ASSOCIATED ELECTRIC COOPERATIVE INC.

ADVANTAGE

2019

ANNUAL REPORT

AECI's Advantage lies in co-op family

Associated Electric Cooperative was different from the start. Founded in 1961, it was one of the first three-tiered systems of electric cooperatives in the country, and it remains one of only a few today. Its founding purpose and continuing mission is to provide an economical, reliable power supply and support services to its six owner generation and transmission cooperatives.

These six G&Ts are owned by and serve 51 local distribution cooperatives in Missouri, southeast Iowa and northeast Oklahoma. These local cooperatives are responsible for sending power to more than 910,000 meters collectively, or more than two million member-consumers at the end of the line in rural and suburban communities.

In addition, the Association of Missouri Electric Cooperatives, the Iowa Association of Electric Cooperatives and the Oklahoma Association of Electric Cooperatives are important parts of this cooperative family.

Serving this family of cooperatives every day are about 700 skilled and dedicated Associated employees. They are guided by Associated's mission and core values of safety, integrity, member focus, employee value, performance excellence and community citizenship. This engaged workforce is among the key advantages described in this annual report that set Associated apart as it meets challenges in the wholesale power supply industry.

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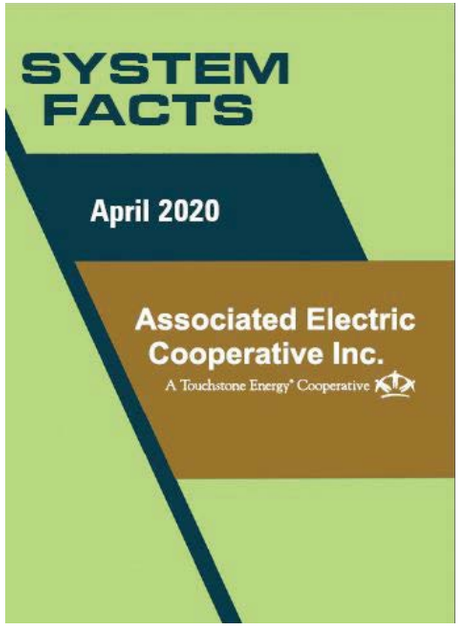

Associated's 2019 annual report was written, compiled and produced by the staff of Associated Electric Cooperative.
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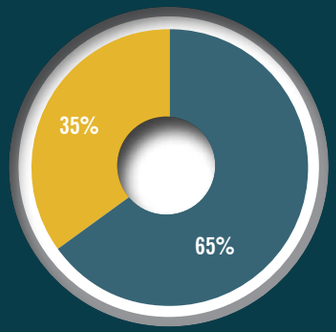
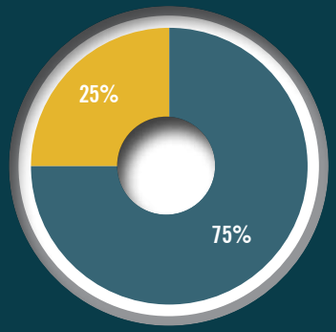


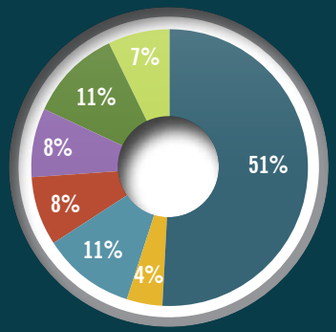
Kilowatt-hour sales (kWh in millions)

Members 19,285 Nonmembers 10,439



Operating revenue (dollars in millions)

Members $929 Nonmembers $318



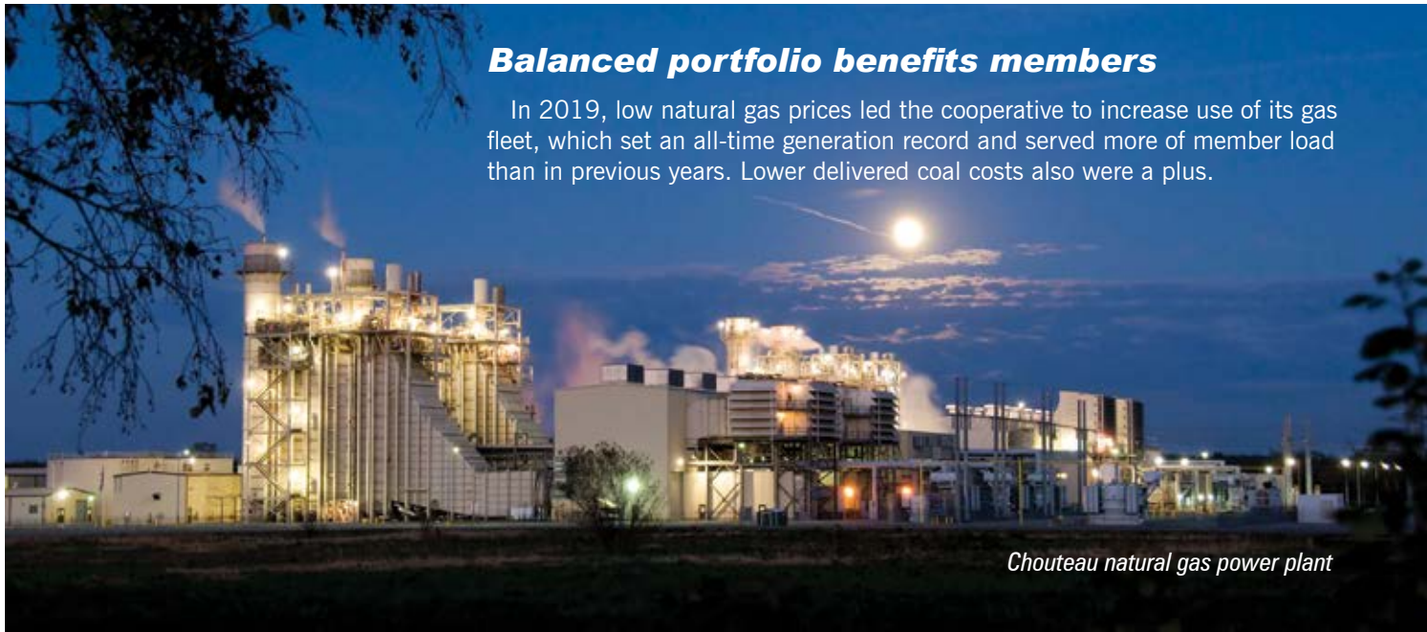
Operating expenses (dollars in millions)

Generation operation $586 Contracted generation $42
Purchased power $120 Depreciation and amortization $92
Transmission $95 Generation maintenance $129
Administrative and general, taxes and accretion $83

2019 highlights

Financial (in thousands)	2019	2018	Increase (Decrease)	% Increase (Decrease)
Operating revenue	**$1,247,298**	$1,209,881	$37,417	3.1
Operating expenses	**1,147,055**	1,102,234	44,821	4.1
Interest expense on long-term debt (less interest capitalized)	**72,614**	80,130	(7,516)	(9.4)
Net nonoperating income	**22,042**	25,242	(3,200)	(12.7)
Net margin	**49,671**	52,759	(3,088)	(5.9)

Operational				
Energy sales (MWh)				
Members	**19,284,984**	19,956,358	(671,374)	(3.4)
Nonmembers	**10,439,112**	7,341,329	3,097,783	42.2
Member revenue per kWh sold (mills/kWh)	**48.19**	47.33	0.86	1.8
Peak hour member demand (MW)	**4,539**	5,104	(565)	(11.1)
Total nameplate capacity (MW)	**5,657**	5,655	2	0
Net generation (MWh)	**26,212,389**	23,064,579	3,147,810	13.6



Balanced portfolio benefits members

In 2019, low natural gas prices led the cooperative to increase use of its gas fleet, which set an all-time generation record and served more of member load than in previous years. Lower delivered coal costs also were a plus.

Chouteau natural gas power plant

Advantage:
Our cohesive three-tiered system

It's interesting, maybe ironic, that electric cooperatives grew from a disadvantage – rural homes and farms were too far from cities to be profitable for big electric companies back in the 1930s and 1940s.

Back then, farmers and rural residents took it into their own hands and formed electric cooperatives to bring electricity, and its many benefits, to their homes and communities. Their grassroots efforts created advantages that continue today for Associated Electric Cooperative and the member systems it serves.

In this report, we highlight Associated's advantages and how those were at work in 2019 for the benefit of members, from generating fleet records to financial performance that enabled rate discounts and patronage capital to be returned to members.

Foremost among our advantages: Associated is member-owned, member-governed. Our owners and customers are one and the same, so there is no third party or shareholder calling the shots.

Our 12-member board of directors is informed and involved, setting the strategic direction of Associated to ensure that our mission to provide reliable and economical power is front and center.

Associated is part of a three-tiered cooperative system – one of the first in the country when it was formed in 1961. This ensures informed, involved member representation at every tier – a cooperative principle member systems work hard to fulfill.

Our three-tiered structure also provides for specialization and functional expertise, which lead to efficiencies at every level, from the 51 local distribution cooperatives serving their communities, to the six G&Ts' handling of the high-voltage transmission system, to Associated as the generation tier.

Each tier is committed to the others through all-requirements contracts extending to 2075 – a distinct and remarkable advantage in today's industry that reflects the cohesion of our system.

Another advantage is control over our assets. While others are part of organized markets, Associated has maintained its independence – a strategic decision studied in our long-term strategic planning process and one we continually monitor.

That position is largely due to our development of diverse generation resources and integrated high-voltage transmission system, all advantages when serving member systems.

Members tell us they need reliable, affordable power, so we continue to use and invest in our baseload coal plants, making them more efficient.

We have diverse resources, though, and these assets allowed us to take advantage of low natural gas prices in 2019 and serve more member load with our gas plants – a tremendous advantage.

We're good stewards of our natural resources, as are our members, and we've improved air quality, complied with regulations and gone the extra step to care for land and water.

We helped bring the first utility-scale wind farms to Missouri. We were not required by regulations to do so; it was the right time to further diversify resources. We will add two more wind energy projects in 2020, and we have the resources to manage the challenges of 1,240 megawatts of intermittent wind on the system to ensure reliable energy for members.

We're able to do that because of another key advantage I see in action every day at my local cooperative, my G&T and at Associated: a dedicated, innovative and talented workforce who knows they are serving the member at the end of the line.

Our focus requires us to do our research, study the alternatives, measure and manage risks and then take the path that ensures our members have all the advantages that affordable, reliable and responsible electricity brings to them and their communities.

I continue to count it a privilege to work with dedicated individuals as we serve this cooperative family.

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

We foster cohesion with member focus and service, and our three-tiered system stands out in those areas. In our most recent American Customer Satisfaction Index survey, every member cooperative's score was higher than industry average scores for investor-owned or municipal utilities.

These strengths are mentioned by the top three bond-rating agencies, which affirmed Associated's top bond ratings during the past year. These ratings help Associated access lower-cost borrowing, among other advantages, in a capital-intensive utility industry.

Emery "Buster" Geisendorfer joined Associated's board of directors in spring 2004 following his election as president of Northeast Missouri Electric Power Cooperative. He has served on Northeast's board since 1996, and on the board of his local cooperative, Lewis County Rural Electric Cooperative, since 1994, holding the office of president since 2001.

Buster co-owns and operates a cattle farm. He is a lifetime member of the Missouri Cattlemen's Association and actively involved in local cattlemen's functions, as well as in his community through church and civic organizations.

"Cooperatives are known for their grassroots efforts, powered by members. Few utilities can say their customers write to their representatives or show up on the steps of the capitols every year to support the issues that affect their power supply, communities and quality of life. We can."

Grassroots strength in numbers

Associated is one of a few three-tiered systems of electric cooperatives, which brings efficiency through specialization at each tier, economy of scale and the ability to react quickly to changes, improving overall competitiveness.

At the top tier are 51 local distribution cooperatives in three states that provide electric service directly to 910,000 homes, schools and businesses representing more than two million member-consumers.

Local co-ops generally handle installation and maintenance of power lines from substations to consumers, plan for future needs of their service areas, work with communities to encourage economic development, help members use electricity efficiently and educate about safety.

Six generation and transmission cooperatives (G&Ts) form the second tier. They transmit power from Associated to the 51 distribution cooperatives. The G&Ts serve six geographical areas of Missouri, southern Iowa and northeast Oklahoma, and operate, build and maintain the high-voltage transmission system.

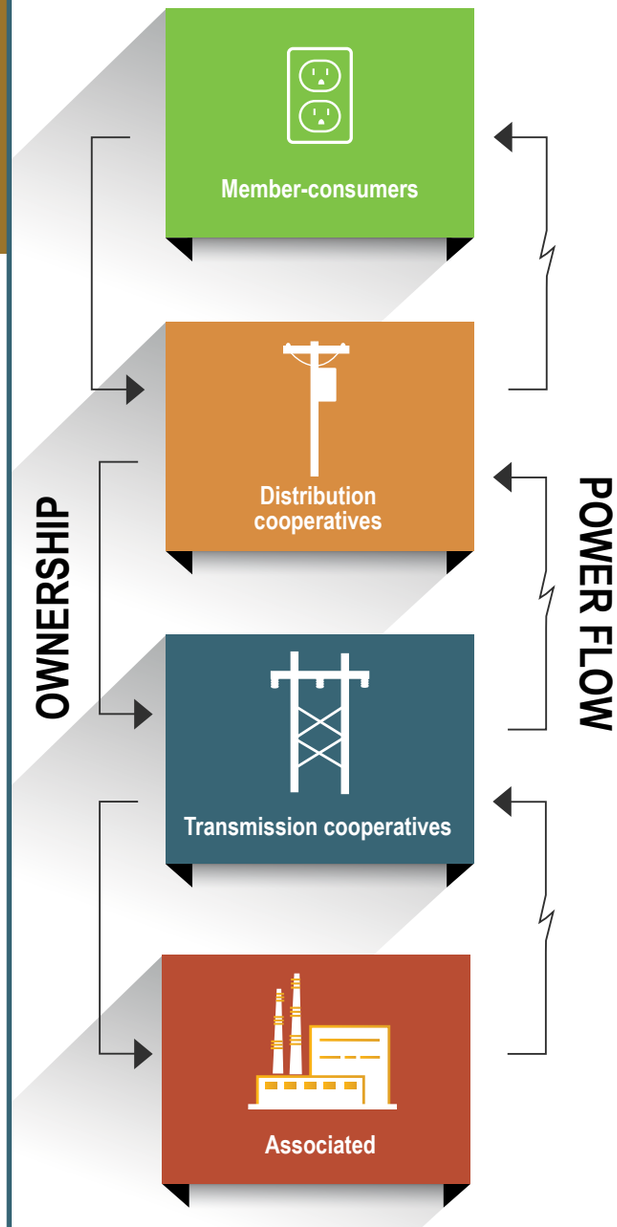
The G&Ts also bring member governance that keeps Associated focused on its mission; legislative, government, industry and community relations; interconnections; and relationships with neighboring utilities.

