2,971,028	$2,852,098	$2,562,417	$2,267,904
Long-term debt (in thousands, excluding current maturities)	**$1,842,560**	$1,858,115	$1,849,795	$1,812,663	$1,849,113	$1,830,572	$1,810,387	$1,773,982	$1,619,099	$1,334,712
Total capacity (MW) (see capacity notes, back cover)	**5,700**	5,700	5,891	5,827	5,787	5,895	5,895	5,255	5,237	5,237
Revenue from members (mills per kWh)	**51.48**	51.57	51.16	49.94	48.93	49.21	47.51	45.75	45.89	41.16

Management's discussion & analysis

Associated Electric Cooperative Inc. is owned by and provides wholesale power to six regional generation and transmission cooperatives. In turn, these six regional generation and transmission cooperatives are owned by and provide wholesale power to 51 local electric cooperative systems in Missouri, southeast Iowa and northeast Oklahoma. Associated's mission is to provide an economical, reliable power supply and support services to its members.

Associated operates on a not-for-profit cooperative basis. Accordingly, revenues in excess of current period costs in any particular year are designated on the statement of revenues and expenses as "net margin." Member margins (as computed for federal income tax purposes) are credited to patronage capital and assigned to the members on the basis of patronage.

Patronage capital assigned to members is available for refund to the members when authorized by Associated's board of directors and subject to certain restrictions contained in the Amended and Restated Indenture between Associated and Commerce Bank, N.A., dated Oct. 25, 2016. Subject to the indenture and various debt agreements, the board of directors of Associated has the power to self-regulate Associated. Since 1993, Associated's board of directors annually has resolved to retire 2 percent of the prior year-end equity balance. As a result, $200.4 million has been refunded to members since that time.

Associated sells electric power and energy to its members pursuant to the all-requirements wholesale power contracts that extend through 2075. The wholesale power contracts require each member to purchase all its electric power and energy needs from Associated.

Pursuant to the wholesale power contract, each member is obligated to pay scheduled demand and energy charges designed to cover all of Associated's costs as determined by Associated's board of directors. These rates are the same to each member. At such intervals as it deems appropriate, but not less frequently than once a year, the board of directors of Associated reviews and may revise the rate schedule.

Associated obtains the electric power and energy needed to serve its members from a combination of generation that Associated owns and operates; generation owned by others but operated and/or dispatched by Associated; and purchased power.

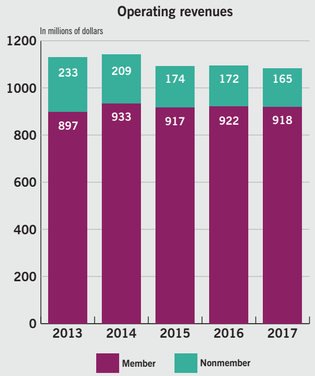
Earnings overview

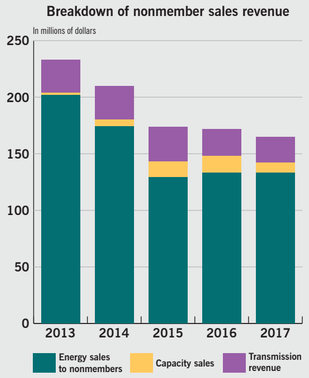
Net margin for the year ended Dec. 31, 2017, was $44.0 million, an increase of $1.9 million from the prior year. The following are some significant factors that affected 2017 net margin as compared with 2016.

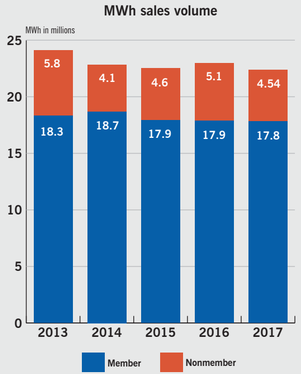
Operating revenues

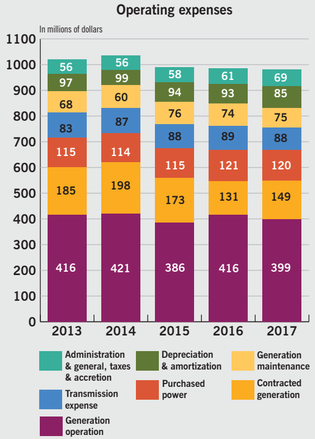
Associated's operating revenues are derived from sales to our member generation and transmission cooperatives (G&Ts) and nonmembers. Nonmember revenue consists of sales of excess energy in the wholesale markets and through structured agreements with other entities, sales of excess generating capacity and transmission sales.

Member revenue in 2017 totaled $918.0 million, a decrease of $4.1 million from 2016 revenue. Member energy sales volumes in 2017 were slightly lower than 2016 at 17,832 GWh, a decrease of 0.3 percent from 2016 volumes. Additionally, member billing demand in 2017 was lower than 2016 by 2.0 percent. Offsetting these lower volumes was a member rate increase of 2 percent that was effective April 1, 2017.










Chouteau Power Plant

Associated's board of directors designated $10 million of member revenue collected in 2017 as subject to future refund, resulting in the deferral of this revenue to a future period. Deferred revenue is reflected as a deferred regulatory credit until such time the board of directors authorizes the return of that revenue to the members. There was no revenue deferred or deferred revenue recognized in 2016. As of Dec. 31, 2017, a total of $14.6 million in deferred revenue is subject to future refund.

Nonmember revenue decreased in 2017, primarily the result of a $5.2 million decrease in short-term capacity sales and a $1.3 million decrease in transmission revenue. Interchange sales revenue in 2017 was essentially unchanged from 2016, although this was the net result of an 11 percent decrease in sales volumes offset by a 12 percent increase in the average sales price.

Operating expenses

Associated's operating expenses are comprised of energy and demand costs that we incur to generate, purchase and transmit power to meet the needs of our member G&Ts and sales of power to nonmembers. Total operating expenses decreased $7.8 million in 2017 compared to 2016, primarily due to changes in generation operation, contracted generation, purchased power and depreciation and amortization as detailed below.

Generation operation expense, which largely consists of fuel, decreased $17.6 million or 4.2 percent compared to 2016. The decrease in fuel costs was primarily due to decreased generation at Associated-owned generation units, which produced 15,687,478 MWh in 2017, compared with 17,218,777 MWh in 2016. Coal generation increased by 6.9 percent due to less outage time, while

New Madrid Power Plant transmission facilities

gas generation decreased 38.9 percent as compared to 2016. The decrease in gas generation was due primarily to the combination of greater coal availability and a decrease in interchange sales volume. The generation mix for these units in 2017 consisted of 76.9 percent coal generation and 23.1 percent natural gas generation.

Contracted generation expense, which consists of a firm capacity hydropower contract with Southwestern Power Administration and a power plant operating agreement with the city of New Madrid, increased $17.2 million, or 13.1 percent compared to 2016. The increase in cost was primarily due to increased generation at New Madrid Unit 1 power plant as a result of less planned outage time in 2017 as compared to 2016. Contracted generation produced 4,358,542 MWh in 2017 compared to 3,158,597 MWh in 2016.

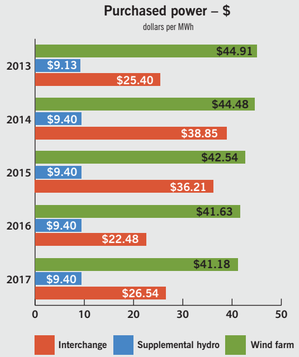
Depreciation and amortization expense decreased $8.4 million, or 9.0 percent compared to 2016. The decrease is due to the original investment in Thomas Hill Unit 3 and coal delivery facilities becoming fully depreciated during the last half of 2016.

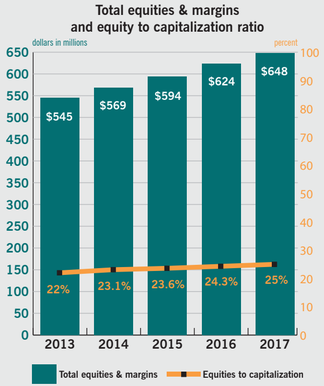
Interest and dividend income increased $4.3 million, or 20.4 percent compared to 2016. The increase is due to more funds being invested in the RUS Cushion of Credit in 2017 as compared to 2016.

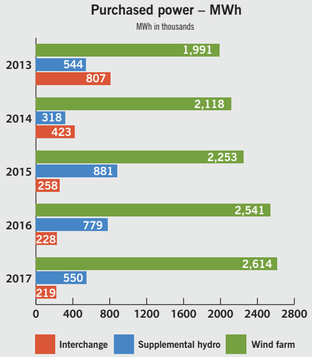
Significant balance sheet changes

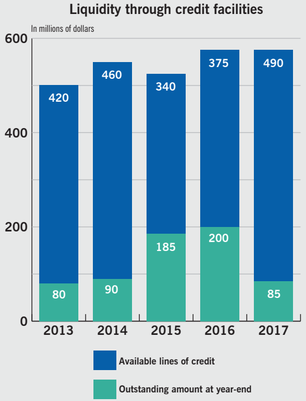
Associated's balance sheet is a statement of the assets, liabilities and capital at a particular point in time. Significant changes in the balance sheet at Dec. 31, 2017, from Dec. 31, 2016, include:

• Utility plant, at original cost, increased $50.8 million. Significant additions during the year included various turbine and boiler projects at the coal plants, environmental projects at the coal plants, controls upgrade projects at the gas plants and upgrades to the transmission network. Total utility plant, net of accumulated depreciation, at Dec. 31, 2017, was $2.0 billion.









• Other restricted and designated assets and restricted short-term investments increased $82.4 million primarily due to an increase in funds invested in the RUS Cushion of Credit.