Associated is the third tier, formed in 1961 to provide for generation, power procurement and other support services.

The tiers are committed to each other through all-requirements contracts. These reciprocal obligations produce one of the best electric cooperative organizations in the nation.

Supporting this system are three statewide cooperative organizations, as well as the National Rural Electric Cooperative Association.

Member-owned three-tiered system



Graphic courtesy of AMEC.

Advantage:
Our willingness to be different

Throughout 2019, we continued to emphasize how Associated is different than other electricity providers across the United States and how this drives us to pursue a strategy that is unlike most. That means we remain cautious in a business climate that has seen many utilities announce drastic changes to their generation portfolios. Those utilities are betting new technologies will develop in time to allow their strategies to pay off.

Associated also must look to the future. We continue to add renewable resources, focusing on value and price. In fact, Associated is adding 471.5 megawatts of wind energy to its resource mix during 2020. That will bring us up to 1,240 MW of wind capacity.

Our commitment to reliable, responsible and low-cost power for member-owners requires that we keep our options open – and not make decisions we may regret. Thus, as we develop renewable resources we are not setting arbitrary future targets. We will retire our coal units when it makes sense from a reliability, cost and environmental perspective.

So, while others are announcing they will be 100% green or 80% carbon-free by some future date, Associated continues its time-tested strategy of maintaining a diverse and flexible portfolio of generation resources that includes coal, natural gas, wind and hydropower.

As many utilities retire their coal units, we at Associated are very concerned about a future, perhaps within the next five years, when much of the national coal fleet will not be around to ensure reliability. We only have to look at recent winter events to see the role that baseload units, like our coal fleet, play to ensure reliability.

Strategy makes a difference

When you look closer at Associated's strategy, you will see we are humble, dedicated, flexible, trustworthy and maybe smarter than some give us credit for being. You can see all these traits at work at Associated, evident in the innovation and commitment in everything we do to produce affordable, reliable power balanced with environmental stewardship.

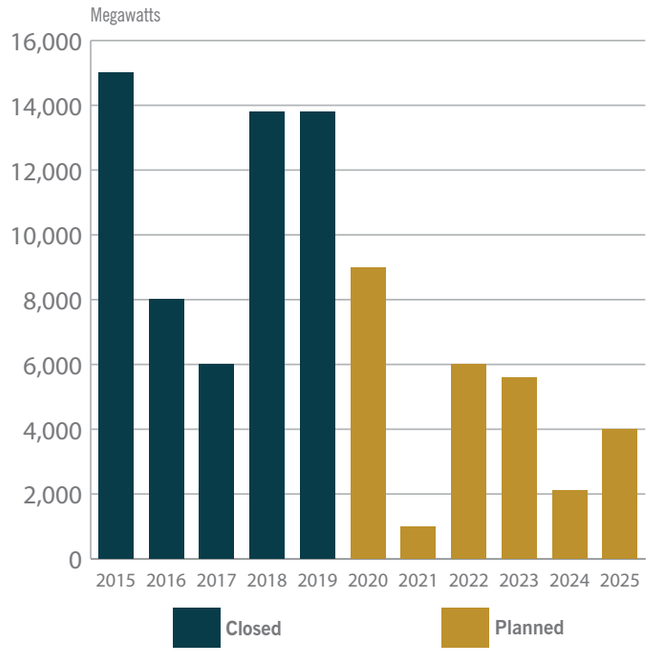
Being different creates advantages for Associated, and those were evident again in our 2019 performance. We continued to follow our long-term strategic plan developed in 2017 and again set new records in plant performance, cost management and nonmember sales. This allowed for $65 million in member rate discounts; additional deferred revenue of $34 million; writing off $38 million of deferred expenses that had been delayed to future years; while generating $49.7 million of net margin. This set the course for continued member discounts of $60 million in 2020. Associated accomplished all of this while maintaining a strong safety record.

Associated's decision to use a special one-time option to pay off Rural Utilities Service debt without prepayment penalties allowed the cooperative to lower its interest cost by about $6.5 million per year over the next 16 years.

Associated ended the year with a strong cash position and zero drawn on its $600 million lines of credit. Maintaining strong liquidity will allow Associated to manage through future changes to its portfolio assets.

I appreciate the continued opportunity to work for a dedicated and informed board of directors, comprised of our member-owners; to lead such a great organization of talented people; and to work with member systems who share our focus on serving those members at the end of the line.

U.S. coal generation retirements



In the last 10 years, U.S. coal capacity has dropped more than 25% to below 250,000 megawatts.

Sources: EIA and JTC

David J. Tudor
CEO and general manager

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Diverse generation resources

Associated has built a diverse resource portfolio to serve members, leveraging its geographic footprint, capitalizing on market opportunities and collaborating with strategic partners.

Associated's first owned resource was coal, an affordable, reliable resource for member systems. Converting to low-sulfur coal in the 1990s, Associated has favorable fuel and rail contracts for one of the lowest-cost and cleanest coals in the U.S. Its 40- to 60-day, onsite fuel supply ensures reliability, as does its reliability-centered maintenance plan.

Associated has elinimated about 250 megawatts of coal from its portfolio since 2014. Ongoing challenges come from environmental policy and compliance costs.

At 37%, Associated has one of the highest ratios of combined-cycle gas capacity among load-serving entities in the U.S. Its fleet is flexible and agile, able to ramp up or down to help balance wind energy or run as baseload supply.

Associated has access to a low-cost gas supply. Low fuel prices mean low-cost generation and lower emissions.

Challenges could include fuel price volatility and environmental scrutiny of processes, like fracking, which is responsible for the plentiful natural gas supply.

Associated has access to the abundant Midwest wind resource base and has locked in long-term, stable pricing to mitigate market price risks.

Associated's contracted wind energy increases to 1,240 MW in 2020, providing 119 MW of capacity.

Challenges with this zero-emissions resource include its intermittency, creating operational challenges that will increase as wind energy saturates the market.

Renewable hydropower, from the federal system of hydroelectric dams, was Associated's first resource when it was formed in 1961.

The benefits of this resource include low, stable rates and zero emissions.

In addition to 478 MW firm capacity, Associated buys supplemental hydropower when available. It varies with rainfall and lake levels.

Challenges include aging infrastructure that will require federal investment.

Advantage:
Member-owned, member-governed

At Associated, members hold the seats at the table. That skilled, member-represented leadership is a key advantage for Associated. Its board of directors determines strategic direction for the organization, sets its wholesale power supply rates and continually balances members' need for low-cost, reliable power with Associated's need to remain financially strong and flexible.

Associated Electric Cooperative's 12-member board is sized to act quickly to seize opportunities, assess risks and ensure the cooperative is meeting its mission. The board is comprised of, from left, seated, John B. Killgore, vice president, NW Electric Power Cooperative Inc.; John R. Bledsoe, treasurer, M&A Electric Power Cooperative; John E. Hibdon, secretary, KAMO Power; and Emery O. "Buster" Geisendorfer, president, Northeast Missouri Electric Power Cooperative; from left, back row, Theodore J. Hilmes, KAMO Power; Christopher M. Turner and Thomas W. Howard, Central Electric Power Cooperative; Daryl R. Sorrell, M&A Electric Power Cooperative; John T. Richards, Sho-Me Power Electric Cooperative; David L. McDowell, NW Electric Power Cooperative Inc.; Dan A. Singletary, Sho-Me Power Electric Cooperative; and Douglas H. Aeilts, Northeast Missouri Electric Power Cooperative.

Member representation is exemplified in board members like Jake Fisher, who retired from Associated's board in June 2019 after nine years as treasurer on the board. Jake's experience spans three decades, and he continues to serve on the boards of his local distribution and G&T cooperatives.

He built a 50-year career in agriculture, rising to serve as superintendent of the University of Missouri's Delta Research Center.

The beauty of this system, though, is another stepped up to serve. John Bledsoe, a retired businessman with more than 20 years' experience in cooperative governance in southeast Missouri, joined Associated's board in June 2019.

Democratic member control

Seven principles differentiate the cooperative business model, and the second states that cooperatives are democratic organizations controlled by their members, who actively participate in setting policies and making decisions. Those elected representatives are accountable to the membership.

Associated's board annually reviews the cooperative's cost of service, integrated resource plan and long-range financial forecast. Due to Associated's financial performance, the board approved for 2019:

- A budgeted rate discount, amounting to $50 million in revenue not collected from its six G&T owners.
- An additional $15 million rate discount given in September 2019 to the six G&T owners.
- Return of $23.5 million in patronage capital to the G&Ts, which included an additional $10 million – for the second year in a row – above the 2% of equity the board annually has returned since 1993.
- Deferral of $34 million in revenue, increasing this fund to $121 million as planned. (The board may use this fund for future rate stability. Associated's long-range financial forecast shows no rate increases through 2026 as a result.)
- Wrote off $38 million of past expenses that had been deferred, reducing future revenue requirements of members.

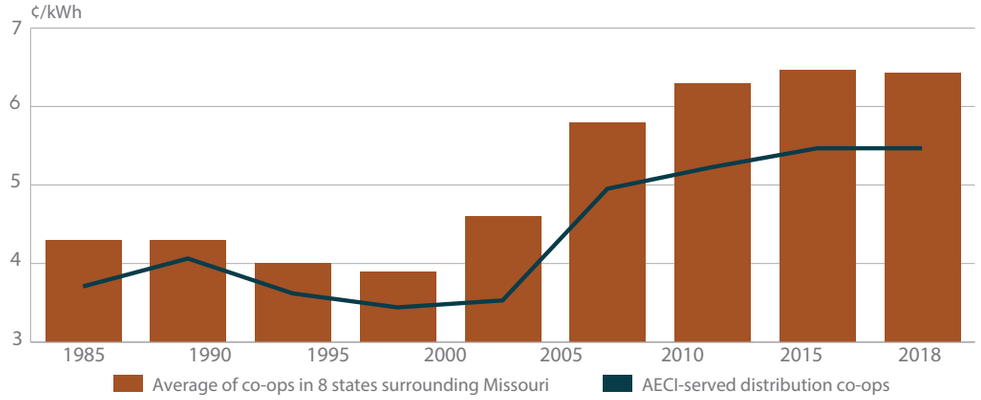
The 12-member board is comprised of the chief executive officers from Associated's six member-owner G&Ts (in gold-toned shirts, Page 6). These executives bring more than 190 years of utility and cooperative experience to meeting the needs of their member systems.

Joining G&T executives on the board are six directors who bring vital member representation, from the business owner and farmer to the general managers of local electric cooperatives. These directors, wearing blue shirts on Page 6, collectively have more than 170 years of service to cooperatives.

Together, that is 360-plus years of cooperative and utility experience at Associated's board table.

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

Member co-ops aligned with competitive wholesale power supply



Advantage:
Leadership guides talented team

Guided by the board of directors, Associated's executive leadership is a nine-member team with broad and diverse experience both inside and outside the utility industry. Their charge is to develop the strategic direction of the cooperative, strengthening it by supporting operational, regulatory and technological best practices.

Executives lead each of Associated's divisions, which conduct and maintain the duties required to generate and distribute power throughout the system and provide support services. Each senior vice president brings unique background, leadership style and skills to work for two million member-consumers at the end of the three-tiered system's lines.

Ensuring Associated retains and improves its advantages for serving member systems is its executive team, from left, Ken S. Wilmot, senior vice president and chief operations officer; David W. McNabb, senior vice president and chief financial officer; Roger S. Clark, senior vice president and chief commercial officer; David J. Tudor, CEO and general manager; Brian A. Prestwood, senior vice president, general counsel and chief compliance officer; Brent W. Bossi, senior vice president and chief information officer; Joseph E. Wilkinson, senior vice president and chief member relations officer; Shawn P. Calhoun, senior vice president and chief human resources officer; and Scott E. Thompson, senior vice president and chief risk officer.

Member representation in action

Associated's executive staff works with the board of directors, which proactively studies and reviews various issues important to the cooperative. This review process is supported by a committee structure, which staff uses to provide board members in-depth information on subjects going before the full board. This provides assurance that effective end results are being achieved and that items for board action have been thoroughly studied and considered.

Board committees include:

• The Finance, Audit and Risk Committee reviews related items, including cash management and controls, operating statements, capital budgets, the annual financial audit, internal audit practices and investment policy.

Additionally, Associated's Energy Risk Management Division provides updates to the committee, validating the effectiveness of the various Engineering and Operations' hedging programs.

• Planning and Operations Review Committee examines power supply planning and construction, operation and maintenance of generation, transmission and mine reclamation facilities, as well as fuel procurement, safety performance and compliance with environmental and grid security regulations.

• Human Resources, Public Policy and Marketing Committee reviews matters relating to the overall policy direction and management of Associated, as well as human resources, public policy and member communication functions and results being achieved in these areas.

• The Technical Advisory Committee, comprised of the six G&T chief executive officers, examines specific issues brought by either the CEO or at the request of a board member. Intent is to provide in-depth review of matters more technical or complex than normal board presentations. After review, the committee makes recommendations to the full board.

Discussing issues before the Human Resources, Public Policy and Marketing Committee are, from left, David Tudor, CEO and general manager; Stacy Bussard, manager, human resources services; Daryl Sorrell, board member; David McDowell, board member and committee chairman; Shawn Calhoun, senior vice president and chief human resources officer; and Richard Winders, associate general counsel.

Advantage:

Strong and flexible financial strength

Commitment to a strong and flexible financial position has long been a key business strategy for Associated, and it continues to be a big advantage in a constantly changing industry.

In 2019 Associated reinforced its financial position while providing patronage capital and rate discounts to its six owner G&Ts and paying down long-term debt.

2019 performance drivers included lower fuel costs, record generation and nonmember sales. Supporting factors were under-budget operations and maintenance expense, a continuing focus on safety, transmission resiliency, generating unit performance, environmental stewardship and meeting members' needs.

These led the cooperative to record a net margin of $49.7 million, achieved after deferring revenue for future rate stability and writing off deferred expenses to strengthen its balance sheet.

Additional 2019 achievements:

• The board improved the balance sheet with a write-off of $38 million in previously deferred expenses related to generation maintenance; Associated's energy-efficiency program provided to member systems; and an abandoned generation project (Essex 2). Writing off deferred expenses is one of the tools the board has at its discretion to provide a long-term benefit to members by reducing future revenue requirements.