• Fuel inventories decreased $11.0 million primarily due to a 21.6 percent decrease in tons of coal on the ground as compared to Dec. 31, 2016.

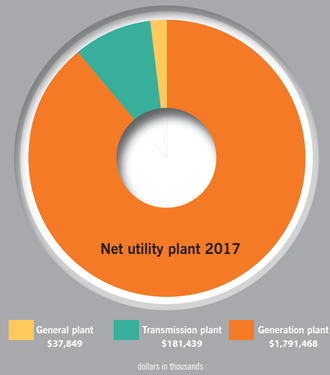
• Patronage capital increased $31.5 million as a net result of $44.0 million in net margins for the year and patronage capital retirements of $12.5 million. At Dec. 31, 2017, patronage capital and other equities were 25 percent of total capitalization.

• Long-term debt, including current maturities, increased $4.8 million. The increase is due to the issuance of new borrowings totaling $200 million in the form of three private placements, a decrease of $115 million in the balance outstanding on lines of credit at the end of 2017 as compared to 2016, and principal payments of $80.4 million. The average interest rate on lines of credit was 2.36 percent in 2017 and 1.57 percent in 2016.

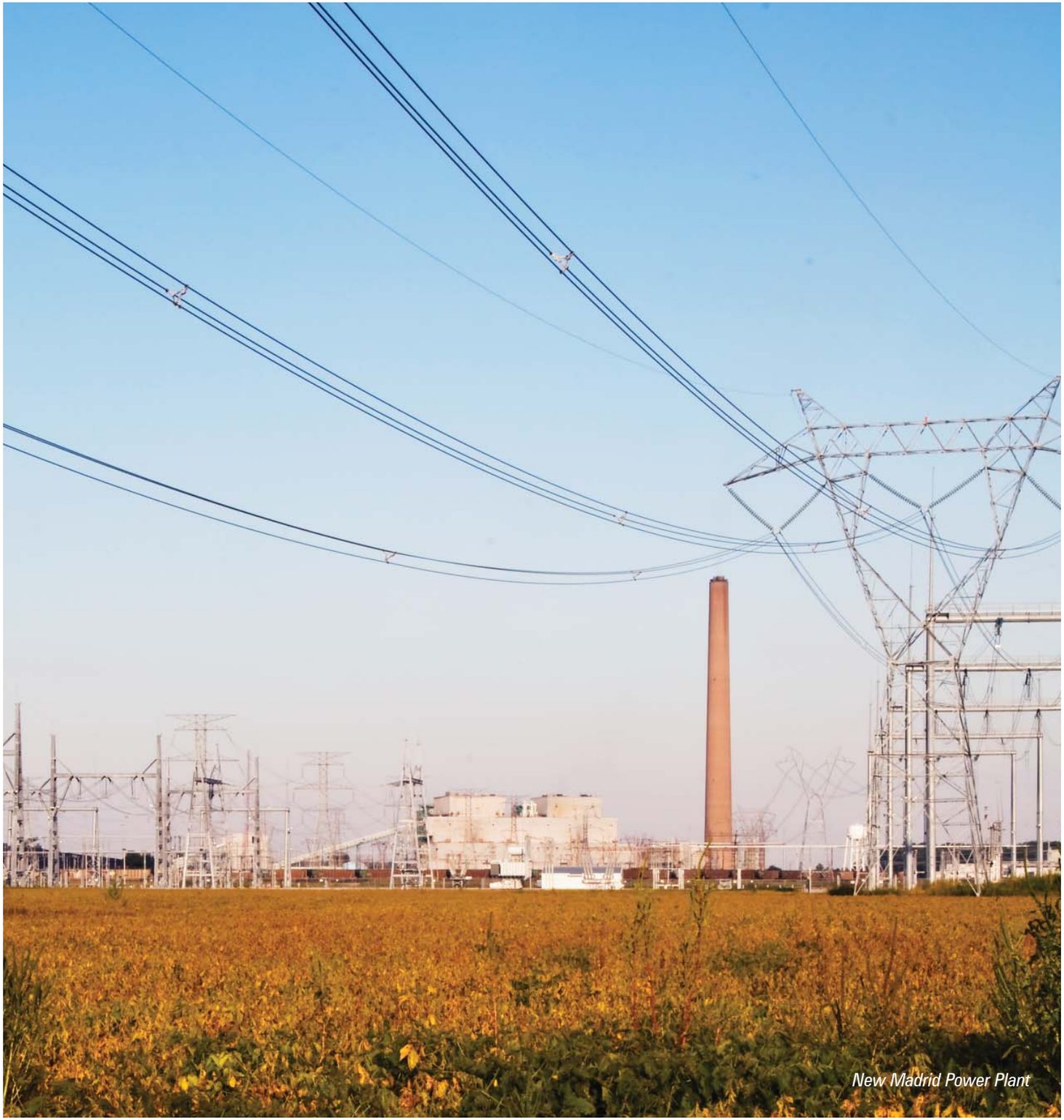
• Deferred regulatory credits, including the current portion, increased $14.6 million. The increase is due to the deferral of $10.0 million of member revenue and an increase of $4.6 million in unrealized gains on hedging activities.

Capital requirements and liquidity

Associated is required, under the terms of its long-term debt agreements, to maintain a minimum margins and equities level of $160 million. As of Dec. 31, 2017, patronage capital and other equities were $648.1 million. Associated maintains substantial liquidity through credit facilities with several lenders. As of Dec. 31, 2017, total credit facilities equaled $575 million, and total available credit under these agreements was $490 million. Please see footnote 12 to the financial statements for additional information regarding long-term debt and liquidity instruments.



During Associated's 2017 annual meeting, Melvin Scott, president of North Central Missouri Electric Cooperative's board of directors, and Loren Haines, general manager and CEO of North Central Missouri, discuss an issue.



New Madrid Power Plant

Cooperatives build strong transmission system

Associated and its six generation and transmission owners collaborate to plan, protect and invest in high-voltage transmission facilities and technologies that ensure reliability for members and compliance with increasing requirements of the North American Electric Reliability Corp.

Associated also coordinates with neighboring utilities in an open, transparent process to ensure regional transmission reliability and resilience of the bulk electric system.

The high-voltage system is strong and resilient due to the continuing investments of Associated and the G&Ts. Completion of many major projects, as well as loads remaining relatively flat, has led to less investment in recent years.

Each G&T also invests in secondary facilities – those energized at less than 138 kV – to serve their respective member-owner distribution cooperatives. In 2017 the G&Ts spent $61 million on these secondary, regional facilities. These investments provide both reliability and economic benefits to members, and collaborative efforts lead to a strong, secure system into the future.

The high-voltage transmission system totals 10,104 miles of line, including:

500-kV – 46 miles
345-kV – 760 miles
161-kV – 2,042 miles
138-kV – 274 miles
69-kV – 6,982 miles

Associated Electric

Relies on diverse power resources

Associated's coal-based power plants:	MW capacity
New Madrid Power Plant*	1,200
Thomas Hill Energy Center	1,153
Associated's combined-cycle, gas-based power plants:	
Chouteau Power Plant	1,062
Dell Power Plant (dual fuel)	580
St. Francis Power Plant	501
Associated's peaking oil- and gas-based power plants:	
Essex Power Plant	107
Holden Power Plant (dual fuel)	321
Nodaway Power Plant	182
Unionville Power Plant (oil)**	45
Additional contracted power sources:	
Hydroelectric peaking power, Southwestern Power Administration	478
Wind energy ***	71
Total	**5,700**

*The city of New Madrid owns the 600-MW Unit 1, which is operated by Associated under terms of an agreement with the city.
**In 2014 Unionville oil-based plant was put in layup status.
***Associated has long-term purchase agreements with six wind farms that total 750 megawatts of nameplate capacity. Staff estimates 71 MW are eligible for peak planning purposes.

Associated Electric Cooperative Inc.

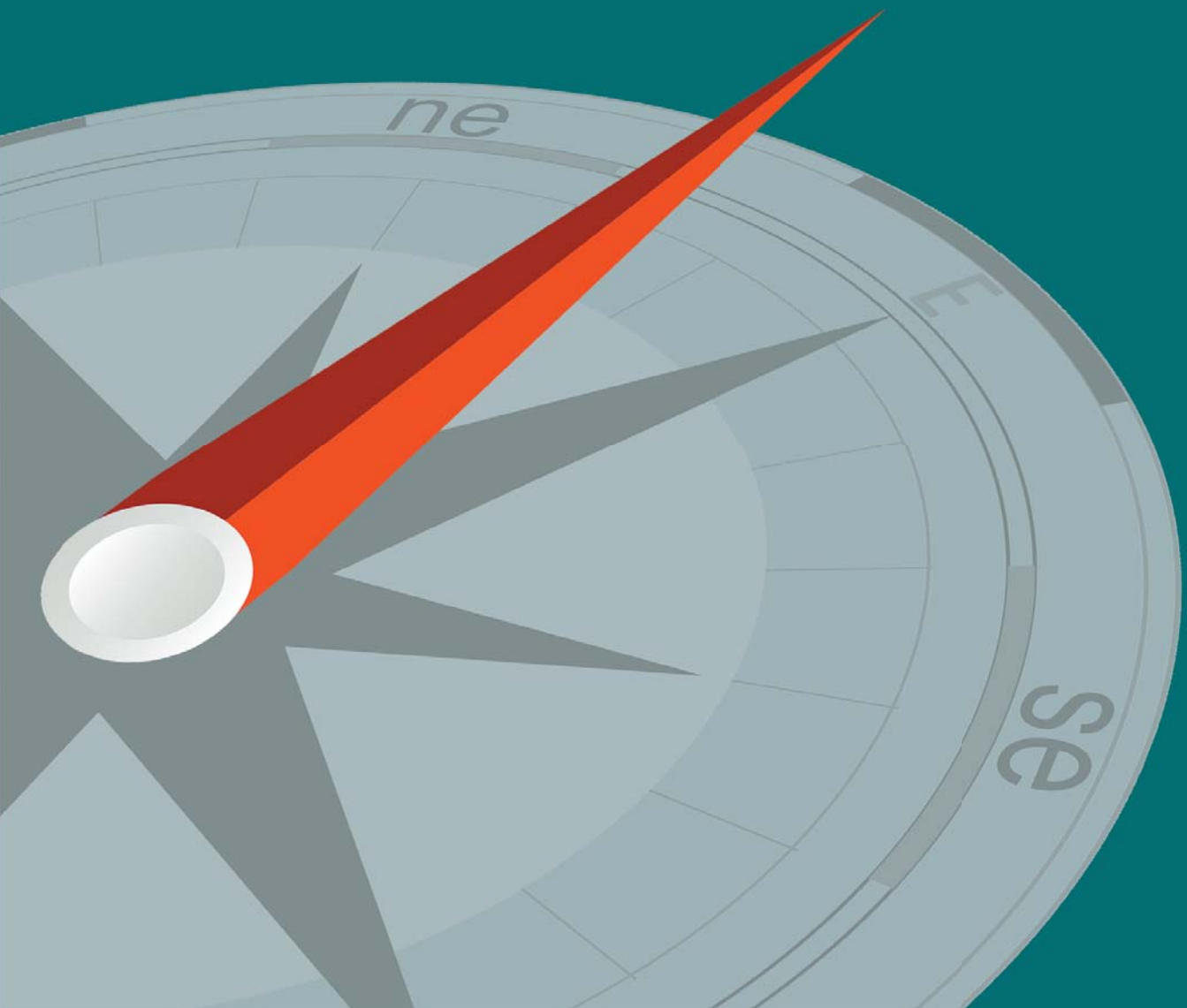
A Touchstone Energy® Cooperative

2814 S. Golden Ave., P.O. Box 754, Springfield, MO 65801-0754
417-881-1204, www.aeci.org

Associated Electric Cooperative Inc.

Independent Auditor's Report and Financial Statements

December 31, 2017 and 2016



BKD LLP
CPAs & Advisors
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Independent Auditor's Report

Board of Directors and Members
Associated Electric Cooperative, Inc.
Springfield, Missouri

Report on Financial Statements

We have audited the accompanying financial statements of Associated Electric Cooperative, Inc. (Associated), which comprise the balance sheets as of December 31, 2017 and 2016, and the related statements of revenues and expenses, comprehensive income, patronage capital and other equities and cash flows for the years then ended, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Board of Directors and Members
Associated Electric Cooperative, Inc.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Associated as of December 31, 2017 and 2016, and the results of its operations and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated February 6, 2018, on our consideration of Associated's internal control over financial reporting and our tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Associated's internal control over financial reporting and compliance.

BKD, LLP

Oklahoma City, Oklahoma
February 6, 2018

Associated Electric Cooperative, Inc.

Balance Sheets
December 31, 2017 and 2016
(In Thousands of Dollars)

Assets

	2017	2016
Utility Plant		
Electric plant in service	$ 3,942,204	$ 3,869,206
Construction work in progress	43,334	65,545
	3,985,538	3,934,751
Less accumulated depreciation	(1,974,782)	(1,892,570)
Total utility plant	2,010,756	2,042,181
Other Property and Investments		
Member construction advances, net	21,654	22,822
Nonutility property	13,012	13,012
Net investment in direct financing leases	3,868	4,128
Total other property and investments	38,534	39,962
Restricted and Designated Long-Term Assets		
Other restricted and designated assets	318,937	259,255
Investments in associated organizations, at cost	26,526	25,535
Total restricted and designated long-term assets	345,463	284,790
Other Long-Term Assets		
Deferred regulatory debits	86,971	89,470
Other deferred assets	81,874	83,373
Total other long-term assets	168,845	172,843
Current Assets		
Cash and cash equivalents	98,937	98,179
Restricted short-term investments	122,131	99,392
Accounts receivable	139,114	138,847
Materials and supplies inventory	77,781	75,547
Fuel inventory	57,984	68,950
Other current assets	20,442	17,885
Current portion of deferred regulatory debits	3,467	8,793
Total current assets	519,856	507,593
Total assets	$ 3,083,454	$ 3,047,369

See notes to financial statements.

Associated Electric Cooperative, Inc.

Balance Sheets, continued
December 31, 2017 and 2016
(In Thousands of Dollars)

Capitalization and Liabilities

	2017	2016
Patronage Capital and Other Equities		
Memberships	$ 12	$ 12
Patronage capital	604,650	573,114
Other equities	55,540	55,540
Accumulated other comprehensive loss	(12,139)	(4,377)
Total patronage capital and other equities	648,063	624,289
Long-Term Debt, Excluding Current Maturities		
Federal Financing Bank	1,176,301	1,242,482
CoBank	299,495	433,862
National Rural Utilities Cooperative Finance Corporation	36,667	40,000
Private placement notes	330,097	141,771
Total long-term debt, excluding current maturities	1,842,560	1,858,115
Other Long-Term Liabilities		
Deferred regulatory credits	174,428	164,332
Other deferred liabilities	37,191	37,611
Asset retirement obligation	50,806	43,608
Accumulated provision for postretirement benefits	33,081	26,409
Total other long-term liabilities	295,506	271,960
Current Liabilities		
Accounts payable	119,824	134,367
Current maturities of long-term debt	99,028	78,699
Payable to member cooperatives	28,765	31,773
Other current and accrued liabilities	41,264	40,149
Current portion of asset retirement obligation	3,303	7,403
Current portion of deferred regulatory credits	5,141	614
Total current liabilities	297,325	293,005
Total capitalization and liabilities	$ 3,083,454	$ 3,047,369

See notes to financial statements.

Associated Electric Cooperative, Inc.

Statements of Revenues and Expenses
Years Ended December 31, 2017 and 2016
(In Thousands of Dollars)

	2017	2016
Operating Revenues		
Members	$ 917,954	$ 922,007
Nonmembers	164,746	171,538
Total operating revenues	1,082,700	1,093,545
Operating Expenses		
Generation operation	398,545	416,193
Contracted generation	148,660	131,413
Power purchased	119,860	121,191
Depreciation and amortization	84,674	93,045
Transmission	87,827	88,635
Generation maintenance	75,019	74,377
Administrative and general	64,506	61,082
Taxes	4,589	5,185
Accretion of asset retirement obligation	903	1,255
Total operating expenses	984,583	992,376
Operating Margin Before Interest Expense	98,117	101,169
Interest on Long-Term Debt	81,231	80,433
Less interest capitalized	(271)	(152)
	80,960	80,281
Operating Margin	17,157	20,888
Nonoperating		
Interest and dividend income	25,144	20,879
Other nonoperating income	2,163	520
Interest expense	(442)	(202)
Total nonoperating	26,865	21,197
Net Margin	$ 44,022	$ 42,085

See notes to financial statements.

Associated Electric Cooperative, Inc.

Statements of Comprehensive Income
Years Ended December 31, 2017 and 2016
(In Thousands of Dollars)

	2017	2016
Net Margin	$ 44,022	$ 42,085
Other Comprehensive Income (Loss)		
Actuarial gain (loss)	(7,762)	329
Comprehensive Income	$ 36,260	$ 42,414

See notes to financial statements.

Associated Electric Cooperative, Inc.

Statements of Patronage Capital and Other Equities

Years Ended December 31, 2017 and 2016

(In Thousands of Dollars)

	Memberships	Patronage Capital	Other Equities	Accumulated Other Comprehensive Loss	Total
Balance at December 31, 2015	$ 12	$ 542,904	$ 55,540	$ (4,706)	$ 593,750
2016 net margin	-	42,085	-	-	42,085
Other comprehensive income	-	-	-	329	329
Patronage capital retirements	-	(11,875)	-	-	(11,875)
Balance at December 31, 2016	12	573,114	55,540	(4,377)	624,289
2017 net margin	-	44,022	-	-	44,022
Other comprehensive loss	-	-	-	(7,762)	(7,762)
Patronage capital retirements	-	(12,486)	-	-	(12,486)
Balance at December 31, 2017	$ 12	$ 604,650	$ 55,540	$ (12,139)	$ 648,063

See notes to financial statements.

Associated Electric Cooperative, Inc.