• The board took advantage of an opportunity to pay down long-term debt to strengthen its balance sheet. The 2018 farm bill allowed for penalty-free prepayment of federal USDA Rural Utilities Service debt with use of a RUS investment account. Associated paid $227 million of its RUS debt, saving roughly $86 million in interest expense and improving its equity-to-total-capitalization and debt-service-coverage ratios.

• Associated also paid down $154 million on its lines of credit, leaving a zero balance at year-end 2019. The cooperative has $600 million available in lines of credit with six strategic firms, a key component of its strategy to be financially strong and flexible.

Bolstering performance

Associated generated a record 26.2 million megawatt-hours for member load and nonmember sales. At the same time, staff effectively managed costs so that operations and maintenance expense was about $4 million under budget.

• Lower fuel prices reduced the cost to generate electricity. Savings were about 6% compared to budget.

• Associated is positioned well with its fuel contracts, and in 2019 delivered coal prices were better than expected.

• With its natural gas plants, Associated took advantage of their location, firm transportation agreements with pipelines and low delivered natural gas prices. Its Chouteau and Dell plants operated at record capacity levels.

• Member energy sales were stable, ending the year 0.8% above budget.

• Nonmember sales were above plan, a result of the energy marketing team's work to optimize members' assets. Revenue from nonmember sales helps to offset members' costs.

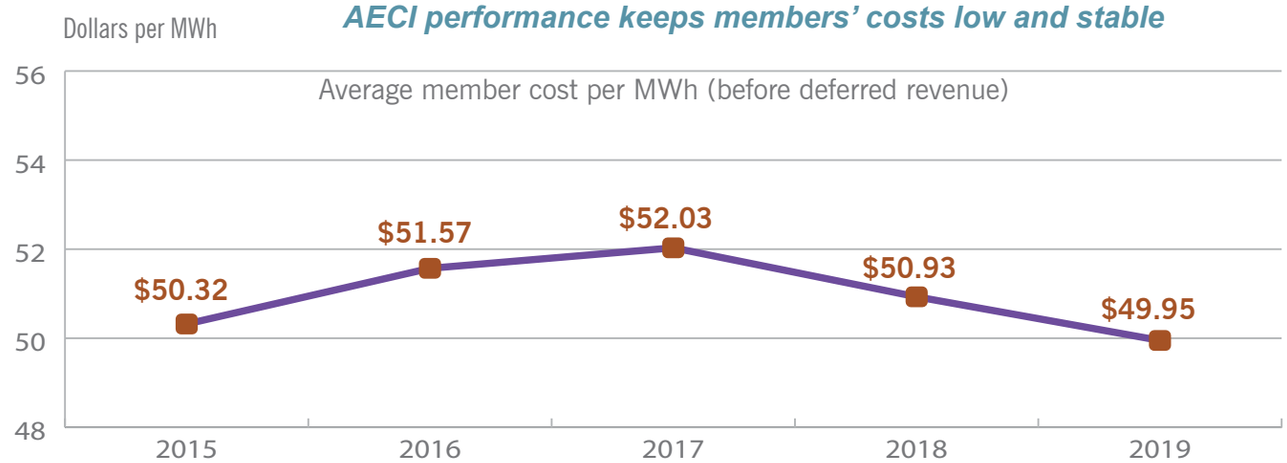
• Wind generation was lower than planned, leaving room for the cooperative to take advantage of lower natural gas and coal energy prices to fill the gap.

• Another plus for the year was supplemental hydropower, the cooperative's lowest-cost resource, which was 141% above budget.

Ultimately, Associated's performance enables it to meet its mission of providing an economical and reliable power supply and support services for member systems.

"Because of the strong financial performance in 2019, the board was able to use a number of tools to keep members' cost low and stable, including deferred revenue, patronage capital and rate discounts," said Meredith Roberts, vice president and controller.

AECI performance keeps members' costs low and stable



Advantage: Top-rated G&T

All three major bond-rating agencies affirmed Associated's ratings after 2019 meetings with board members and executive management. The cooperative is one of two top-rated G&Ts in the nation.

Associated is rated AA- by Fitch Ratings; Aa3 by Moody's Investors Service; and AA by Standard & Poor's Financial Services. All ratings are with a stable outlook.

These ratings provide tremendous advantages to Associated, enabling it to access competitive, lower cost borrowing and negotiate better terms with counterparties.

"This is an external assessment or scorecard of the strength of the organization," said Barb Economon, managing director, finance and treasury. "These reviews are not only financial, but also focus on other areas that may impact our future financial strength, such as strong governance, operations, environmental stewardship, systemwide cohesiveness, marketing and risk management."

Partnerships provide advantages

Developing and nurturing effective strategic relationships is at work in every facet of the cooperative, from financing to contractors to regional transmission planning.

That includes the USDA Rural Utilities Service. Associated works to meet the federal agency's requirements for accessing lower-cost loans.

"One of Associated's objectives is being the lowest-cost provider. We meet this objective by getting loans from RUS, which is the lowest-cost lender. We think of RUS as a partner, formed to help rural areas. … While the funding requires additional time and documentation, it's well worth it," said Barb Economon, managing director, finance and treasury.

In 2019, Associated finalized two significant loan agreements with RUS: a $29 million loan agreement for its transmission construction work plan and $49 million for generation-related projects.

Working with RUS saves Associated about 1% to 1.5% on the interest rate, which translates to millions of dollars in savings on long-term loans.

"In this industry, a lot of things could come at us, and we're very well-positioned to handle them. Associated's financial strength and strong ratings provide access to capital, flexibility, options and the ability to handle those unexpected things."

– Meredith Roberts, vice president and controller

Associated continues to invest in transmission facilities to ensure resiliency and reliability for members. That work continued with arrival by ship and rail of a 709,890-pound generator step-up transformer for New Madrid Unit 1 in fall 2019. Step-up transformers increase the voltage of electricity produced by the unit to levels that allow for electricity to be sent across transmission lines for greater distances.

Advantage:
Flexible, agile commercial operations

Resources, risk management and relationships help create flexibility, optionality and agility – all fundamental objectives creating advantages for Associated in its commercial operations.

Optimizing its generating resources and demonstrating the flexibility of its fleet, Associated took advantage of low natural gas prices in 2019. More than in previous years, it dispatched its gas units at lower cost than its coal units to serve member load in 2019.

For example, about 85% of generation from the Chouteau Power Plant went to serve member load, providing members the benefit of particularly low gas prices in that region.

The Dell Power Plant set a net generation record of 3.2 million megawatt-hours in 2019. Strategically located on the high-voltage transmission grid, the natural gas combined-cycle plant was registered into the MISO market by Associated in late 2017, a move that came from its long-term strategic planning process to maximize the value of this plant.

Before 2017, the plant ensured reliability for members but was rarely needed. Its average capacity factor was in the single digits. In 2018, its capacity factor was 39%. That increased to 61% in 2019 with the majority of the energy sold into the MISO market.

Associated's coal units also are very cost competitive, and Associated was able to dispatch that energy into the market for nonmember sales when not needed for member load.

Making the most of energy not needed by members, the cooperative's marketing activities generated revenue that exceeded budget.

Nonmember sales volume was 3.3% above plan. Associated's generation costs being below others in the region drives nonmember sales.

Power Production and energy marketing work around the clock, coordinating the best use of members' resources to meet load and market conditions.

In spring 2019, for example, the cooperative's flexibility in moving maintenance outages benefited the system.

"The flexibility of our generation fleet to perform maintenance at opportune times allowed us to have significant volumes of excess generation when the market bore advantageous power prices in 2019," said Michael Denning, manager, energy marketing.

Short- and mid-term capacity and energy sales also are structured to benefit the cooperative, as well as counterparties, and Associated's staff managed these transactions very well in 2019, preserving valuable revenue streams while limiting credit risk to Associated.

Fuel strategy pays off

- Associated and BNSF railway, longtime strategic business partners, extended the cooperative's coal transport contract. Recognizing the price pressure on coal from natural gas prices, the longtime strategic partners achieved a win-win outcome for members and the railway.
- Associated extended its gas transportation contract at the Dell plant last year, another trademark win-win.
- At the coal plants, staff managed through disruption of coal deliveries due to spring flooding in northern areas and minimized the impact on member cost.
- Staff is adept at natural gas hedging, supported by risk management and added analysis and control. Staff captured market opportunities in 2019 that will reduce fuel cost fluctuations into the future. (See chart on Page 17.)

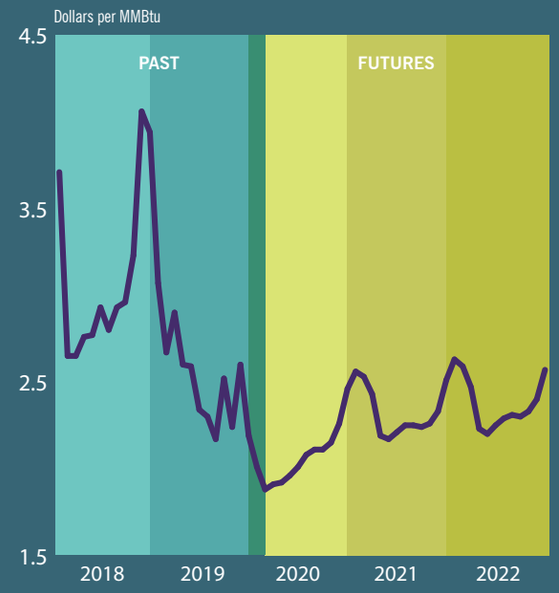
Staff flex coal fleet flexibility

At the coal plants, a team adapted units to better meet ever-changing energy market conditions, especially as more wind power flows onto Associated's system in 2020. Their efforts will enable coal units at both plants to operate at significantly lower minimum loads. This flexibility will enable the units to stay online, avoiding costly thermal cycles, and ensure reliability when energy is not needed on the system or in the market.

Increasing flexibility of the coal units will enable the cooperative to better manage increased wind energy on its system and give it options such as buying low-cost energy in the off-peak times versus producing it or selling energy at a loss.

"This coal plant flexibility initiative brought together a large team across Power Production to challenge the status quo of the units' capabilities. These changes can be difficult for the organization, but the team rose to the challenge, achieved its objectives and is looking for additional ways to improve plant capability across a wider range of operating conditions. This helps the diverse fleet stay low cost and reliable for our member-owners," said Sean Wright, managing director, engineering and construction.

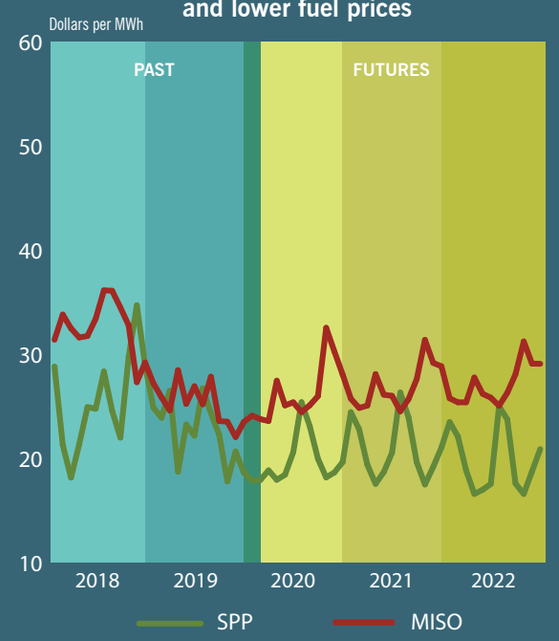
Natural gas prices remain low



Source for Henry Hub natural gas prices is Platts.

Natural gas production growth in 2019 swamped the market, helping to further lower natural gas prices.

Energy prices followed shifting technologies and lower fuel prices



Sources: SPP – SPP South Hub; MISO – Indiana Hub

(Forward prices as of Feb. 24, 2020)

"Our 2019 results reflect how driven energy marketing has become to provide service and value to our members. In the face of an ever-changing commodity environment, the team rose to meet each challenge and push onward. Additionally, we continue to benefit from coordination and teamwork across divisions, all of which make tremendous contributions to marketing performance."

– Michael Denning, manager, energy marketing

Bluegrass Ridge Wind Farm

Progress continued on two new wind energy projects that will add 471.5 megawatts of contracted wind energy to members' resources. Interconnected directly into members' transmission system, the Clear Creek project by Tenaska and White Cloud project by Enel Green Power North America are being built in northwest Missouri. Commercial operation of both farms will begin in 2020, bringing Associated's contracted wind energy to 1,240 MW.

Increased wind energy on Associated's system will challenge staff, which has taken several measures to improve the flexibility of its coal and gas units to ensure reliability for members, as well as compliance with federal requirements for the nation's bulk electric system.

Advantage:
Integrated high-voltage transmission system

Integrated describes more than the actual lines and interconnections of the high-voltage transmission system owned by Associated and its six owner G&Ts. "Integrated" also fits the way Associated and the G&Ts work together to ensure the resiliency of this system, which is vital for delivering affordable, reliable electricity to members.

The six G&Ts and Associated collaborate on long-range and regional transmission planning, compliance with federal requirements, resiliency studies to identify system deficiencies, outage coordination, training, knowledge sharing and working with neighboring utilities and regional transmission organizations, or RTOs.

Together, the six G&Ts and Associated have built one of the largest, integrated transmission systems among G&Ts in the country that is reliable, resilient and cost effective – all advantages in their mission to meet members' needs.

In 2019, Associated and the G&Ts continued to address aging infrastructure, enhance resiliency and conduct studies to identify areas of risk and determine the best projects to improve the system. The cooperatives invested about $22 million in 2019 on the high-voltage (138-kV and above) transmission system.

Associated and G&T operations staff meet regularly to coordinate operations, share information and maintain strategic partnerships. This G&T Operations Committee includes staff from each G&T and Associated.

Building on that is the G&T Resiliency Initiatives Subcommittee, formed in 2019 to enhance consistency, efficiency and continuous improvement through sharing of current industry and individual G&T experiences, technology and best practices. Its tasks include creating guidance documents for outage prevention and system operations, as well as analysis and recommendations on several issues.

Collaboration creates better results

Working together, Associated and the G&Ts are better able to meet requirements of the North American Electric Reliability Corp., such as streamlining the steps to meet standards on facility ratings that created a process now recognized as among the best in the industry.

In this collaborative project, G&T staff verified equipment ratings in all Bulk Electric System or "BES" substations and entered the data into asset management software. Following a thorough review by Associated planning engineers, a program created by Associated's Information Services staff pulled that data directly into the energy management system, making it available in real-time to system operators and Associated's reliability coordinator.

Associated also completed its long-range transmission plan in 2019. It's completed every two years, using an open, transparent process requiring extensive coordination with the G&Ts, neighboring utilities, adjacent RTOs and other stakeholders. Solutions are developed to solve identified issues in the most practical and economical means for serving future loads.