Statements of Cash Flows

Years Ended December 31, 2017 and 2016

(In Thousands of Dollars)

	2017	2016
Cash Flows from Operating Activities		
Net margin	$ 44,022	$ 42,085
Reconciliation of net margin to net cash provided by operating activities		
Depreciation and amortization	91,067	100,002
Net loss on sale of property, plant and equipment	1,012	203
Amortization of loan costs and member contribution advances	1,319	1,155
Change in deferred regulatory debits	8,023	(13,153)
Change in asset retirement obligation	(3,666)	(1,438)
Changes in deferred regulatory credits	10,095	(3,636)
Changes in current assets and liabilities		
Accounts receivable	(245)	(31,443)
Fuel inventory	10,966	(5,836)
Materials and supplies inventory	(2,234)	333
Accounts payable	(9,047)	15,977
Other current and accrued liabilities	2,674	15,361
Other operating activities, net	(275)	(151)
Net cash provided by operating activities	153,711	119,459
Cash Flows from Investing Activities		
Capital expenditures	(65,169)	(91,242)
Reimbursement of capital expenditures	135	465
Proceeds from sale of property, plant and equipment	96	46
Purchases of available-for-sale investments	(1,168)	(1,648)
Purchases of held-to-maturity investments	(182,610)	(145,880)
Sales of available-for-sale investments	695	530
Proceeds from held-to-maturity investments	102,241	86,344
Maturity of investments in associated organizations, net	3,067	2,774
Member construction advances	(16)	(2,036)
Member construction reimbursements	-	18,416
Other investing activities, net	627	590
Net cash used in investing activities	(142,102)	(131,641)
Cash Flows from Financing Activities		
Net investments (withdrawals) from member cooperatives	(3,008)	3,813
Issuance of long-term debt	255,000	166,737
Retirement of long-term debt	(250,357)	(145,868)
Retirement of patronage capital	(12,486)	(11,875)
Net cash provided by (used in) financing activities	(10,851)	12,807
Net Change in Cash and Cash Equivalents	758	625
Cash and Cash Equivalents, Beginning of Year	98,179	97,554
Cash and Cash Equivalents, End of Year	$ 98,937	$ 98,179
Supplemental Cash Flows Information		
Cash paid for interest (net of amount capitalized)	$ 80,675	$ 66,925
Supplemental Noncash Activities		
Change in capital expenditures included in accounts payable	$ (5,497)	$ (2,380)

See notes to financial statements.

Note 1: Summary of Significant Accounting Policies

Associated Electric Cooperative, Inc. (Associated) is an electric generation and transmission cooperative that provides wholesale service to six members, all of which are generation and transmission cooperatives. Each of the members in turn provides wholesale electric power to their member distribution cooperatives located in Missouri, Iowa and Oklahoma.

Associated maintains its accounting records in accordance with the U.S. Department of Agriculture Rural Utilities Services (RUS) Uniform System of Accounts. The accompanying financial statements and the related notes have been prepared on the basis of U.S. generally accepted accounting principles (GAAP).

Utility Plant, Property and Equipment

Utility plant, property and equipment are stated at cost. Generally, ordinary utility plant asset retirements and disposals are charged against accumulated depreciation with no gain or loss recognized. Gains and losses are recorded for retirements of general plant assets and entire asset groups. Maintenance and repairs are charged to expense as incurred. Major inspections, rework and refurbishing are deferred and amortized over five years, which is the period these costs are recovered in rates (see *Note 10*).

The cost of utility plant is generally depreciated on a straight-line basis over the estimated economic useful lives:

	Estimated Useful Life	Composite Depreciation Rate
Generation plant	32–33 years	3.00%–3.10%
Transmission plant	36 years	3%
General plant	3–42 years	2.40%–33.33%

Upon indication of possible impairment, Associated evaluates the recoverability of long-lived assets by comparing the carrying amount of the relevant asset group against the related estimated undiscounted future cash flows expected over the remaining useful life of the asset group. When an evaluation indicates the future undiscounted cash flows are not sufficient to recover the carrying value of the asset group, the carrying value of the asset group is reduced to its estimated fair value. No impairment was recognized in 2017 or 2016.

Associated Electric Cooperative, Inc.
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Asset Retirement Obligations

Associated has asset retirement obligations arising from regulatory requirements to perform asset retirement activities at the time certain property is disposed. A liability is initially measured at fair value and is subsequently adjusted for accretion expense and changes in the amount and timing of the estimated cash flows. The corresponding asset retirement costs are capitalized as part of the carrying amount of the long-lived asset and depreciated over the asset's useful life. Associated's asset retirement obligations include the costs associated with asbestos removal and disposal, reclamation of ash disposal areas, reclamation of landfill sites, removal of fuel oil tanks and removal of certain water lines contained in Associated's generating plants (see *Note 4*).

Capitalized Interest

Interest incurred in connection with the construction of capital assets is capitalized and totaled $271 and $152 in 2017 and 2016, respectively. The average capitalization rates for 2017 and 2016 were 1.570% and 0.606%, respectively, which is based on Associated's cost of financing.

Restricted and Designated Assets

Restricted and designated assets consist of assets segregated for specific purposes, including investments in patronage allocations from various membership cooperatives; funds invested to retire future Federal Financing Bank (FFB) debt and cash funds reserved for the generation, environmental and insurance reserve fund; member revenue subject to refund; and deferred compensation.

Investments

Debt securities, except for those classified as cash equivalents, in which Associated has the intent and ability to hold to maturity are classified as held-to-maturity securities and are reported at amortized cost. All other securities are classified as available-for-sale and are carried at fair value with unrealized gains and losses included as a component of other comprehensive income. Upon sale, these unrealized gains and losses are recognized in net margin. Realized gains and losses are computed based on the difference between amortized costs and proceeds received on a specific security identification basis. Investments with maturities greater than one fiscal year are classified as other restricted and designated assets (see *Note 6*).

Cash and Cash Equivalents

All unrestricted highly liquid investments with an original maturity of three months or less are considered to be cash equivalents and are stated at cost, which approximates market value. At December 31, 2017 and 2016, Associated's cash and cash equivalents balance was $98,937 and $98,179, respectively.

Member Construction

Associated advances funds for the construction of various member primary transmission and generation projects. These advances are subsequently amortized over the life of the asset as transmission or contracted generation expense. The balance of these advances, net of amortization, totaled $21,654 and $22,822 at December 31, 2017 and 2016, respectively, with related amortization of $1,183 and $1,155, respectively.

Inventories

Inventories of fuel and materials and supplies are valued using the average-cost method. Inventory that is obsolete or excess is written down to its estimated disposal value which approximates net realizable value.

Payable to Member Cooperatives

Associated provides a short-term investment program to its member cooperatives and their cooperative members. The funds invested with Associated earn interest at rates established by Associated. The average rate was 1.04% and 0.45% in 2017 and 2016, respectively. The interest expense is reflected as nonoperating interest expense. At December 31, 2017 and 2016, the members had invested $28,765 and $31,773, respectively, classified as payable to member cooperatives.

Regulatory Matters

Associated is subject to the authoritative accounting guidance applicable to rate-regulated organizations. The Board of Directors has full authority to establish electric rates. Certain items collected in rates have been recorded as regulatory liabilities. These amounts will be recognized as revenue in future periods as costs for which the amounts have been collected are incurred, or when the return of the amounts collected to the members is authorized by the Board of Directors (see *Note 13*). Certain expenses have been recorded as regulatory assets and management believes these amounts are probable of future rate recovery (see *Note 10*).

Revenues

Revenues from the sale of electricity are recorded based on energy delivered to customers and on contracts and scheduled power usages, as appropriate.

Concentration of credit risk with respect to total accounts receivable is due to Associated's customer base. Approximately 66% of accounts receivable at December 31, 2017, is due from Associated's six members and from the City of New Madrid power plant. The credit risk for accounts receivable is controlled through management monitoring procedures.

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Contracted Generation

Contracted generation is the expense of generating units for which Associated has energy and capacity contracts in excess of one year (see *Note 5*).

Patronage Capital and Other Equities

In accordance with Associated's bylaws, taxable member margins are allocated to members based on their patronage. For the year ended December 31, 2017, taxable margins of $156,557 were allocated to members. Cumulatively, $2,091,405 has been allocated, and $1,890,971 is unpaid at December 31, 2017. For financial reporting, book net margins are allocated to patronage capital.

Accumulated Other Comprehensive Loss

The following table provides the component of accumulated other comprehensive loss at December 31:

	December 31	
Component	**2017**	**2016**
Postretirement benefits actuarial losses	$ (12,139)	$ (4,377)

Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Litigation

In the normal course of business, Associated is involved in legal proceedings. In accordance with GAAP, Associated accrues a liability for such matters when it is probable a liability has been incurred and the amount can be reasonably estimated. When only a range of possible loss can be established, the most probable amount in the range is accrued. If no amount within this range is a better estimate than any other amount within the range, the minimum amount in the range is accrued.

Emission Allowances and Renewable Energy Credits

As a result of the operation of its generating resources or wind power purchases, Associated generates or is allocated Sulfur Dioxide (SO_2) and Nitrogen Oxide (NOx) allowances and renewable energy credits (REC) under various environmental regulations. Allowances granted to Associated at no cost do not result in an expense when used. Associated purchases NOx allowances which are recorded in fuel inventory and expensed when used or when they no longer have value. NOx allowance purchases in 2017 and 2016 were $392 and $4,114, respectively, with related expense incurred of $632 and $2,742, respectively. Proceeds from sales of allowances and RECs in excess of cost and fees are recorded as a gain. During 2017 and 2016, $1,228 and $887, respectively, of proceeds from sales of allowances and RECs were received.

Note 2: New Accounting Pronouncements

Upon issuance of exposure drafts or final pronouncements, Associated reviews new accounting literature to determine the relevance, if any, to its business. The following represents a summary of pronouncements Associated has determined relate to its operations:

Revenue from Contracts with Customers

Accounting Standards Update (ASU) 2014-09, *Revenue from Contracts with Customers (Topic 606)*, was issued and is effective for fiscal years beginning after December 15, 2018. The core principle of the guidance is that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. This guidance affects any entity that either enters into contracts with customers to transfer goods or services or enters into contracts for the transfer of nonfinancial assets unless those contracts are within the scope of other standards. An entity should disclose sufficient information to enable users of financial statements to understand the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers. This standard will require additional disclosures, but is not expected to have a material impact on Associated's financial condition or results of operations.