The 2019-2029 long-range transmission plan continued the trend of fewer transmission facility improvements due to flattened load growth projections and recent transmission investments. In the past 10 years, Associated and the G&Ts have invested a total of $495 million in high-voltage transmission improvements and facilities.

Associated and the G&Ts also cooperate on training that is beneficial for reliable operation of the transmission system. Associated hosts NERC-approved training for the G&T operators, and that increased in 2019 along with use of web-based tools to provide relevant training.

Cooperation among cooperatives, the sixth cooperative principle, is a key advantage for Associated and the G&Ts.

Associated and the G&Ts' 69-kV and greater transmission system is the largest by mile among the country's G&Ts. With more than 10,183 miles of line and related facilities, it includes:

- 46 miles of 500-kV lines
- 760 miles of 345-kV lines
- 2,039 miles of 161-kV lines
- 274 miles of 138-kV lines
- 7,064 miles of 69-kV lines
- 904 substations
- 233 interconnections

As a transmission owner and operator, Associated coordinates with neighboring utilities in an open, transparent process to ensure regional transmission resilience, planning and compliance with NERC standards.

G&Ts form second tier of strong system

As the second tier of the system, the G&Ts operate, build and maintain the high-voltage transmission system. Additional strengths the G&Ts bring to Associated that ensure its success include member governance that keeps it focused on its mission; legislative, government, industry and community relations; interconnections; and relationships with neighboring utilities.

Thomas Hill Energy Center

Advantage:
Culture of compliance

Associated's culture of compliance is woven throughout the organization, from protecting against cybersecurity threats to ensuring reliability at the power plants to meeting NERC standards and requirements.

"The tone is set at the top, and our program has strong support from the board, each of the G&Ts and our executive management," said Todd Bennett, managing director, reliability compliance and audit services at Associated. "That's where the culture starts."

Associated's culture was praised by SERC Reliability Corp. during an extensive operations and planning audit in fall 2019. The cooperative earned a result of no findings of violation or concern, meaning it remains in compliance with federal standards that ensure a reliable and secure electric grid.

SERC conducts operations and planning audits every three years. Associated's 2019 audit covered 26 standards and 64 requirements that included vegetation management, relay maintenance and testing, communications, emergency operations, operating protocols, facility interconnection studies, power system modeling and analysis, transmission operations, system planning and more.

Staff prepared several months in advance, sending more than 1,000 requested documents to SERC prior to the onsite visit. While on site, the SERC audit team interviewed subject matter experts and system operators and toured control centers and G&T substations.

As for members at the end of the line, Associated's compliance program ensures a high level of reliability from their power supplier and limits exposure to fines and penalties, helping control costs for members.

System operator Mitch Brockelbank monitors myriad points on the generation and transmission systems, communicating 24/7 with staff at the power plants and the G&Ts to ensure reliable electricity for member systems. System operations is supported by skilled Associated employees in Engineering and Operations and Information Services, like EMS analysts Vicki Lintt and Anthony Lonigro in background, who work continuously to provide the tools and technologies for system operations.

Advantage: Independence from organized markets

Associated continues to maintain its independence from organized markets, a long-held position evaluated through its long-term strategic planning process and one Associated continues to monitor.

The strong performance of Associated's generation operations, of Associated and the G&Ts' high-voltage transmission system, as well as access to low-cost fuel sources, continue to prove this self-reliant approach to be the lowest-cost, most reliable alternative.

As an independent balancing authority with more than 230 physical interconnections, Associated is able to buy and sell power with three neighboring regional transmission organizations (MISO, PJM and SPP), as well as other independent balancing authorities and marketing firms.

Associated has a conservative risk management approach, staffing and tools to operate independently and maximize its operations to provide significant flexibility.

Consistent with its strategy, Associated continues to invest in transmission infrastructure and equipment to meet NERC balancing requirements, maintain positive working relationships with RTOs and engage in markets as a market participant.

In its work to ensure full compliance with federal requirements, Associated has filed a comprehensive mitigation plan with SERC Reliability Corp., which was accepted, to address issues the agency identified in 2016. Associated and its G&Ts have successfully managed through complicated issues, creating an approved strategy. As a result, Associated and the G&Ts have hardened the reliability of their operating systems and emerged even stronger.

Infrastructure increases flexibility and optionality

As an independent balancing authority, Associated faces risks; however, it has the expertise to manage those risks and continues to hone its tools and abilities.

Associated also has good relationships with neighboring RTOs that provide additional expertise. It relies on the Southwest Power Pool for reserve-sharing and the Tennessee Valley Authority as its reliability coordinator.

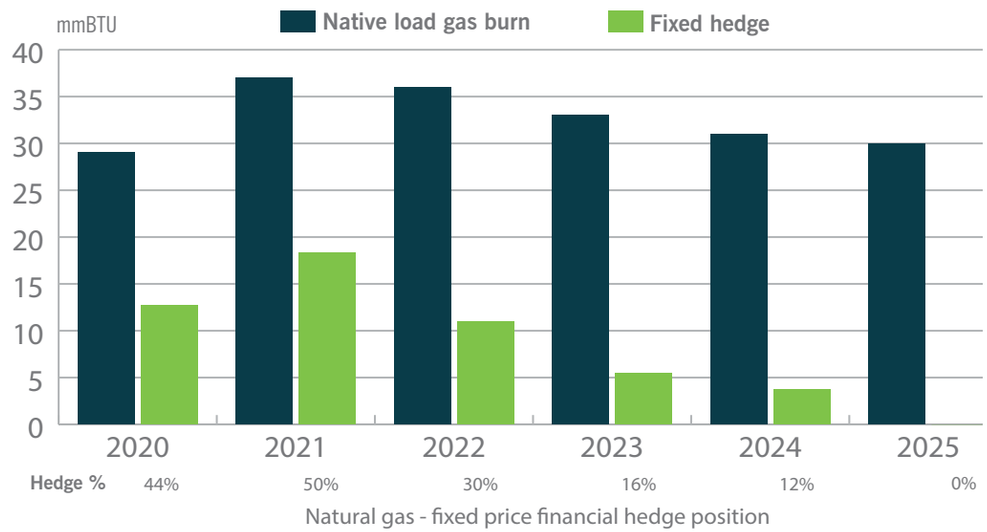
Supporting risk management is the Energy Risk Management Division, established in 2017 as Associated prepared for an extensive long-term strategic planning process. Since, staff has continued to mature the cooperative's control environment, enabling Associated to optimize members' generation and transmission assets.

In 2019, staff further leveraged the control structure to reduce members' costs by completing more complex energy transactions; centralizing management of those risks; developing more comprehensive hedge strategies; and then monitoring, managing and reporting on those activities.

- Associated, due to its size, control environment and AA bond ratings, completed long-term agreements in 2019 that increased purchasing of natural gas directly from well-head gas producers and processors, a significant advantage that lowered costs more than $5 million. Energy Risk Management staff, with help through a service contract with ACES Power Marketing, has been able to effectively monitor and measure the credit, contract risk and mark-to-market risk of these transactions.
- The energy marketing and origination teams continued to build those working relationships with natural gas producers on pipelines connected to Associated's power plants.
- Energy marketing staff transacted further out in time to stabilize costs of serving members. For example, staff completed longer-term natural gas financial hedges with natural gas producers and processors, locking in low natural gas prices for future generation needs.

"Michael Denning's team in power marketing saw the opportunity to work more directly with the gas producers, and now they are leveraging the structure already built and continuing the momentum we achieved from our long-term strategic planning process. That infrastructure pays off every day," explained Scott Thompson, chief risk officer and senior vice president.

Staff lock in low natural gas prices for members



Advantage:
Balanced, diverse resource portfolio

Associated's diverse generating resources provide reliability, flexibility and optionality – all fundamental objectives outlined in the cooperative's long-term strategic plan to ensure Associated remains members' best source for reliable, affordable power supply.

From its power plants to energy marketing, Associated made the most of its resources to serve members. It took advantage of low natural gas prices, and 38% of total generation was produced by its gas plants in 2019. Those units generated an all-time record 11.2 million megawatt-hours, setting records for starting reliability at 99% and capacity factor of 45%.

In another move to optimize assets, Associated ended its third-party operations and maintenance contract for the natural gas-based Dell Power Plant and successfully transitioned to self-operation of the plant Oct. 1, 2019. The cooperative offered employment to the workforce, and 20 of the 22 experienced staff joined the cooperative to work with new leadership striving for operational excellence.

Leading the plant now is Nathan Budreau, whom Associated promoted to plant manager of the Dell facility. Previously assistant plant manager at Associated's New Madrid plant, Nathan has worked with Associated since 2006 as a controls engineer, electrical and instrumentation superintendent and interim senior plant manager.

"Nathan has demonstrated strong technical and leadership skills during his career at AECI. We are fortunate that during a transition like this, we have individuals like Nathan prepared through our management and development efforts to assume these expanded responsibilities," said Ken Wilmot, senior vice president and chief operations officer.

The 580-MW Dell Power Plant is strategically located, and Associated registered the combined-cycle gas plant into the MISO market in December 2017 to increase its use, an initiative resulting from its long-term strategic plan. In 2019, the plant set record net generation and contributed to nonmember revenue that helps keep members' rates stable.

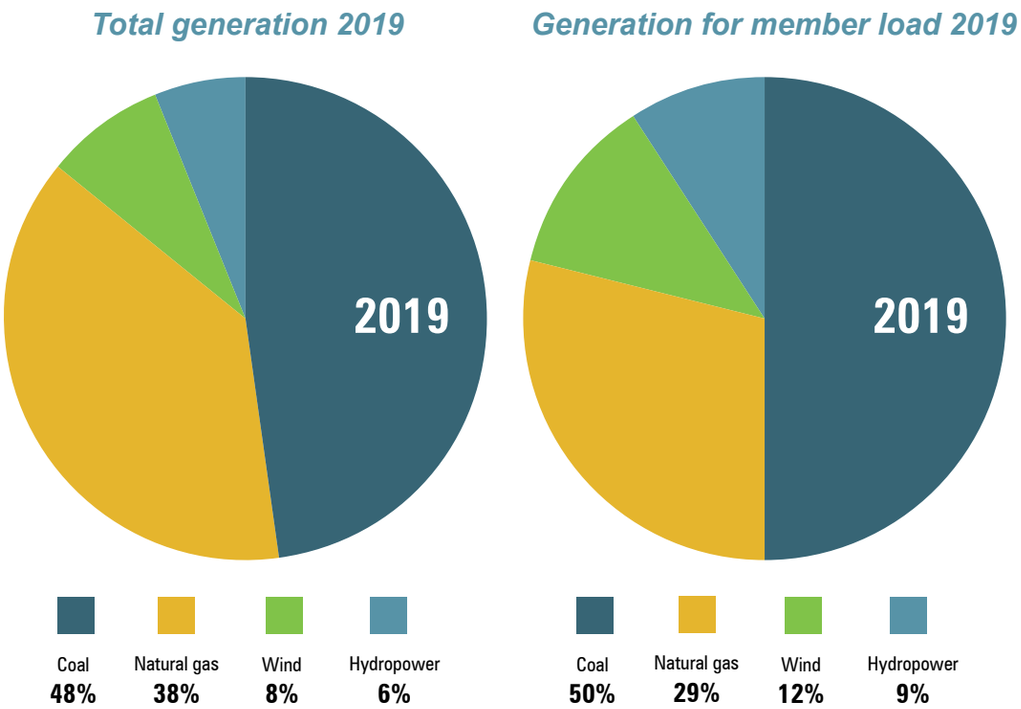
The coal fleet overall had its second-best year for availability factor, and individual units set records for availability, continuous runs without an outage, lower planned outage factor, heat rate and capacity factor – and ended the year below budget on operations and maintenance expense.

Thomas Hill Unit 3 set a record of 295 days of continuous run without an outage due to a focus on targeted maintenance and operational excellence. (See Page 21.)

Supporting these achievements were a focus on safety; thorough outage planning and execution; and an extensive reliability-centered maintenance program.

Across the fleet, staff completed various maintenance and engineering projects, ensured compliance with federal reliability standards and numerous other projects. A sampling of 2019 highlights demonstrates employee innovation and Associated's mantra of operational excellence:

- Staff continued to integrate plant drawings, equipment and safety processes into an enterprise asset management system to improve safe operation and maintenance of the plant and track maintenance history and equipment reliability.
- After research, a team installed a new catalyst in selective catalytic reduction equipment, which reduces nitrogen oxides and mercury emissions. Results on Thomas Hill Unit 2 show remarkedly better results. This is part of a 20-year catalyst inspection and management plan to ensure cost-effective operation and maintenance of the equipment.
- Staff researched and implemented a safer chemical to clean the condenser at Thomas Hill Energy Center, reducing marine fouling 50% more than the previous method and leading to heat rate improvements that save on fuel costs.



Total generation, and the portions from that total to serve member load shown in second pie chart, demonstrates resource diversity, as well as increased use of natural gas assets in 2019.

Safety is No. 1 priority

Safety is a must in any industry, providing for a healthier workforce, savings and productivity.

The safety of employees, contractors and visitors is the No. 1 priority for Associated. The cooperative's 2019 recordable incident rate was 1.63, the third lowest in the cooperative's history. The RIR is used by OSHA and most companies to measure frequency and severity of injuries per 100 employees.

In the gas fleet, which had record generation, there were zero OSHA recordable incidents for Associated employees, and staff completely revised the safety manual and training for employees at the Dell Power Plant.

Associated's initiatives to further improve safety include job briefings; tap-root analysis of incidents; continual training; communications; tracking safety metrics; and awareness programs like SafeStart, which reminds employees to be aware of and to reduce four states of mind that increase the risk of injury.

2019 was the first full year Associated used a newer metric gaining favor in the industry. The Serious Injury and Fatality (SIF) rate measures the potential for very serious injury or fatalities, focusing on actual and near-miss events that could cause severe injury or fatality. Once identified, staff can address with corrective actions.

There are 27 categories of events or near misses that could cause or result in a serious injury or fatality, ranging from falls to arc flash or arcing of equipment. When an incident falls into these categories, it is flagged and discussed with management and employees.