Leases

ASU 2016-02, *Leases (Topic 842)*, was issued in February 2016 and is effective for fiscal years beginning after December 15, 2019. The Financial Accounting Standards Board (FASB) decided on a dual approach for lessee accounting, with lease classification determined in accordance with the principle in existing lease requirements. The new lessee accounting model retains two types of leases, financing and operating. Financing leases will be accounted for in substantially the same manner as capital leases are today. Operating leases will be accounted for in a manner consistent with today's operating leases. Both finance and operating leases result in the lessee and lessor recognizing both an asset and liability related to the lease. Management is currently evaluating the impact of this standard.

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Note 3: Utility Plant

Utility plant, at original cost, at December 31, 2017 and 2016, consisted of the following:

	Generation Plant	Transmission Plant	General Plant	Total
December 31, 2016, ending	$ 3,465,848	$ 321,901	$ 81,457	$ 3,869,206
Additions	63,177	11,838	10,842	85,857
Retirements	(6,147)	-	(6,520)	(12,667)
Contribution in aid of construction	-	(192)	-	(192)
December 31, 2017, ending	3,522,878	333,547	85,779	3,942,204
Construction work in progress	40,400	1,412	1,522	43,334
Accumulated depreciation	(1,771,810)	(153,520)	(49,452)	(1,974,782)
Total utility plant	$ 1,791,468	$ 181,439	$ 37,849	$ 2,010,756

Depreciation for the year ended December 31, 2017, was $94,463, of which $84,674 was charged to depreciation expense; $3,396 was charged to deferred regulatory debits (see *Note 10*); and $6,393 was included in contracted generation, transmission and generation operation expense. Depreciation for the year ended December 31, 2016, was $104,771, of which $93,045 was charged to depreciation expense; $4,769 was charged to deferred regulatory debits (see *Note 10*); and $6,957 was included in contracted generation, transmission and generation operation expense.

Note 4: Asset Retirement Obligations

Associated has accounted for the asset retirement costs associated with certain tangible long-lived assets. Associated has recorded obligations for the removal and disposal of asbestos in Associated's Thomas Hill, New Madrid and Chamois power plants; the reclamation of the landfill site at the New Madrid power plant; reclamation of ash ponds at the New Madrid, Thomas Hill and Chamois facilities; the removal of fuel oil tanks at the Dell and Holden power plants; and the removal of certain water lines contained in Associated's generating plants. Because Associated's business is subject to the accounting requirements for regulated operations, costs incurred upon the adoption of the asset retirement obligation accounting guidance were recorded as a regulatory asset to be recovered in future rates (see *Note 10*). Additionally, Associated's Board has established a policy for the deferral of depreciation and accretion expense associated with coal combustion residual storage facilities that require remediation prior to the end of the plant's assumed useful life (see *Note 10*).

The following is a reconciliation of the beginning and ending aggregate carrying amount of asset retirement obligations:

Carrying Value of Asset Retirement Obligations

	Chamois	Thomas Hill	New Madrid	Holden	Dell	Total
December 31, 2016, ending balance	$ 5,370	$ 10,426	$ 34,308	$ 382	$ 525	$ 51,011
Less current retirement obligations	(5,370)	(405)	(1,628)	-	-	(7,403)
Long-term retirement obligations	-	10,021	32,680	382	525	43,608
Current period settlements	(5,389)	(95)	(599)	-	-	(6,083)
Accretion expense	19	717	1,618	25	39	2,418
Cash flow revisions	-	4,796	1,966	-	-	6,762
December 31, 2017, ending balance	-	15,844	37,293	407	564	54,108
Less current retirement obligations	-	(491)	(2,811)	-	-	(3,302)
Long-term retirement obligations	$ -	$ 15,353	$ 34,482	$ 407	$ 564	$ 50,806

Accretion for the year ended December 31, 2017, was $2,418 of which $1,286 was charged to deferred regulatory debits. The 2017 cash flow revisions are primarily due to increases in estimated costs for the remediation of asbestos at Thomas Hill and increases in estimated costs for landfill and water circulation lines at New Madrid. The 2017 current period settlements are primarily due to the transfer of the Chamois power plant and all related liabilities to a third party.

	Chamois	Thomas Hill	New Madrid	Holden	Dell	Total
December 31, 2015, ending balance	$ 5,348	$ 14,259	$ 31,674	$ 358	$ 489	$ 52,128
Less current retirement obligations	(3,666)	(397)	(1,597)	-	-	(5,660)
Long-term retirement obligations	1,682	13,862	30,077	358	489	46,468
Current period settlements	(152)	(74)	(292)	-	-	(518)
Accretion expense	174	903	1,230	24	36	2,367
Cash flow revisions	-	(4,662)	1,696	-	-	(2,966)
December 31, 2016, ending balance	5,370	10,426	34,308	382	525	51,011
Less current retirement obligations	(5,370)	(405)	(1,628)	-	-	(7,403)
Long-term retirement obligations	$ -	$ 10,021	$ 32,680	$ 382	$ 525	$ 43,608

Accretion for the year ended December 31, 2016, was $2,367, of which $993 was charged to deferred regulatory debits. The 2016 cash flow revisions are primarily due to reductions in estimated costs for the remediation of asbestos at Thomas Hill and changes in the estimates in costs and timing for the remediation of coal combustion residuals at New Madrid.

Note 5: Contracted Generation

Contracted generation consists of firm capacity received from Associated's hydropower contract and generating units that Associated has contracted to dispatch up to a given quantity of power for at least one year, and for which Associated has operating expense responsibility.

Under the terms of an agreement with the City of New Madrid, Missouri (the City), Associated operates the City's power plant. The agreement is effective for 50 years after commercial operation (October 1, 1972). Associated purchases power at cost from the City. In 2017 and 2016, Associated's cost of power purchased from the City was $107,276 and $88,078, respectively. Under the terms of a separate agreement with the City, ownership of the City's power plant will transfer to Associated in 2022 if all scheduled payments are made pursuant to the agreement (see *Note 11*).

Under the terms of an agreement with one of its members, Associated is required to reimburse costs associated with the member's ownership interest in the Grand River Dam Authority (GRDA) Unit 2 coal facility, which was terminated in May 2016. Associated will continue to reimburse its member for a deferred loss associated with the termination of this agreement. In 2017 and 2016, Associated's cost related to GRDA Unit 2 was $6,453 and $7,380, respectively.

Associated has a contract with Southwestern Power Administration (SWPA), effective through April 2031 that entitles Associated to purchase a fixed amount of firm capacity and energy. In 2017 and 2016, Associated's cost of firm power purchased from SWPA was $34,892 and $35,882, respectively.

Note 6: Investments

Investments at December 31, 2017, consisted of the following:

	Available for Sale				Held to Maturity	
	Cost	Unrealized Gains	Unrealized Losses	Fair Value	Amortized Cost	Total
Restricted short-term investments						
RUS cushion of credit	$ -	$ -	$ -	$ -	$ 122,131	$ 122,131
	$ -	$ -	$ -	$ -	$ 122,131	$ 122,131
Other restricted and designated assets						
Mutual funds	$ 7,567	$ -	$ -	$ 7,567	$ -	$ 7,567
Pension reinvestment	7,179	-	-	7,179	-	7,179
RUS cushion of credit	-	-	-	-	295,881	295,881
U.S. government agency securities	-	-	-	-	1,156	1,156
U.S. government treasury bills	-	-	-	-	7,154	7,154
	$ 14,746	$ -	$ -	$ 14,746	$ 304,191	$ 318,937

Investments at December 31, 2016, consisted of the following:

	Available for Sale				Held to Maturity	
	Cost	Unrealized Gains	Unrealized Losses	Fair Value	Amortized Cost	Total
Restricted short-term investments						
RUS cushion of credit	$ -	$ -	$ -	$ -	$ 99,392	$ 99,392
	$ -	$ -	$ -	$ -	$ 99,392	$ 99,392
Other restricted and designated assets						
Mutual funds	$ 6,273	$ -	$ -	$ 6,273	$ -	$ 6,273
Pension reinvestment	6,393	-	-	6,393	-	6,393
RUS cushion of credit	-	-	-	-	238,213	238,213
U.S. government agency securities	-	-	-	-	1,263	1,263
U.S. government treasury bills	-	-	-	-	7,113	7,113
	$ 12,666	$ -	$ -	$ 12,666	$ 246,589	$ 259,255

Associated entered into a cushion of credit agreement with RUS in 2002. At December 31, 2017 and 2016, Associated had on deposit with the U.S. Treasury $418,012 and $337,605, respectively, restricted for future FFB debt service payments. Interest earned is applied to future debt service.

Annual maturities of the investments at December 31, 2017, are classified as follows:

	Available for Sale		Held to Maturity
	Cost	Fair Value	Amortized Cost
Within one year	$ 14,746	$ 14,746	$ 122,131
After one year through five years	$ -	$ -	$ 304,191

Note 7: Nonoperating Income and Other Revenue

As of December 31, interest and dividend income was $25,144 and $20,879, respectively, and consisted of the following:

	2017	2016
Investments	$ 19,277	$ 15,186
Leasing of transmission lines/equipment	1,782	1,890
Patronage capital allocations	4,085	3,803
	$ 25,144	$ 20,879

Note 8: Investments in Associated Organizations

Associated conducts business with various cooperatives, including National Rural Utilities Cooperative Finance Corporation (NRUCFC) and CoBank. As a result of these business relationships, Associated holds membership rights in these organizations, which include the right to receive patronage allocations.

Investments in associated organizations at December 31, consisted of the following:

	2017	2016
CoBank patronage capital equity	$ 18,589	$ 17,663
NRUCFC patronage capital certificates and memberships	4,086	3,957
NRUCFC held-to-maturity securities	3,360	3,493
Other	491	422
	$ 26,526	$ 25,535

At December 31, 2017, future maturities of NRUCFC held-to-maturity securities at amortized cost are as follows: after 1 through 5 years, $1,931; after 5 through 10 years, $666; and after 10 years, $763. The remaining investments in associated organizations do not have a stated maturity.

Note 9: Leases

Net Investment in Direct Financing Leases

Associated's leasing activities consist of the leasing of a transmission line and related equipment. The construction of these facilities was completed in 1992 with all costs incurred by Associated. The transmission line leases expire in 2028. The leases are classified as direct financing leases as follows:

	2017	2016
Total minimum lease payments receivable	$ 6,653	$ 7,279
Less		
Unearned income	(2,158)	(2,524)
Current portion	(627)	(627)
Net investment in direct financing leases	$ 3,868	$ 4,128

At December 31, 2017, future minimum lease receipts related to direct financing leases for the next five years and thereafter will be as follows:

2018	$ 627
2019	627
2020	627
2021	627
2022	627
Thereafter	3,518
	$ 6,653

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Operating Leases

Associated leases railcars used in the delivery of coal to the New Madrid power plant through 2020. Rental expense for these cars was $2,882 and $3,369 for the years ended December 31, 2017 and 2016, respectively. Future minimum lease payments for these cars, are as follows:

2018	$ 2,780
2019	1,887
2020	1,904
	$ 6,571

Note 10: Deferred Regulatory Debits

Regulatory assets are recorded for expenses that are deferred and will be recovered through rates charged to members in future periods. Such deferrals are made at the discretion of Associated's Board of Directors. Associated does not earn a return on these regulatory assets. At December 31, 2017 and 2016, deferred regulatory debits consisted of the following regulatory assets:

	2017	2016
Loss on hedging activities	$ 20,604	$ 26,686
Maintenance costs	39,617	44,777
Asset retirement obligations	16,827	12,817
Energy efficiency costs	7,822	8,212
Impairment loss on equipment	5,568	5,771
	90,438	98,263
Less current portion of deferred regulatory debits	(3,467)	(8,793)
Long-term deferred regulatory debits	$ 86,971	$ 89,470

Associated's Board of Directors has established a policy to defer unrealized fair value gains and losses associated with hedging activities and recognize in earnings only at the settlement of these instruments. As of December 31, 2017 and 2016, Associated had deferred $20,604 and $26,686, respectively, of unrealized losses on hedging activities (see *Note 17*). The current portion of hedging activities is included as a current asset on the accompanying balance sheets and was $3,467 and $8,793 at December 31, 2017 and 2016, respectively.

Deferred maintenance costs represent the cost of major maintenance and inspection projects that are capitalized in the year incurred. These costs are being amortized and recovered through rates over a period of five years after the project is considered complete.

The costs recognized upon the adoption of the accounting guidance for asset retirement obligations were deferred as a regulatory asset. Associated's Board has also approved a policy for the deferral of depreciation and accretion associated with asset retirement obligations related to coal combustion residual storage facilities. These costs are being amortized over the life of the underlying asset.

The costs associated with Associated's energy efficiency initiatives are capitalized. These costs are amortized and recovered through rates over a period of five years.

In 2011, due to changes in projected capacity needs, Associated's Board of Directors elected to market certain generation equipment for sale. This created a triggering event requiring an assessment of these assets for impairment. A loss of $20,062 was recorded for the difference in carrying value as compared to fair value, which Associated's Board of Directors has elected to recover through rates charged to members over 33 years. In December 2013, Associated's Board of Directors elected to accelerate $13,000 of the impairment loss. In both 2017 and 2016, scheduled amortization was $203.

Note 11: Other Deferred Assets

Other deferred assets are long-term assets that are not otherwise classified as other property and investments or restricted and designated long-term assets.

At December 31, other deferred assets consisted of the following:

	2017	2016
City of New Madrid power plant purchase installment	$ 45,000	$ 40,000
NRECA pension prepayment	14,835	18,543
Long-term receivable on New Madrid substation	8,380	8,536
Preliminary surveys	6,739	8,673
Prepayment of payment in lieu of taxes	3,580	4,058
Other	3,340	3,563
Other deferred assets	$ 81,874	$ 83,373

In 2017 and 2016, Associated made nonrefundable payments of $5,000 each year to the City. The payments were made pursuant to an agreement with the City to purchase the City's power plant. If all scheduled payments are made pursuant to the agreement, ownership of the plant will transfer to Associated in 2022 (see *Note 5*). Associated has the right to accelerate the purchase or terminate the agreement at any time during the term. Total payments made per this agreement totaled $45,000 and $40,000 as of December 31, 2017 and 2016, respectively.

In February 2013, Associated made a prepayment of $37,087 to the National Rural Electric Cooperative Association (NRECA) Retirement Security Plan (RS Plan) (see *Note 14*). Associated is amortizing this amount over 10 years. The long-term portion of the prepayment was $14,835 and $18,543 as of December 31, 2017 and 2016, respectively.

Associated entered into an agreement to engineer, construct, own, operate and maintain a 345/500 kV 750 MVA transformer at a greenfield site adjacent to the New Madrid Station in which two other parties shared equally in the cost of construction. The total construction cost of the substation was $26,947. One party elected to pay their one-third share of the construction cost in 2014. The other party will pay their share of the construction costs over 20 years. The long-term receivable associated with this project was $8,380 and $8,536 at December 31, 2017 and 2016, respectively.

Associated has engaged engineers to perform preliminary surveys on various projects that could result in capital additions. If a capital addition results from the surveys, the costs are included in the capital project costs; otherwise, the survey costs are expensed. Preliminary survey costs were $6,739 and $8,673 at December 31, 2017 and 2016, respectively.

Associated entered into an agreement to a make a prepayment of $5,729 for a payment in lieu of taxes. The long-term portion of this payment as of December 31, 2017 and 2016, was $3,580 and $4,058, respectively. The prepayment will be amortized into expense from July 2014 through 2026.

Note 12: Long-Term Debt

Long-term debt consists of mortgage notes payable to the United States of America acting through the FFB, NRUCFC and CoBank, as well as others. Substantially all of Associated's assets are pledged as collateral for the borrowings noted in the table below, except those noted as unsecured. The terms of the notes are as follows:

	2017	2016
FFB mortgage notes with various maturities, due quarterly through 2046, at a weighted-average rate of 3.68%	$ 1,245,043	$ 1,297,514
Private placement notes with various maturities, due quarterly through 2047, at a weighted-average rate of 4.29%	340,327	147,721
CoBank notes with various maturities, due quarterly through 2031, at a weighted-average rate of 6.10%	234,639	251,797
CoBank revolving line of credit due in the year 2020, at a weighted-average interest rate of 2.36% (unsecured)	85,000	200,000
NRUCFC notes payable due annually through 2029, at a weighted-average rate of 6.65%	40,000	43,333
	1,945,009	1,940,365
Less unamortized debt issuance costs	(3,421)	(3,551)
Less current maturities	(99,028)	(78,699)
	$ 1,842,560	$ 1,858,115

In 2017, Associated issued new borrowings totaling $200,000 in the form of three private placements. The Series 2017A mortgage notes total $100,000 and mature on May 23, 2047. The Series 2017B mortgage notes total $50,000 and mature on May 31, 2047. The Series 2017C mortgage notes total $50,000 and mature on April 30, 2047.

In 2016, Associated entered into an agreement with RUS through FFB in the amount of $190,836 for a plant construction loan that matures on December 31, 2046. As of December 31, 2017, one advance in the amount of $71,737 has been made against this loan, leaving an available balance of $119,099.

As of December 31, 2017, Associated had $575,000 of committed lines of credit with scheduled expirations of $475,000 in 2020 and $100,000 in 2021. As of December 31, 2017 and 2016, Associated had $85,000 and $200,000, respectively, outstanding on the lines of credit bearing an interest rate of 2.36% and 1.57%, respectively. The interest rate is a variable rate with several reset options. At December 31, 2017 and 2016, unamortized debt issuance costs consisted of the following:

	2017	2016
RUS loans through FFB	$ 2,380	$ 2,561
CoBank loans and line of credit agreements	614	777
Private placement notes	427	213
Total unamortized debt issuance costs	$ 3,421	$ 3,551

Annual maturities of long-term debt for the next five years are as follows:

2018	$ 99,028
2019	86,564
2020	86,449
2021	75,149
2022	89,772
Thereafter	1,508,047
	$ 1,945,009

The terms of these debt agreements contain, among other provisions, requirements to maintain a minimum level of total margins and equities, current ratio and margin for interest ratio and other financial ratios. Associated is in compliance with the terms of these agreements.

Note 13: Deferred Regulatory Credits

Regulatory credits are established for obligations to Associated's members based on actions of Associated's Board of Directors. These amounts will be included in income in the year they are applied to future costs or otherwise returned to members. At December 31, 2017 and 2016, deferred regulatory credits consisted of the following:

	2017	2016
Generation, environmental and insurance reserve fund	$ 157,921	$ 157,921
Member revenue subject to refund	14,561	4,561
Deferred gain on hedging activities	7,087	2,464
	179,569	164,946
Less current portion of deferred regulatory credits	(5,141)	(614)
Long-term deferred regulatory credits	$ 174,428	$ 164,332

Associated's Board of Directors established a fund for costs to comply with federal environmental legislation, future generation expenditures, uninsured losses and unplanned power supply cost. This fund is referred to as the Generation, Environmental and Insurance Reserve Fund. In 2017 and 2016, there were no additions into this fund and none of the funds previously deferred for this purpose were recognized in the accompanying statements of revenues and expenses. In both 2017 and 2016, Associated's Board of Directors designated $5,000 of this fund to be used for the purchase of the City of New Madrid's power plant. Upon purchase, Associated will amortize this amount into income over the depreciable life of the asset (see *Note 11*). Cumulative payments made to the City totaled $45,000 as of December 31, 2017, and are included in other deferred assets (see *Note 11*). Additionally, other restricted and designated assets include $112,921 of investments that have been segregated until a designated use has been identified by Associated's Board of Directors.