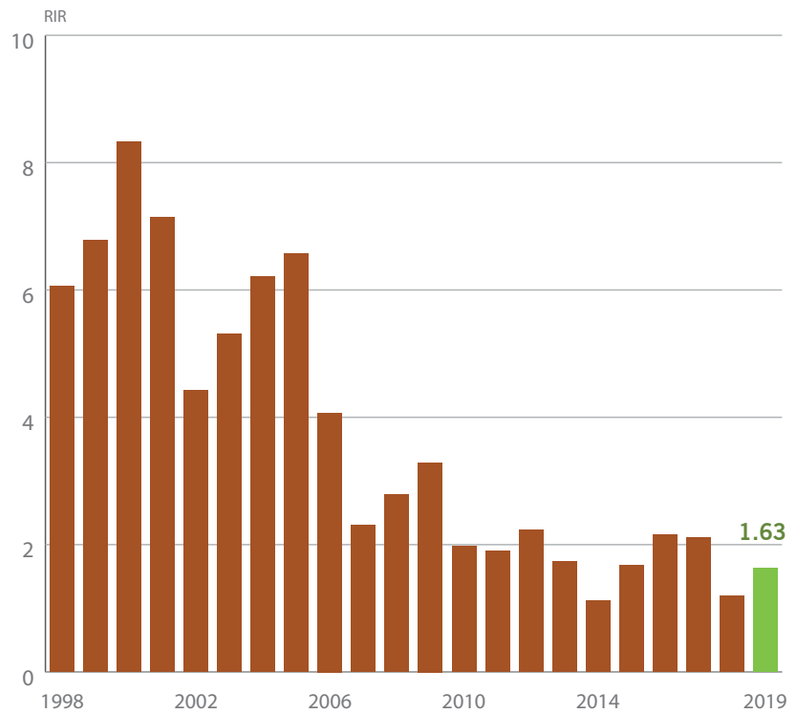
Staff's aim is to focus on these events and lower the rate to zero, reducing risk of an injury that affects an employee's quality of life.

Connie Thorne at New Madrid Power Plant was looking out for herself and co-workers when she submitted an idea to improve safety at the warehouse.

She suggested installation of a dock lock system, which uses a mechanical arm to lock a delivery truck's trailer in place so it can't move in the event of brake failure or a driver moving the truck forward when it is being unloaded or loaded.

Connie submitted the idea through Associated's iGen program, a Power Production initiative that taps into employee creativity by encouraging employees to submit ideas that could improve their work environments.

Staff aim for zero injuries



Associated also continues to track recordable incident rate, which tracks injuries requiring medical action above first aid, according to OSHA. The RIR is per 100 employees and is calculated by multiplying number of recordable cases by 200,000, then dividing by number of hours worked.

Connie Thorne

Advantage:
Commitment to environmental stewardship

All of Associated's advantages come into play when meeting numerous environmental regulations inherent in the utility business, as well as the uncertainty surrounding constantly changing and litigated requirements.

Member focus, financial strength, proactive compliance, strategic business relationships and an innovative workforce long have helped the cooperative balance caring for natural resources with its mission to produce affordable and reliable electricity.

That tradition carried on in 2019.

Associated continued to protect resources while meeting numerous deadlines set out by the Coal Combustion Residuals and Effluent Limitation Guidelines. Both rules, issued in 2015, relate to the handling, storage and disposal of coal ash and have required multiple research, reports, engineering and projects to change systems – with more to come.

In 2019, staff completed the multiyear project of increased groundwater sampling at Thomas Hill and New Madrid power plants and followed next steps outlined in the rules. This included additional monitoring, research of corrective measures, multiple reports and posting them on Associated's public website to provide information and transparency.

Coal yard crews assisted with stormwater improvements, ash pond closure preparations and construction projects. Parts of a new submerged flight conveyor system for handling and storage of bottom ash from New Madrid Unit 1 were constructed. The project will be finished in 2021.

At Thomas Hill Energy Center, engineering work was completed to meet ash-handling rules, and construction on those projects will begin in 2020.

Associated's cost of compliance with the coal residuals and effluent limitation rules through year-end 2019 is about $26.5 million, with about half of that spent on 2019 projects. The cooperative estimates major projects to meet these two rules will require an additional $110 million during the next five to eight years, beginning in 2020.

Self-audits help ensure clean reviews

Associated's environmental, health and safety team participated in 25 onsite government agency inspections and reviews in 2019, compared with 19 in 2018, receiving no OSHA citations or notices of violation.

The cooperative also has a program of self-auditing to ensure safety and compliance. Staff increased self-audits to 26 on air, land and water regulatory compliance, safety and health. This includes quality assurance and compliance audits of the laboratories and hazardous waste companies used by Associated and its member-owners.

Associated continues to manage its carbon footprint while awaiting certainty on carbon regulations. The Environmental Protection Agency finalized its Affordable Clean Energy Rule in 2019, replacing the Clean Power Plan.

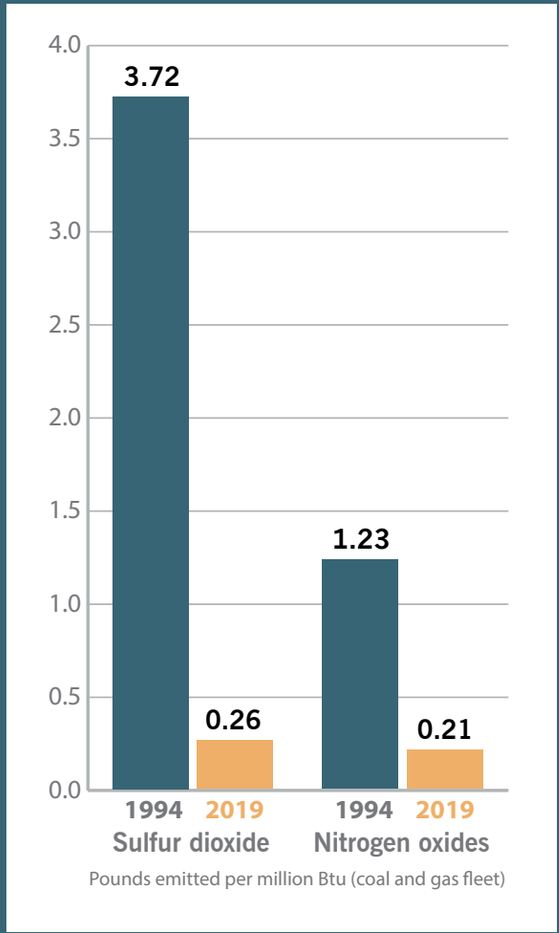
Associated staff worked with the National Rural Electric Cooperative Association to evaluate and comment on the ACE rule and is working with the state of Missouri and other utilities on data collection to establish carbon dioxide limits for compliance.

Partnering on pollinator preservation

Collaboration brings advantages, and Associated continued to serve on the steering committee for Missourians for Monarchs. It further developed its pollinator restoration area on 32 acres at Thomas Hill Energy Center, planting another 2,200 milkweeds. It also assisted a member system to establish a plot, providing seed money and site preparation assistance.

Contractors construct an ash storage bunker in fall 2019. The structure is part of a submerged flight conveyor system for compliance with additional environmental regulations at New Madrid Power Plant.

AECI reduces emissions, improves air quality



Associated and its members are concerned about being good stewards of natural resources. Associated was among the first to convert to low-sulfur coal at its coal plants, reducing sulfur dioxide emissions 90%; among the first to put SCRs on large cyclone coal units; and among the first to try a new method to lower mercury emissions.

Environmental control measures to improve air quality cost Associated about $51 million in 2019, including fixed and operating costs.

"The Unit 3 record is much more important than just being on-line for a number of days. Continuous operations, and running the unit efficiently, have done wonderful things for fulfilling our mission of providing reliable, low-cost wholesale power for our member-owners."

– Steve Iwanowicz, senior plant manager, Thomas Hill Energy Center

Thomas Hill Unit 3 runs marathon

In fall 2019, members' largest coal unit, Thomas Hill Unit 3, surpassed its old record of 193 days of continuous running without an outage and never looked back. The unit ran a consecutive 295 days before coming down for a planned maintenance outage in early March 2020.

The run is a result of many efforts, namely identifying issues and performing good maintenance; reliability-centered maintenance and testing; applied expert operator knowledge; a focus on operational excellence, safety and innovation; and deferring an outage.

Unit 3 set five records in 2019 for net generation, availability factor, heat rate, capacity factor and unplanned outage rate. The unit also was able to defer its fall outage – saving member-owners' dollars by generating through this period and not incurring startup costs.

"The longer we are on with any of our units, the lower the cost-per-megawatt becomes, and that's when we show our value to the many people who rely on us to 'keep the lights on,'" said Senior Plant Manager Steve Iwanowicz.

"It's important to remember that most of our members are not wealthy, and more than a third are retired and on fixed incomes. … You can see that many of our friends and neighbors rely on us for keeping costs low, and our focus every day needs to continue to support that."

Thomas Hill Energy Center

Advantage:
Keeping our focus on members

In an ever-changing utility industry, affected by technology, fuel prices, climate and competing interests, Associated's sharp focus on serving member systems is quite the advantage.

At Associated, the leadership and workforce know for whom they work, what they are charged to do and why it's so important to member systems that Associated produces reliable, responsible and affordable electricity and provides support services.

Recognizing that some member systems needed help to grow their rural communities' economies, Associated continues to listen and improve its Power for Progress economic development program. Established in 2017, the program provides a menu of resources, including economic development matching grants, training, networking, project management and technology initiatives. The program is open to all 57 member systems; a member-led committee provides guidance.

In 2019 Associated added program measures to help cooperatives with the growing interest in, and potential load growth from, electric vehicles. Associated provided matching funds to help purchase or lease Level 2 charging stations and buy or lease zero-emissions vehicles.

Also added were a match to help member systems fund rate studies for industrial development, which enables the cooperative to react quickly to an economic request for proposal; a cooperative relending program; and regional economic development studies for the G&Ts.

Later in 2019 Associated's board approved funds to provide every member system the ChooseEV web-based program. Its purpose is to provide information on electric vehicles, making the local co-op the source for members at the end of the line. Participating cooperatives receive customized web pages explaining EV benefits, savings calculators, costs and more.

Educated, informed and involved member-owners are essential and a key strategic objective at Associated. Staff in Member Services and Corporate Communications Division facilitate that objective by coordinating the annual meeting. More than 850 members and guests attended last year to listen to speakers and network with other members.

Associated annually provides update meetings to its six G&T owners and their boards on Associated's performance, long-range financial forecast and industry issues.

Associated also continues to provide member systems with its Take Control and Save energy-efficiency program, aimed at helping members at the end of the line save on their electric bills. Guided by a member committee, Associated adapts the program to fit needs. It added rebates for smart thermostats and Energy-Star-Rated air conditioners and heat pump water heaters in 2019, and 825 rebates were issued for these three items alone last year.

Since the program launched in 2008, Associated and member systems have invested in several measures that will save an estimated 2.5 billion kilowatt-hours over the lifetime of the equipment and improvements.

"We want to endorse the technology we're bringing forward, the sustainability of green power, and certainly show member systems we believe in the initiatives we offer them through our Power for Progress economic development program."

– Mark Woodson, senior manager of member services and economic development, in discussing Associated's purchase of an electric vehicle for its fleet.

Mark retired in January 2020 after 30 years with Associated and is the recipient of Associated's 2019 prestigious Distinguished Service Award.

Informed members see co-op advantages

Last year, Associated staff attended distribution cooperatives' annual meetings, providing a virtual tour of one of members' power plants.

Keeping members informed of the issues affecting their wholesale power supply is a strategic objective. To meet it, staff provides informative sessions for new managers of distribution cooperatives; hosts Touchstone Energy and energy-efficiency summits and seminars; and travels to meet with or present to cooperative boards and staff on topics of interest, such as their wholesale power supply, solar energy, environmental regulations, governance best practices and energy efficiency.

Advantage:
Preparedness and focus continue into 2020

An additional note from CEO and General Manager David Tudor

As I sit in my home office per our decision to work from home, which was followed by Springfield's stay-at-home ordinance, I am pondering what the year 2020 will bring after the worldwide COVID-19 pandemic that has stopped us in our tracks this spring. Sickness and death are terrible parts of life, and pandemics add fear and loneliness. The United States, as of this writing, is fighting hard to protect its citizens and economy – both of which are very vulnerable to this invisible enemy.

Associated has taken unprecedented steps to keep its employees healthy and its power plants and transmission assets operating reliably. After a strong operational and financial start to the year, this crisis calls for substantial conservatism in decision-making.

Fortunately, in setting our course for 2020, the Associated board continued a long-standing practice of "saving for rainy days" by maintaining sufficient cash on the balance sheet and zero balance working capital lines of credit ($600 million).

We have accumulated deferred revenue in two places – $113 million in the Generation, Environmental and Insurance Fund (GEIF) and $121 million in the Deferred Revenue Fund, and took a conservative approach to budgeting for nonmember sales. All of this was done while enacting discounts to our member bills of $60 million. These actions place Associated in a strong financial position to weather the storm.

Associated's pandemic plan was updated for the uniqueness of the COVID-19 challenges and implemented in February. As of this writing, it is working well. Employees have embraced the challenges, accepted the decisions and continued their long-standing commitment to serving Associated's member-consumers during this crisis.