A regulatory credit has been established by Associated's Board of Directors for member revenue designated as subject to future refund in the form of lower rate requirements. In 2017, Associated's Board of Directors directed the deferral of $10,000 of member revenue for this purpose. Total member revenue subject to refund was $14,561 and $4,561 at December 31, 2017 and 2016, respectively.

Associated's Board of Directors has established a policy to defer unrealized fair value gains and losses associated with hedging activities and recognize in rates only the current period settlement of these instruments. As of December 31, 2017 and 2016, Associated had deferred $7,087 and $2,464, respectively, of unrealized gains on hedging activities (see *Note 17)*. The current portion of the deferred gain is included as a current liability on the accompanying balance sheets and was $5,141 and $614 at December 31, 2017 and 2016, respectively.

Note 14: Pension and Other Postretirement Benefits

Defined Benefit Plan

Associated participates in the NRECA RS Plan. The legal name of the plan is the NRECA Retirement Security Plan; the employer identification number is 54-0116145 and the RS Plan number is 333. Plan information is available publicly through the annual Form 5500. The RS Plan year is January 1 through December 31. The RS Plan is a defined-benefit pension plan qualified under Section 401 and tax-exempt under Section 501(a) of the Internal Revenue Code. Contributions are required by a collective bargaining agreement which expires on June 30, 2021. Employees hired on or after January 1, 2014, are not eligible to participate in the RS Plan.

In February 2013, Associated elected to make a prepayment of $37,087 to the RS Plan. Associated is amortizing this amount over 10 years. Associated's total contributions to the RS Plan in 2017 and 2016 represented less than 5% of the total contributions made to the RS Plan by all participating employers. Associated's total contribution to the RS Plan was $10,761 and $9,791 in 2017 and 2016, respectively.

For the RS Plan, a "zone status" determination is not required and, therefore, not determined under the *Pension Protection Act of 2006* (PPA). In addition, the accumulated benefit obligations and plan assets are not determined or allocated separately by individual employer. In total, the RS Plan was over 80% funded on January 1, 2017 and 2016, based on the PPA funding target and PPA actuarial value of assets on those dates. Because the provisions of PPA do not apply to the RS Plan, funding improvement plans and surcharges are not applicable. Future contribution requirements are determined each year as part of the actuarial valuation of the RS Plan and may change as a result of plan experience.

Defined Contribution Plan

Substantially all of the employees of Associated participate in the NRECA Select RE Plan 401(k) Plan (the 401(k) Plan). For employees hired before January 1, 2014, Associated contributes amounts not to exceed 2.5% of the employee's full salary for nonrepresented employees and base pay for International Brotherhood of Electrical Workers members, dependent on the employee's level of participation. For employees hired on or after January 1, 2014, Associated contributes amounts ranging from 6.0% to 13.0% depending on the employee's contribution to the 401(k) Plan and years of service. Associated contributed $2,657 and $2,336 to the 401(k) Plan in 2017 and 2016, respectively.

Deferred Compensation Plan

Associated has a deferred compensation plan that permits directors and certain employees to defer a portion of their compensation and accrue earnings on the deferred amounts. The assets of the plan are held in a rabbi trust and are included in other restricted assets and other deferred liabilities.

Health Care Plan

Associated provides noncontributory health care benefits to its retired United Mine Workers of America (UMWA) employees and their eligible dependents (UMWA Plan). These employees became eligible for benefits upon reaching age 55 while working for Associated and having 20 years of credited service at retirement. Also eligible were UMWA retirees who had 10 years of credited service and were age 55 or older at termination from Associated. The UMWA Plan is funded as benefit payments are made.

The UMWA Plan qualifies for the federal subsidy for prescription drug coverage under the *Medicare Prescription Drug, Improvement and Modernization Act of 2003*. As such, an assumption regarding the subsidy is included in the actuarial valuation of the UMWA Plan. The effect of the subsidy on the accumulated postretirement benefit obligation as of December 31, 2017 and 2016, was a decrease of $8,247 and $6,441, respectively, which serves to reduce the net periodic cost by $881 and $580 annually, respectively.

	2017	2016
Change in accumulated benefit obligation		
Accumulated benefit obligation, beginning of year	$ 28,342	$ 29,403
Interest cost	1,062	1,157
Actuarial (gain) loss	7,879	(194)
Benefit payments	(2,353)	(2,251)
Medicare subsidy	129	227
Accumulated benefit obligation, end of year	$ 35,059	$ 28,342
Funded status		
Accumulated benefit obligation	$ (35,059)	$ (28,342)
Net liability recognized	$ (35,059)	$ (28,342)
Net periodic benefit cost		
Interest cost	$ 1,062	$ 1,157
Amortization of actuarial loss	117	135
Total net periodic benefit cost	$ 1,179	$ 1,292
Amounts recognized in the accompanying balance sheets consist of		
Other current and accrued liabilities	$ (1,978)	$ (1,933)
Other deferred liabilities	(33,081)	(26,409)
	$ (35,059)	$ (28,342)
Amounts recognized in accumulated other comprehensive loss		
Net actuarial loss	$ 12,139	$ 4,377

	2017	2016
Weighted-average assumptions used to determine benefit obligation at December 31		
Discount rate	3.47%	3.88%
Weighted-average assumptions used to determine net periodic benefit cost for the year ended December 31		
Discount rate	3.88%	4.07%

For measurement purposes, a 5.5% annual rate of increase in medical and prescription cost trend rates was assumed for 2018 and 2019. The annual medical trend rate decreases over time to the ultimate trend rate after 2070 of 3.8%. The annual trend rate for vision expense was assumed to increase 5.0% per year through 2070. A 1.0% increase in assumed health care cost trend rates would increase total service and interest costs by $145 and increase the postretirement benefit obligation by $4,168. A 1.0% decrease in assumed health care cost trend rates would decrease total service and interest costs by $122 and decrease the postretirement benefit obligation by $3,508.

Associated expects approximately $626 of the actuarial loss to be recognized as a component of net periodic benefit cost in 2018.

Associated contributed $2,353 and $2,251 in 2017 and 2016, respectively, to the postretirement benefit plan. Based on actuarial projections, Associated expects to contribute $1,978 to the postretirement benefit plan in 2018. No discretionary contributions are planned in 2018.

Estimated future benefit payments and subsidy receipts, which reflect expected future service, as appropriate, for each of the next five years and thereafter, are as follows:

	Benefit Payments	Subsidy Receipts
2018	$ 2,410	$ (432)
2019	2,462	(447)
2020	2,499	(460)
2021	2,522	(472)
2022	2,542	(480)
2023–2029	17,936	(3,419)
	$ 30,371	$ (5,710)

Note 15: Income Taxes

Associated is subject to federal and state income taxes on nonpatronage-sourced taxable income. A detail of the provision for income taxes in 2017 and 2016 is as follows:

	2017		2016	
	Current	Deferred	Current	Deferred
Federal	$ (1,100)	$ 100,082	$ -	$ (31,798)
State	-	(10,769)	-	(5,198)
Change in valuation allowance	-	(89,313)	-	36,996
Income taxes charged (credited)	$ (1,100)	$ -	$ -	$ -

Total income tax expense differs from the amounts computed by applying the federal statutory rate to pretax income primarily due to the patronage dividend deduction and changes in the valuation allowance.

Current income taxes (credits) reflect the alternative minimum tax credits that will be refunded in the current period.

Deferred income taxes reflect the net tax effect of temporary differences between the financial statement and tax basis of assets and liabilities. Associated's temporary differences relate primarily to operating loss carryforwards, accelerated depreciation for tax purposes and other reserves deductible for tax purposes only when paid.

On December 22, 2017, the United States enacted tax reform legislation through the *Tax Cuts and Jobs Act*, which significantly changes the existing U.S. tax laws, including a reduction in the corporate tax rate from 35% to 21%. The decrease in deferred income taxes in 2017 is a result of the enactment of this legislation.

The components of the net deferred income tax asset at December 31, 2017 and 2016, are as follows:

	2017	2016
Deferred tax asset		
Net operating loss carryforwards	$ 294,476	$ 387,233
Mine reserves	1,295	2,084
AMT credit carryforwards	1,513	2,444
Postretirement benefits	1,182	1,977
Other	2,306	3,685
Total deferred tax asset	300,772	397,423
Deferred tax liability		
Utility plant	(11,887)	(17,081)
Deferred debits	(2,734)	(4,878)
Total deferred tax liability	(14,621)	(21,959)
Valuation allowance	(286,151)	(375,464)
Net deferred tax liability	$ -	$ -

Associated has federal net operating loss carryforwards for income tax purposes of $1,157,154, which are available to offset future taxable income. If not utilized, these loss carryforwards expire between 2019 and 2037.

Associated also has alternative minimum tax credit carryforwards for income tax purposes of $1,513, which are refundable, subject to limitations beginning after 2017 and before 2022, under the 2017 tax reform legislation.

A valuation allowance of $286,151 has been established primarily to reflect net operating loss carryforwards estimated to expire before utilization. The valuation allowance had a net decrease of $89,313 in 2017. The valuation allowance increased due to the net operating loss but decreased due to the lower corporate tax rate from the enactment of the 2017 tax reform legislation.

Associated evaluates and accounts for uncertainty in income taxes in accordance with the authoritative accounting guidance for income taxes. This guidance outlines the requirements for the recognition and measurement of uncertainty in income tax positions. At December 31, 2017 and 2016, Associated did not have any unrecognized tax benefits.