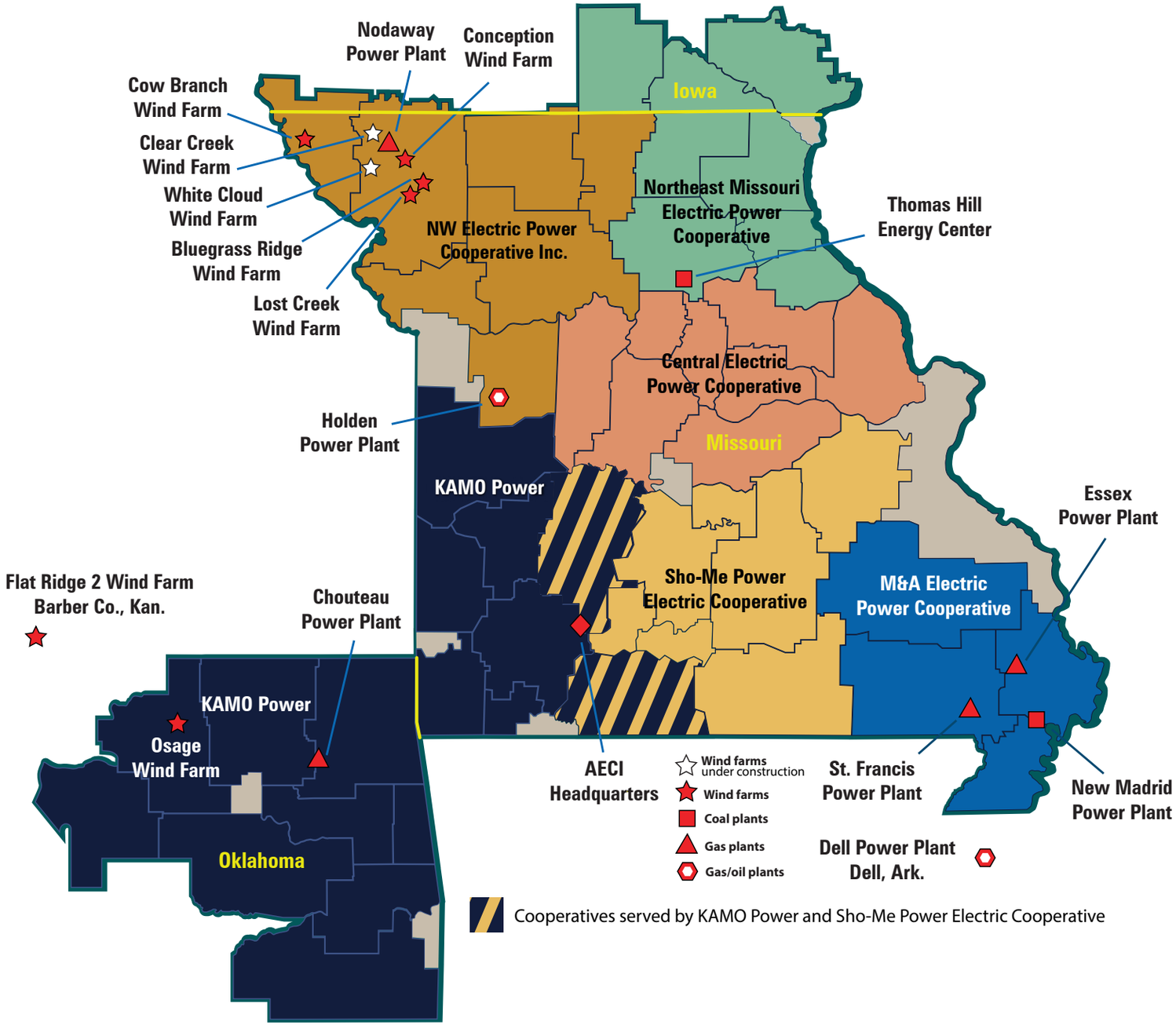
By working with our members, statewide organizations and NRECA, we have coordinated communications and information flow. We have contacted our business partners across the country to push for coordination and are prepared to take the actions necessary to protect our critical operations staff and our assets. We believe we are ready to deal with this crisis.

Three months into 2020, predicting the remainder of the year is impossible and likely inaccurate. We can say that the cooperative model has time and time again proven to be superior in challenging times. We don't see this current challenge any differently. We urge our members to be conservative, patient, safe and diligent in fighting this enemy and to remain confident that Associated is committed to overcoming this challenge and serving members.

As always, thank you for your trust and support!

David J. Tudor
CEO and general manager

Three-tiered system serves members' power needs



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

Central Electric Power Cooperative – Jefferson City, Missouri

• Founded: 1949 • Counties served: 34 • Miles of line energized: 1,629

- 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 served: 50 • Miles of line energized: 2,596

- 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: 1,003

- 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: 1,710

- 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: 1,829

- 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

Principles set cooperatives apart

Associated, like all cooperatives, adheres to seven guiding principles:

Voluntary and open membership
Democratic member control
Members' economic participation
Autonomy and independence
Education, training and information
Cooperation among cooperatives
Concern for community

In addition to serving members every day, Associated employees also serve their communities in various ways. In the Springfield area, Associated is a United Way pacesetter, and employees' 2019 campaign made the cooperative one of the top five contributors in a 14-county region. Employees at Thomas Hill Energy Center support their local schools and charitable agencies. In another example, the maintenance department, in photo, at New Madrid Power Plant raised $2,800 in 2019 to buy 13,540 food items for local food pantries. Eric Canady, journeyman welder/mechanic, (fifth from left in photo above) is one of the leaders of this effort and was nominated by his peers for Associated's Excel Community Advocate award.

Brent Harris, Supervisor of the Year – Thomas Hill Energy Center

Associated's annual Excel award recipients are nominated by their peers for going above and beyond in their daily work, as well as in special projects. There are 10 categories of awards, and Excel awards are Associated's highest honor.

Among the 2019 Excel recipients is Brent Harris, shift supervisor at Thomas Hill Energy Center. Nominators said he is known for his clear communication, knowledge and leading by example.

"Brent displays a constant willingness to be the best at what he does – being a leader. He has taken several new supervisors under his wing and has made big improvements in their job skills as a result of all the hard work he has put into their training."

– Excel nominator

Ten-year statistical summary

Year (calendar year basis)	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Operating revenue (in thousands)	**$1,247,298**	$1,209,881	$1,082,700	$1,093,545	$1,090,790	$1,142,320	$1,129,752	$1,081,899	$1,083,734	$1,055,103
Sales (kWh in thousands)	**29,724,096**	27,297,687	22,372,148	22,978,917	22,519,981	22,794,455	24,122,178	23,257,842	23,366,696	23,269,001
Total member sales	**19,284,984**	19,956,358	17,832,428	17,879,974	17,924,012	18,688,056	18,330,147	18,078,911	18,603,536	18,962,284
Central Electric Power Cooperative	**3,835,648**	3,973,673	3,560,201	3,636,158	3,572,374	3,755,050	3,680,320	3,522,610	3,571,431	3,580,599
KAMO Power	**7,185,095**	7,323,329	6,423,812	6,351,957	6,537,387	6,792,200	6,528,534	6,201,160	6,436,559	6,461,680
M&A Electric Power Cooperative	**1,764,990**	1,857,174	1,666,063	1,723,722	1,706,742	1,795,459	1,737,674	1,716,541	1,729,026	1,820,964
Northeast Missouri Electric Power Cooperative	**1,514,516**	1,566,811	1,462,436	1,299,942	1,256,184	1,305,431	1,321,433	1,255,265	1,251,396	1,267,895
NW Electric Power Cooperative Inc.	**1,782,683**	1,912,603	1,722,509	1,739,503	1,730,879	1,774,683	1,780,568	1,778,823	1,869,618	1,911,351
Sho-Me Power Electric Cooperative	**3,202,052**	3,322,768	2,997,407	3,128,692	3,120,446	3,265,233	3,281,618	3,604,512	3,745,506	3,919,795
Total nonmember sales	**10,439,112**	7,341,329	4,539,720	5,098,943	4,595,969	4,106,399	5,792,031	5,178,931	4,763,160	4,306,717
Peak hour member demand (MW)	**4,539**	5,104	4,374	4,379	4,506	4,598	3,905	4,354	4,441	4,495
Member load factor (%)	**47.8**	44.0	46.3	46.1	44.7	45.8	53.1	46.7	47.3	47.6
Member load growth (%)										
Energy	**(3.4)**	11.9	(0.3)	(0.2)	(4.1)	2.0	1.4	(2.8)	(1.9)	6.1
Demand	**(11.1)**	16.7	(0.1)	(2.8)	(2.0)	17.7	(10.3)	(2.0)	(1.2)	4.7
Investment in facilities (original cost in thousands)	**$4,358,235**	$4,263,476	$3,985,538	$3,934,751	$3,852,543	$3,737,915	$3,672,637	$3,610,868	$3,546,039	$3,444,278
Total assets (in thousands)	**$2,928,229**	$3,147,763	$3,083,454	$3,047,369	$2,989,865	$2,956,254	$2,988,262	$2,972,181	$2,971,028	$2,852,098
Long-term debt (in thousands, excluding current maturities)	**$1,520,968**	$1,824,856	$1,842,560	$1,858,115	$1,849,795	$1,812,663	$1,849,113	$1,830,572	$1,810,387	$1,773,982
Total capacity (MW) (see capacity notes, back cover)	**5,657**	5,655	5,700	5,700	5,891	5,827	5,787	5,895	5,895	5,255
Revenue from members (mills per kWh)	**48.19**	47.33	51.48	51.57	51.16	49.94	48.93	49.21	47.51	45.75

Management's discussion and analysis

Associated Electric Cooperative Inc. (Associated) is a generation and transmission cooperative incorporated under the laws of Missouri. Associated 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 operates on a not-for-profit cooperative basis to provide an economical, reliable power supply and support services to its members.

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. 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.

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.

Earnings overview

With total revenues exceeding $1.2 billion and favorable operating expenses, Associated delivered a strong financial performance that resulted in a net margin of $49.7 million. This allowed Associated's board to return $15.0 million to members through a discount delivered in September 2019. The board also authorized the deferral of $34.0 million of member revenue and the write-off of $38.4 million of previously deferred expenses. Absent these actions, Associated's margin would have been $137.1 million. In addition, Associated's board approved a $50.0 million discount when setting rates for members for 2019.

With the strong financial performance in 2019, Associated maintained its credit ratings and improved its equity-to-capitalization to 30.4% from 26.1% in 2018. The results of 2019 continue to strengthen Associated's financial position for the future. The following are some significant factors that impacted 2019 financial performance as compared with 2018.

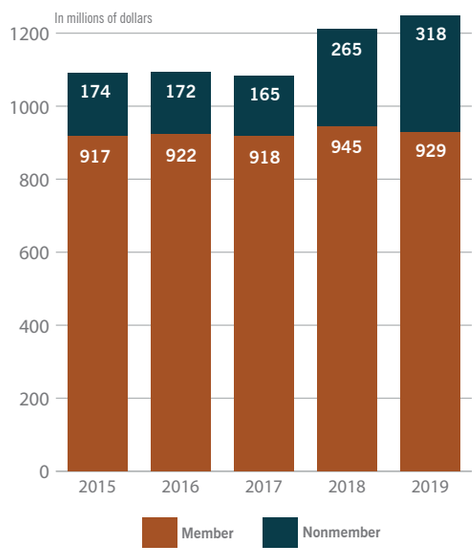
Operating revenues

Associated's operating revenues are derived from sales to 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.

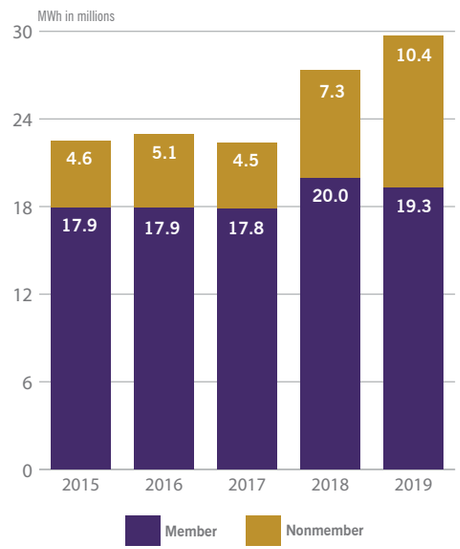
Member revenue in 2019 totaled $929.3 million, a decrease of $15.2 million from 2018 revenue, as a result of the following factors:

- Member energy sales volumes in 2019 were 19,285 GWh, a decrease of 3.4% from 2018 volumes.

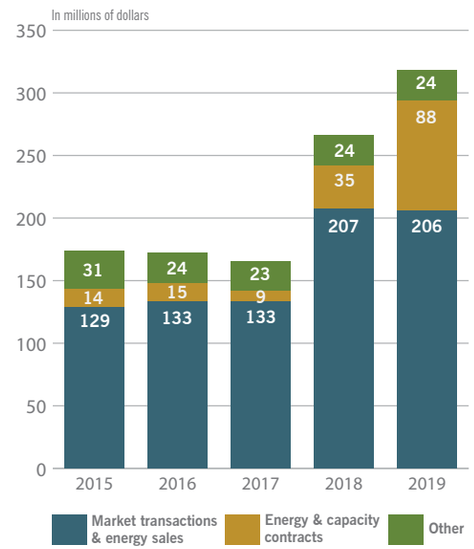
Operating revenues – $



MWh sales volume



Breakdown of nonmember sales revenue – $



• Member base billing demand in 2019 was higher than 2018 by 8.7%.

• Member rate discounts totaled $65.0 million in 2019.

• Associated's board deferred $34.0 million and $72.0 million of member revenue collected in 2019 and 2018, respectively, which will be used to offset future member revenue requirements and provide future rate stability. As of December 31, 2019, a total of $120.6 million in deferred revenue is subject to refund.

Nonmember revenue increased by $52.6 million in 2019, resulting from a full year supplying energy and capacity to an aluminum smelter that began in May of 2018 and additional sales into MISO from the Dell generation units. This increase was partially offset by decreases in other markets.

Operating expenses

Associated's operating expenses are comprised of costs incurred to generate, purchase and transmit power to meet the needs of member G&Ts and sales of power to nonmembers. Total operating expenses increased $44.8 million in 2019 compared to 2018, primarily due to changes in generation operation, generation maintenance and contracted generation as detailed below.

Generation operation expense, which largely consists of fuel, increased $24.4 million or 4.3% compared to 2018. The increase in fuel costs was primarily due to increased generation at Associated-owned generation units, which produced 26,212,341 MWh in 2019 compared with 23,064,579 MWh in 2018.

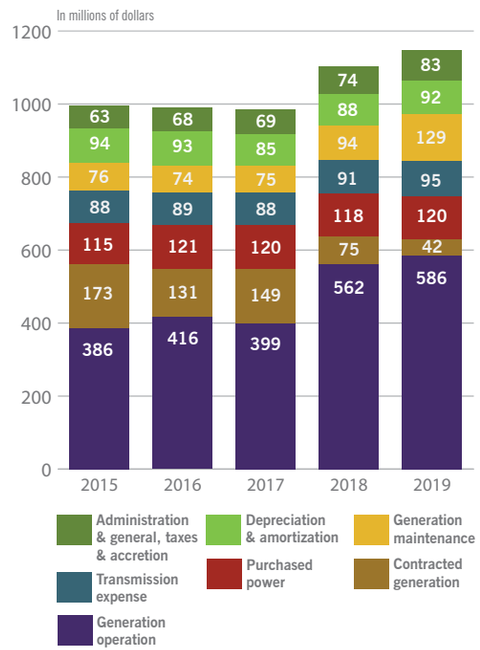
Associated's gas units produced a record-setting 11,210,673 MWh for 2019, which is a 29.1% increase compared to 2018 generation. The increase in gas generation was due primarily to a 59.2% increase in generation at the Dell Power Plant as a result of operating in the MISO market and a 19.0% increase in generation at the Chouteau Power Plant because of favorable gas prices. For the gas fleet, fuel cost was $17.59/MWh for 2019, a decrease of 19.8% from $21.93/MWh in 2018.

Coal generation increased by 4.3% primarily due to the purchase of New Madrid Unit 1 from the city of New Madrid, Missouri, on April 30, 2018. Before the purchase, expenses related to the generation from Unit 1 were included in contracted generation.

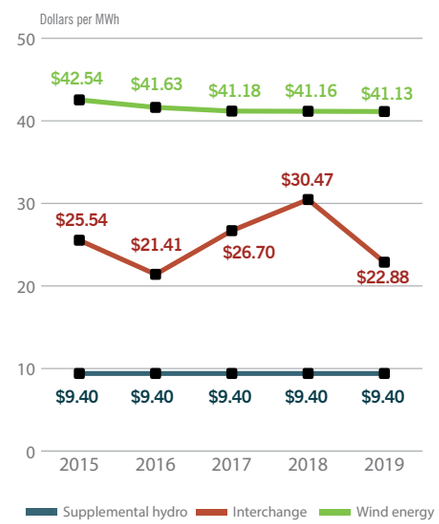
The generation mix for Associated's owned assets in 2019 consisted of 57.2% coal generation and 42.8% natural gas generation. Generation operation expense also increased due to the board-approved write-off of $5.4 million deferred impairment loss on generation equipment.

Generation maintenance expense increased $34.5 million or 36.6% compared to 2018. The increase was primarily due to the board-approved accelerated write-off of $26.7 million of previously deferred maintenance costs. Also contributing to the increase were higher variable fees that resulted from increased generation at the gas plants and additional operating projects at the gas plants as compared to 2018. Associated maintains its assets to ensure continued reliability, and the 2019 record-breaking operating performance of the gas plants is a direct result of this effort.

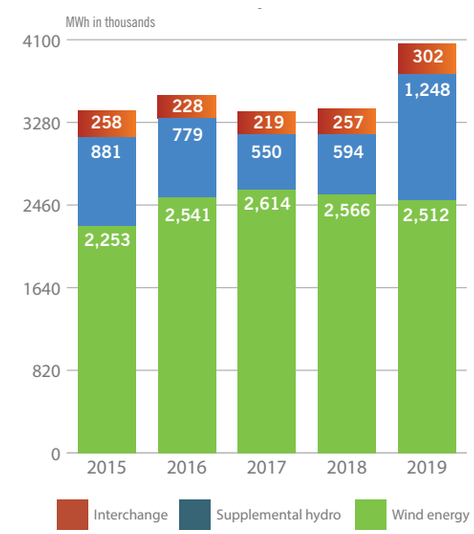
Operating expenses – $



Purchased power – $



Purchased power – MWh



Contracted generation expense, which consists of a firm capacity hydropower contract with Southwestern Power Administration and previously included a power plant operating agreement with the city of New Madrid, decreased 43.6%, or $32.5 million, compared to 2018. The decrease in cost was primarily due to the purchase of New Madrid Unit 1 on April 30, 2018. After the purchase, expenses related to the generation from Unit 1 were included in generation operation. Contracted generation produced 545,354 MWh in 2019 compared to 1,876,405 MWh in 2018.

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 December 31, 2019, from December 31, 2018, include:

• Total utility plant, net of accumulated depreciation, at both December 31, 2019 and 2018 was $2.1 billion. Utility plant, including work in progress, at original cost, increased $94.8 million. This increase was primarily due to boiler component, generator and environmental projects at the New Madrid power plant and various ongoing projects at the Thomas Hill and Dell power plants. Offsetting these plant additions was an increase in accumulated depreciation of $95.9 million.

• Other restricted and designated assets decreased $184.4 million primarily due to a decrease in funds invested in the RUS Cushion of Credit. The Cushion of Credit was used to make a $227.4 million Federal Financing Bank (FFB) prepayment of principal. Additional investments partially offset the decrease from the FFB prepayment. The FFB prepayment was made in response to new provisions that affected the Cushion of Credit program pursuant to the Agriculture Improvement Act of 2018.

• Deferred regulatory debits, including the current portion, decreased $36.8 million due to current year amortization; Associated's board approval of the recovery of previously deferred maintenance costs totaling $38.0 million; and previously deferred energy efficiency costs totaling $6.8 million. Associated's board also elected to write off the remaining deferred impairment loss on generation equipment of $5.4 million. These decreases were partially offset by a $12.4 million increase in deferred losses on hedging activities and a $1.0 million increase in deferred asset retirement obligations related to coal combustion residual storage facilities.

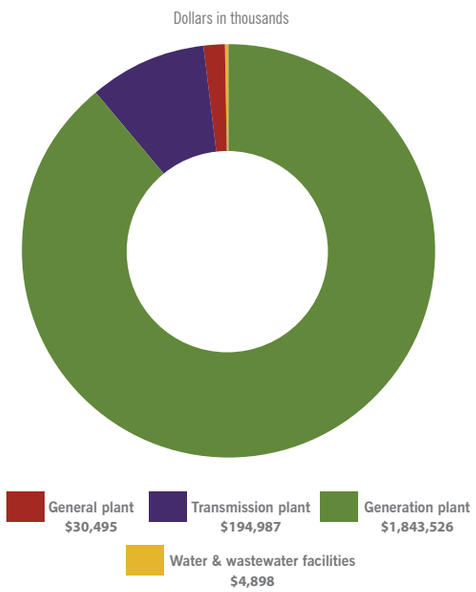
• Cash and cash equivalents increased by $30.9 million primarily due to funds provided by operating activities, partially offset by expenditures for plant additions.

• Restricted and short-term investments decreased by $22.4 million primarily due to a decrease in current maturities held in the RUS Cushion of Credit.

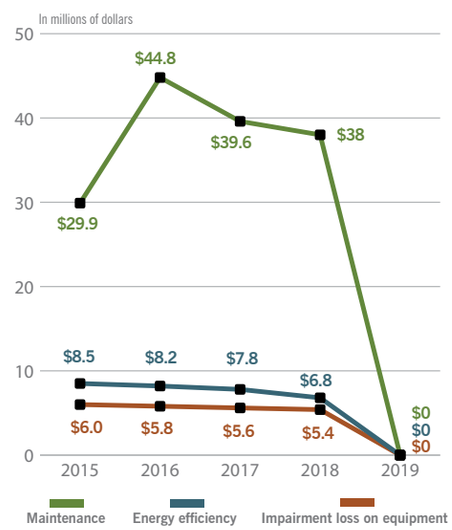
• Patronage capital increased $26.2 million as a net result of $49.7 million in net margins for the year and patronage capital retirements of $23.5 million. At December 31, 2019, patronage capital and other equities were 30.4% of total capitalization.

• Long-term debt, including current maturities, decreased $315.8 million. The decrease was due to a prepayment of $227.4 million of FFB debt through use of the Cushion

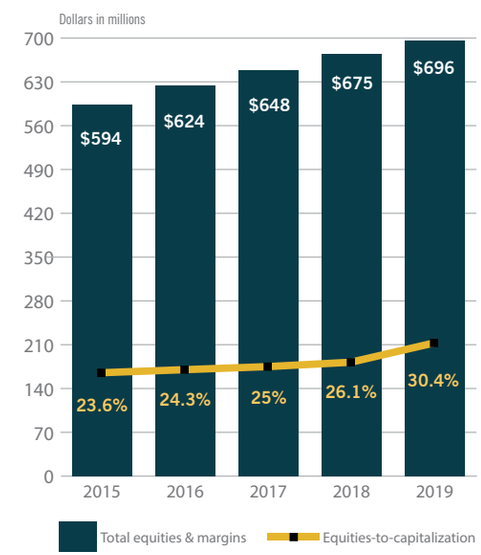
Net utility plant 2019



AECI writes off deferred costs in 2019



Total equities and margins and equity-to-capitalization ratio – $

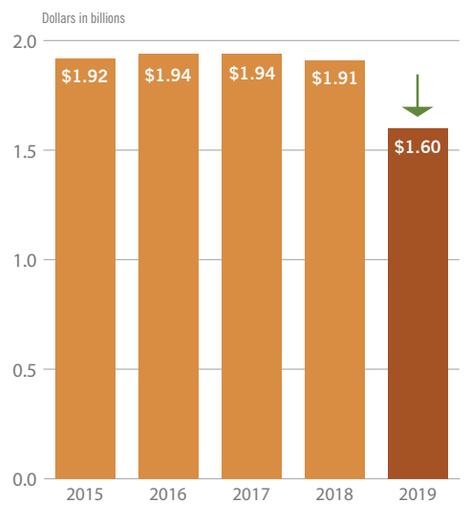


of Credit investment, a $154.0 million decrease in the balance on outstanding lines of credit at the end of 2019 as compared to 2018, and principal payments of $78.0 million. These decreases were partially offset by advances of $48.8 million for a plant-purchase reimbursement related to the purchase of New Madrid Unit 1; $77.4 million for a plant equipment loan; and $17.0 million for a transmission construction loan. The average interest rate on long-term debt was 3.86 percent in 2019 and 4.11% in 2018.

• Deferred regulatory credits, including the current portion, increased $34.2 million. The increase was due to the deferral of $34.0 million of member revenue, an increase of $1.5 million in deferred gains on hedging activities and $1.4 million of previously deferred revenue being amortized into income over the depreciable life of the purchased New Madrid Unit 1 assets.

• Asset retirement obligation, including the current portion, increased $11.1 million. The increase was primarily due to changes in the estimates of the amounts and timing of retirement costs related to coal combustion residual storage facilities at Thomas Hill.

Total long-term debt

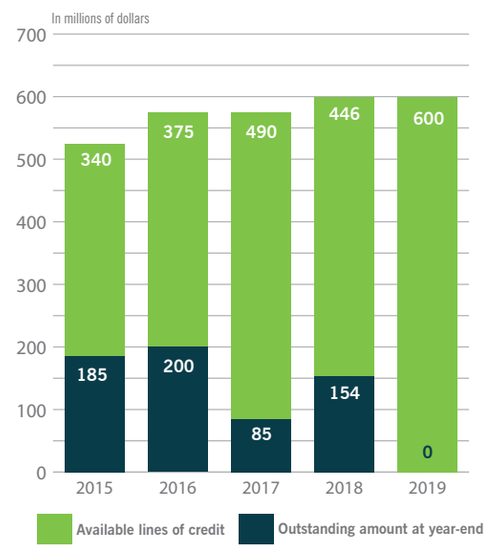


Capital requirements and liquidity

Associated is required, under the terms of its long-term debt agreements, to maintain a minimum margins and equities level of $300 million. As of December 31, 2019, patronage capital and other equities were $696.3 million. Associated maintains substantial liquidity through credit facilities with several lenders. As of December 31, 2019, total credit facilities equaled $600 million, and total available credit under these agreements was $600 million. Please see footnote 12 to the financial statements for additional information regarding long-term debt and liquidity instruments.

In management's view, Associated's financial position at the end of 2019 continues to demonstrate strength and provides the flexibility to meet future opportunities.

Liquidity through credit facilities – $



Zero balance outstanding at year-end 2019

Jackie Harmon, Employee of the Year in a Professional Field – New Madrid Power Plant

Principal financial analyst Jackie Harmon received an Excel award for her meticulous work on project budgets, communication skills and teamwork.

"Mrs. Harmon's attention to detail and follow-up serve as an instrumental tool for project managers and plant management personnel to ensure accurate financial forecasts and tracking."

– Excel nominator

Associated has restored thousands of acres of once-mined land to productive pasture, forests and wetlands and received national awards for its “exemplary reclamation” at Thomas Hill Energy Center.

Today, on about 9,000 acres, are ponds that provide fishing and wildlife habitat, woodlands that provide shelter for many species and land leased to neighboring farmers for pasture and agricultural and wildlife research.

Associated built Thomas Hill Lake to provide cooling water for the power plant. The cooperative works with the Missouri Department of Conservation to manage the lake for recreational uses, fishing and wildlife habitat.

AECI relies on diverse power resources

	MW capacity
Associated's coal-based power plants:	
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 gas-based power plants:	
Essex Power Plant	107
Holden Power Plant (dual fuel)	321
Nodaway Power Plant	182
Additional contracted power sources:	
Hydroelectric peaking power, Southwestern Power Administration	478
Wind energy *	73
Total	**5,657**

*Associated contracts with six wind farms, totaling 768 MW of nameplate capacity. Staff estimates 6% to 10% of that as capacity for peak planning purposes.

That will increase in 2020, when two new contracted energy projects in northwest Missouri come online, adding 471.5 megawatts to the Associated system. That will bring the cooperative's total nameplate wind energy capacity to 1,240 MW, with an estimated 119 MW as capacity for peak planning purposes.

Associated sells and does not retain or retire all of the environmental attributes of energy generated by contracted wind facilities. This brings in revenue that helps keep members' electricity affordable.

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

An equal opportunity employer and provider/disability/veteran.

ASSOCIATED ELECTRIC COOPERATIVE INC.

Independent Auditor's Report and Consolidated Financial Statements

December 31, 2019 and 2018

BKD
CPAs & Advisors
Two Leadership Square South Tower | 211 N. Robinson Avenue, Suite 600 | Oklahoma City, OK 73102-9421
405.606.2580 | Fax 405.600.9799 | bkd.com

Independent Auditor's Report

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

We have audited the accompanying consolidated financial statements of Associated Electric Cooperative, Inc. and its wholly owned subsidiaries (Associated), which comprise the consolidated balance sheets as of December 31, 2019 and 2018, and the related consolidated 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 consolidated financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these consolidated 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 consolidated 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 consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated 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 consolidated 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 consolidated financial statements.

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

Opinion

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of Associated as of December 31, 2019 and 2018, 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.

BKD, LLP

Oklahoma City, Oklahoma
February 11, 2020

Associated Electric Cooperative, Inc.

Consolidated Balance Sheets
December 31, 2019 and 2018
(In Thousands of Dollars)

Assets

	2019	2018
Utility Plant		
Electric plant in service	$ 4,240,042	$ 4,191,569
Construction work in progress	118,193	71,907
	4,358,235	4,263,476
Less accumulated depreciation	(2,284,329)	(2,188,451)
Total utility plant	2,073,906	2,075,025
Other Property and Investments		
Member construction advances, net	19,288	20,471
Nonutility property	31,663	31,630
Net investment in direct financing leases	3,281	3,586
Total other property and investments	54,232	55,687
Restricted and Designated Long-Term Assets		
Other restricted and designated assets	204,150	388,593
Investments in associated organizations, at cost	28,198	27,270
Total restricted and designated long-term assets	232,348	415,863
Other Long-Term Assets		
Deferred regulatory debits	46,239	88,056
Other deferred assets	26,611	32,624
Total other long-term assets	72,850	120,680
Current Assets		
Cash and cash equivalents	133,011	102,115
Restricted short-term investments	73,921	96,312
Accounts receivable	128,517	130,476
Materials and supplies inventory	88,436	84,166
Fuel inventory	44,252	47,385
Other current assets	18,170	16,526
Current portion of deferred regulatory debits	8,586	3,528
Total current assets	494,893	480,508
Total assets	$ 2,928,229	$ 3,147,763

See notes to consolidated financial statements.