Associated is subject to taxation in the U.S. and various states based on taxable income. As of December 31, 2017, tax years 2014, 2015 and 2016 are subject to examination by the tax authorities. With few exceptions, as of December 31, 2017, Associated is no longer subject to federal and state examinations by tax authorities for years before 2014. There are no ongoing audits at this time.

Note 16: Fair Value Measurements

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Fair value measurements must maximize the use of observable inputs and minimize the use of unobservable inputs. There is a hierarchy of three levels of inputs that may be used to measure fair value. Level 1 inputs include observable inputs, such as unadjusted quoted prices in an active market for identical assets or liabilities. Level 2 inputs are unadjusted quoted prices in an active market for similar assets and liabilities that are either directly or indirectly observable. Level 3 inputs are unobservable inputs for the assets and liabilities for which little or no market data exist, therefore, requiring Associated to develop its own estimates of fair value.

Associated measures certain assets and liabilities at fair value on a recurring basis. The following table presents information regarding the method of valuation for assets and liabilities as of December 31, 2017:

	Fair Value Measurements	Quoted Prices in Active Markets for Identical Assets or Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Unobservable Inputs (Level 3)
Assets				
Long-term investments	$ 14,746	$ 14,746	$ -	$ -
Derivative assets	$ 7,087	$ -	$ 7,087	$ -
Liabilities				
Derivative liabilities	$ 19,243	$ -	$ 19,243	$ -

The following table presents information regarding the method of valuation for assets and liabilities as of December 31, 2016:

	Fair Value Measurements	Quoted Prices in Active Markets for Identical Assets or Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Unobservable Inputs (Level 3)
Assets				
Long-term investments	$ 12,666	$ 12,666	$ -	$ -
Derivative assets	$ 2,464	$ -	$ 2,464	$ -
Liabilities				
Derivative liabilities	$ 21,748	$ -	$ 21,748	$ -

Available-for-sale securities reflected in Level 1 of the valuation hierarchy are measured at fair value each reporting period using quoted market prices on listed exchanges. The derivative instruments reflected in Level 2 of the valuation hierarchy include fixed-to-floating commodity swaps, a floating-to-fixed interest rate swap and financial energy transactions on futures and exchange traded options conducted within the Intercontinental Exchange (ICE) platform which are valued based on published indexes for the respective contracts. The derivative instruments in 2016 also included a heat rate call option. There were no transfers between Level 1 and 2 in 2017 or 2016.

The estimated fair values of Associated's financial instruments were as follows at December 31, 2017 and 2016:

	2017		2016	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
Long-term investments	$ 14,746	$ 14,746	$ 12,666	$ 12,666
Long-term debt	$ 1,945,009	$ 2,087,790	$ 1,940,365	$ 2,101,653
Derivative assets	$ 7,087	$ 7,087	$ 2,464	$ 2,464
Derivative liability	$ 19,243	$ 19,243	$ 21,748	$ 21,748

The method used to estimate the fair value of Associated's long-term debt and investments is based on quoted market prices for the same or similar issues or on the current rates offered to Associated for the debt of the same maturity. The determination of fair value for cushion of credit investments is not practical due to their restriction in use and lack of marketability. Cushion of credit investments yield a 5% fixed interest and are used solely for the payment of FFB debt. The carrying amounts of cash and cash equivalents, accounts receivable and accounts payable approximate fair value at December 31, 2017.

Note 17: Derivative Instruments and Hedging Activities

Associated uses derivative instruments to manage the risks associated with changes in interest rates and the price of diesel fuel used in the operation of its generating resources. Contracts are evaluated under the guidelines of the accounting guidance for derivatives and hedging activities. All contracts that meet the definition of derivative instruments are recorded at fair value as an asset or liability. Fair value is determined based on indexes outlined in the derivative contracts or readily available equivalents.

In November 2007, Associated entered into a floating-to-fixed interest rate swap. Changes in fair value were deferred by action of the Board of Directors as a regulatory item to be recovered through future rates. Only current period settlements of this instrument are included in earnings, which resulted in charges to interest expense of $2,040 and $2,300 in 2017 and 2016, respectively. At December 31, 2017 and 2016, derivative liabilities of $19,243 and $20,240, respectively, were recorded within other current and other deferred liabilities. An asset, which represents the amount to be recovered through future rates, is included in deferred regulatory debits (see *Note 10*).

Associated has entered into a series of swap agreements for diesel fuel that are designed to manage the fuel price risk related to Associated's coal delivery costs through 2019. In 2009, the Board established a policy to defer changes in fair value as a regulatory item to be recovered through future rates. In 2017 and 2016, current period settlements resulted in a net addition in the cost of delivered coal of $2,571 and $16,636, respectively. At December 31, 2017 and 2016, a derivative asset of $7,087 and $2,464, respectively, was recorded within other current assets and other deferred assets, as well as a derivative liability of $0 and $1,508, respectively, within other current and accrued liabilities. The classification of derivative instruments is as follows at December 31, 2017 and 2016:

	2017	2016
Derivative asset	$ 7,087	$ 2,464
Derivative liability	(19,243)	(21,748)
	(12,156)	(19,284)
Less current portion	1,916	3,054
	$ (10,240)	$ (16,230)

Note 18: Commitments and Contingencies

Associated has pledged investments, classified as held-to-maturity, for mine reclamation and self-insured workers' compensation purposes. These securities are included in long-term investments. At December 31, 2017 and 2016, these securities amounted to $8,308 and $8,345, respectively.

As of December 31, 2017, Associated has a commitment to purchase all of its coal requirements through 2025 from one coal supplier using an agreed-upon rate calculation mechanism that adjusts with market prices. Associated also has contracts with certain rail companies whose contracts expire in 2020 to deliver this coal at agreed-upon rates.

Associated has a commitment to pay a base transportation fee to the transporters of gas for the Essex and Chouteau power plants through 2021 and 2041, respectively. Associated paid transportation fees of $3,612 in both 2017 and 2016. Associated's commitment to the transporters of gas at the Essex and Chouteau power plants will be $3,612 for 2018 through 2020, and an average of $6,449 annually through 2042.

Associated has commitments to provide power to its member cooperatives through 2075. Likewise, the member cooperatives are committed to purchase all of their power requirements from Associated through the same period. The agreements also provide that certain primary and secondary transmission facilities will be made available to Associated. Associated reimburses its members for the costs of these transmission facilities, including depreciation, interest and operations and maintenance. Expenses for these contracts in 2017 and 2016 totaled $70,689 and $66,268, respectively. Additionally, Associated is required to reimburse one of its members for the costs associated with the member's ownership interest in the GRDA Unit 2 coal facility. This agreement was terminated in May 2016. Associated will continue to reimburse its member for a deferred loss. Expenses related to this agreement were $6,453 and $7,134 for 2017 and 2016, respectively. Projected payments to members for the next five years are:

	Transmission	Generation
2018	$ 70,890	$ 6,446
2019	$ 73,572	$ 6,335
2020	$ 77,683	$ 6,184
2021	$ 78,424	$ 6,032
2022	$ 79,502	$ 5,881

Associated has a commitment to purchase the output from six wind farms. Associated does not have fixed cost obligations and pays only for the energy produced. These purchases are set at a contracted price for 20 and 25 years from inception of the contract. These contracts expire at various dates between 2027 and 2045. Associated purchased wind power at a cost of $107,629 and $105,766 in 2017 and 2016, respectively.

Under the terms of an operating agreement with the City of New Madrid, Associated purchases power at cost from the City's power plant. This agreement is effective for 50 years after commercial operation (October 1, 1972). Under the terms of the 1983 amendment to the operating agreement, Associated also pays a fixed capacity amount. Capacity payments totaled $300 for both 2017 and 2016. Projected capacity payments are $300 annually for the next five years.

Associated has a contract with SWPA, effective through April 2031, that entitles Associated to purchase a fixed amount of firm capacity and energy, plus supplemental energy when available. Capacity payments totaled $25,812 for both 2017 and 2016. Energy payments, including supplemental energy, totaled $14,249 and $17,389 for 2017 and 2016, respectively. Capacity payments for this contract for the next five years are projected to be as follows:

2018	$ 25,812
2019	$ 26,006
2020	$ 26,786
2021	$ 27,589
2022	$ 28,417

Associated, as is common with other electric utilities, is subject to stringent environmental laws, rules and regulations by federal, state and local authorities with regard to air and water quality control, solid and hazardous waste disposal, hazardous material management and toxic substance control. Pursuant to Sections 113 and 114 of the *Clean Air Act*, the U.S. Environmental Protection Agency (EPA) made requests for information to Associated in 2002, 2009 and 2012 regarding the maintenance of its coal-fired electricity generation plants for the purpose of review by the EPA to determine whether Associated has complied with the new emitting source review requirements. Associated has provided responses to those requests. On June 15, 2011, Associated received a Notice of Violation (NOV) under Section 113(a)(1) of the *Clean Air Act*. Associated has provided all requested information to the EPA and the U.S. Department of Justice. Parties have discussed early resolution of the claims set forth in the NOV but, to date, none has been reached. These new source review issues are the subject of significant political and litigation activity. At this point in time, it is not possible to estimate what effect, if any, this activity may have on Associated's financial condition. Management believes that it is, and has been, in substantial compliance with all existing laws, rules and regulations.

Note 19: Subsequent Events

Associated evaluates events that occur after the balance sheet date but before the issuance of financial statements to determine if recognition or disclosure of the financial impact of such events is required. There were no events occurring after December 31, 2017, and before February 6, 2018, which is the date the financial statements are available to be issued, that required recognition or disclosure.

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