Associated Electric Cooperative, Inc.

Consolidated Balance Sheets, continued
December 31, 2019 and 2018
(In Thousands of Dollars)

Capitalization and Liabilities

	2019	2018
Patronage Capital and Other Equities		
Memberships	$ 12	$ 12
Patronage capital	660,615	634,448
Other equities	55,543	55,543
Accumulated other comprehensive loss	(19,872)	(14,780)
Total patronage capital and other equities	696,298	675,223
Long-Term Debt, Excluding Current Maturities		
Federal Financing Bank	1,005,738	1,122,362
CoBank	175,713	349,179
National Rural Utilities Cooperative Finance Corporation	30,000	33,333
Private placement notes	309,517	319,982
Total long-term debt, excluding current maturities	1,520,968	1,824,856
Other Long-Term Liabilities		
Deferred regulatory credits	277,152	245,157
Other deferred liabilities	42,847	36,481
Asset retirement obligations	46,990	38,596
Accumulated provision for postretirement benefits	39,761	34,695
Total other long-term liabilities	406,750	354,929
Current Liabilities		
Accounts payable	122,753	123,995
Current maturities of long-term debt	74,701	86,564
Payable to member cooperatives	46,699	35,111
Other current and accrued liabilities	39,783	31,700
Current portion of asset retirement obligations	17,656	14,950
Current portion of deferred regulatory credits	2,621	435
Total current liabilities	304,213	292,755
Total capitalization and liabilities	$ 2,928,229	$ 3,147,763

See notes to consolidated financial statements.

Associated Electric Cooperative, Inc.

Consolidated Statements of Revenues and Expenses
Years Ended December 31, 2019 and 2018
(In Thousands of Dollars)

	2019	2018
Operating Revenues		
Members	$ 929,323	$ 944,551
Nonmembers	317,975	265,330
Total operating revenues	1,247,298	1,209,881
Operating Expenses		
Generation operation	586,417	562,061
Generation maintenance	128,588	94,109
Power purchased	120,005	117,981
Transmission	94,918	91,453
Depreciation and amortization	92,184	88,464
Contracted generation	42,122	74,644
Administrative and general	75,009	65,946
Taxes	6,075	6,100
Accretion of asset retirement obligations	1,737	1,476
Total operating expenses	1,147,055	1,102,234
Operating Margin Before Interest Expense	100,243	107,647
Interest on Long-Term Debt	74,843	80,432
Less interest capitalized	(2,229)	(302)
	72,614	80,130
Operating Margin	27,629	27,517
Nonoperating		
Interest and dividend income	24,258	26,345
Other nonoperating income	1,802	1,877
Postretirement benefit expense	(2,477)	(1,852)
Interest expense	(1,541)	(1,128)
Total nonoperating	22,042	25,242
Net Margin	$ 49,671	$ 52,759

See notes to consolidated financial statements.

Associated Electric Cooperative, Inc.

Consolidated Statements of Revenues and Expenses
Years Ended December 31, 2019 and 2018
(In Thousands of Dollars)

	2019	2018
Net Margin	$ 49,671	$ 52,759
Other Comprehensive Loss		
Actuarial loss	(5,092)	(2,641)
Comprehensive Income	$ 44,579	$ 50,118

See notes to consolidated financial statements.

Associated Electric Cooperative, Inc.

Consolidated Statements of Patronage Capital and Other Equities

Years Ended December 31, 2019 and 2018

(In Thousands of Dollars)

	Memberships	Patronage Capital	Other Equities	Accumulated Other Comprehensive Loss	Total
Balance, January 1, 2018	$ 12	$ 604,650	$ 55,540	$ (12,139)	$ 648,063
2018 net margin	-	52,759	-	-	52,759
Other comprehensive loss	-	-	-	(2,641)	(2,641)
Acqusition of SJIPS	-	-	3	-	3
Patronage capital retirements	-	(22,961)	-	-	(22,961)
Balance, December 31, 2018	12	634,448	55,543	(14,780)	675,223
2019 net margin	-	49,671	-	-	49,671
Other comprehensive loss	-	-		(5,092)	(5,092)
Patronage capital retirements	-	(23,504)	-	-	(23,504)
Balance, December 31, 2019	$ 12	$ 660,615	$ 55,543	$ (19,872)	$ 696,298

See notes to consolidated financial statements.

Associated Electric Cooperative, Inc.

Consolidated Statements of Cash Flows
Years Ended December 31, 2019 and 2018
(In Thousands of Dollars)

	2019	2018
Operating Activities		
Net margin	$ 49,671	$ 52,759
Reconciliation of net margin to net cash provided by operating activities		
Depreciation and amortization	96,421	93,418
Net (gain) loss on sale of property, plant and equipment	(78)	150
Amortization of loan costs and member contribution advances	1,714	3,578
Changes in deferred regulatory debits	49,220	3,119
Changes in asset retirement obligations	1,562	2,027
Changes in deferred regulatory credits	32,650	71,100
Changes in current assets and liabilities		
Accounts receivable	1,982	8,661
Fuel inventory	3,133	10,599
Materials and supplies inventory	(4,270)	(6,385)
Accounts payable	(10,158)	(73)
Other current and accrued liabilities	4,124	(11,482)
Other operating activities, net	(1,157)	(4,587)
Net cash provided by operating activities	224,814	222,884
Investing Activities		
Capital expenditures	(77,462)	(132,932)
Reimbursement of capital expenditures	307	2,320
Proceeds from sale of property, plant and equipment	148	110
Purchases of available-for-sale investments	(1,295)	(1,281)
Purchases of held-to-maturity investments	(19,415)	(122,753)
Sales of available-for-sale investments	935	1,012
Proceeds from held-to-maturity investments	228,935	77,062
Maturity of investments in associated organizations, net	1,746	2,769
Other investing activities, net	627	630
Net cash provided by (used in) investing activities	134,526	(173,063)
Financing Activities		
Net investments (withdrawals) from member cooperatives	11,588	6,346
Issuance of long-term debt	163,149	179,000
Retirement of long-term debt	(479,677)	(209,028)
Retirement of patronage capital	(23,504)	(22,961)
Net cash used in financing activities	(328,444)	(46,643)
Net Change in Cash and Cash Equivalents	30,896	3,178
Cash and Cash Equivalents, Beginning of Year	102,115	98,937
Cash and Cash Equivalents, End of Year	$ 133,011	$ 102,115
Supplemental Cash Flows Information		
Cash paid for interest (net of amount capitalized)	$ 72,988	$ 93,390
Supplemental Noncash Activities		
Change in capital expenditures included in accounts payable	$ 8,915	$ 6,325

See notes to consolidated financial statements.

Associated Electric Cooperative, Inc.

Notes to Consolidated Financial Statements
December 31, 2019 and 2018
(In Thousands of Dollars)

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 consolidated financial statements and the related notes have been prepared on the basis of U.S. generally accepted accounting principles (GAAP).

Principles of Consolidation

Associated's wholly owned subsidiaries include AECI Land, LLC (Land), AECI Land 2, LLC (Land 2) and St. Jude Industrial Park Services, Inc. (SJIPS). Land holds property not used for utility purposes. Land 2 owns the water and wastewater treatment facilities, purchased in November 2018, that serve the St. Jude Industrial Park in New Madrid, Missouri. SJIPS provides contracted services for management of the St. Jude Industrial Park. For purposes of these consolidated financial statements, the activity of all of these entities is consolidated and all intercompany balances have been eliminated.

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.

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	3.00%
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 2019 or 2018.

Nonutility Property

Nonutility property consists of land not currently used for utility purposes. In 2018, Land purchased additional nonutility property in the St. Jude Industrial Park at a value of $18,618. In 2019, there were no additional purchases of nonutility property.

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, reclamation of a biosolids lagoon site, 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 $2,229 and $302 in 2019 and 2018, respectively. The average capitalization rates for 2019 and 2018 were 3.795% and 0.967%, respectively, which is based on Associated's cost of financing. Associated calculates capitalized interest based on a formula prescribed by RUS.

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; funds reserved for the generation, environmental and insurance reserve fund; member revenue subject to refund; and deferred compensation.

Investments

Debt securities held by Associated are classified and recorded in the accompanying consolidated financial statements as follows:

Classified as	Description	Recorded at
Held to maturity (HTM)	Certain debt securities that management has the positive intent and ability to hold to maturity	Amortized cost
Available for sale	Securities not classified as HTM or trading	Fair value, with unrealized gains and losses excluded from earnings and reported in other comprehensive income

All Associated's equity securities are classified as available for sale. Associated measures equity securities held in trust for deferred compensation benefits at fair value with changes recognized as part of the accrued deferred compensation benefit. Associated measures other equity securities at fair value with changes 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 fair value. At December 31, 2019 and 2018, Associated's cash and cash equivalents balance was $133,011 and $102,115, respectively.

Member Construction

Associated has advanced funds for the construction of various member primary transmission projects. These advances are subsequently amortized over the life of the asset as transmission expense. The balance of these advances, net of amortization, totaled $19,288 and $20,471 at December 31, 2019 and 2018, respectively, with related amortization of $1,183 in both 2019 and 2018.

Materials and Supplies Inventory

Materials and supplies are valued using the average-cost method. Materials and supplies that are obsolete are written down to estimated disposal value which approximates net realizable value.

Fuel Inventory

Fuel inventory is valued using the average-cost method. Associated purchases NOx allowances that are recorded in fuel inventory and expensed when used or when they no longer have 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 2.22% and 2.03% in 2019 and 2018, respectively. The interest expense is reflected as nonoperating interest expense. At December 31, 2019 and 2018, the members had invested $46,699 and $35,111, 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 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

In May 2014, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2014-09, *Revenue from Contracts with Customers (Topic 606)*. This update requires entities to recognize revenue when the transfer of promised goods or services to customers occurs in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services.

Associated has completed and finalized the contract review of wholesale power and other contracts within the scope of ASU 2014-09. Associated adopted this standard effective January 1, 2019, using the modified retrospective approach. There was no material impact to the recognition of revenue from the sale of power to members or nonmembers, and there has been no cumulative-effect adjustment recognized.

Revenue from Contracts with Customers

Associated's revenues are primarily derived from the sale of electric power to member cooperatives pursuant to long-term wholesale electric service contracts. In addition to member revenue, Associated also has nonmember revenue that is derived from capacity sales, market transactions, energy sales with nonmembers, transmission sales and gas sales.

Member Revenue

Each member contract extends through 2075 and obligates Associated to sell and deliver to the member cooperatives and obligates the member cooperatives to purchase and receive from Associated, all power that it requires for the operations of the cooperative system. Each contract states a separate demand and energy charge per kilowatt-hour. Pursuant to the contracts, Associated provides two services, energy and demand. Associated's rate structure has three components, an energy rate, a base levelized billing demand (LBD) rate and a peak LBD rate. The billing demand determinants are calculated according to board-approved policy and rates are set as part of the annual Cost of Service Study that is approved by the Board of Directors.

Energy and demand are distinct and separate performance obligations that have the same pattern of transfer to members and are both measurements of the electric power provided to members. Associated transfers control of the electric power to members over time and members simultaneously receive and consume the benefits of the electric power. The progress toward the completion of performance obligations is measured using the output method which is based on

monthly meter readings at member substations. Member power bills are calculated monthly based on meter readings and the different components and rates as set forth in the wholesale power agreements. Payments from members are received in accordance with each all requirements contract's terms, which is by the end of the following month. Member electric sales revenue is recorded as member revenue on Associated's consolidated statements of revenues and expenses.

Nonmember Revenue

	2019	2018
Energy and capacity contracts		
Market transactions	$ 175,902	$ 176,440
Energy and capacity contracts	88,029	34,522
Other	30,435	30,629
Other nonmember revenue	23,609	23,739
Total nonmember revenue	$ 317,975	$ 265,330

Energy and Capacity Contracts

Market transactions consist of point-of-sale contracts with regional transmission organizations (RTO). Associated does not have a performance obligation to provide future electric power to an RTO beyond the point-of-sale and only sells excess energy if it is available. Customers in this category are PJM, Midcontinent Independent System Operator, Inc. (MISO) and Southwest Power Pool, Inc. (SPP). The RTOs simultaneously receive and consume the benefits of the electric power and Associated recognizes revenue at the point-of-sale based on the prevailing market rate and the quantity of energy transferred. Settlement statements from each RTO are received weekly.

Associated also enters into capacity contracts with nonmembers that bundle electric power. Energy and capacity in these contracts are distinct performance obligations whose benefits are simultaneously received and consumed by the customer. Associated's obligation to provide energy is a stand-ready performance obligation that is satisfied over time. Progress toward completion of the energy performance obligation is based on the output method of energy transferred to the customer. Revenue is recognized based on the energy price in the contract and the quantity of energy provided to the customer. Progress toward completion of the capacity performance obligation is measured by the passage of time. Revenue is recognized monthly based on stated capacity rates in the contract.

Other Nonmember Revenue

Other nonmember revenue consists of transmission and gas sales. Transmission revenue is recognized as customers use Associated's transmission facilities. Gas sales consist of excess gas sold to third parties. Revenue from the sale of gas is recognized at the point-of-sale.

Credit Risk

Concentration of credit risk with respect to total accounts receivable is due to Associated's customer base. Approximately 59% of accounts receivable at December 31, 2019, is due from Associated's six members. The credit risk for accounts receivable is controlled through management monitoring procedures.

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, 2019, taxable margins of $211,667 were allocated to members. Cumulatively, $2,508,104 has been allocated, and $2,261,204 is unpaid at December 31, 2019. 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:

Component	2019	2018
Postretirement benefits actuarial losses	$ (19,872)	$ (14,780)

Estimates

The preparation of consolidated 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 consolidated 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 that a liability has been incurred and the amount can be reasonably estimated. When only a range of possible losses 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.

Renewable Energy Credits

Associated is allocated renewable energy credits (REC) as part of its contracts for renewable energy. Proceeds from sales of RECs in excess of cost and fees are recorded as a reduction to purchased power expense.

Reclassifications

Certain reclassifications have been made to the 2018 consolidated financial statements for the adoption of ASU 2017-07, *Compensation—Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*, that were deemed to be immaterial. These reclassifications had no effect on net margin.

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:

Leases

ASU 2016-02, *Leases (Topic 842)*, was issued in February 2016 and is effective for fiscal years beginning after December 15, 2020. 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.

Note 3: Utility Plant

Utility plant, at original cost, at December 31, 2019, consisted of the following:

	Generation Plant	Transmission Plant	General Plant	Water & Wastewater Facilities	Total
December 31, 2018, end of year	$ 3,758,965	$ 337,399	$ 90,359	$ 4,846	$ 4,191,569
Additions	32,763	12,171	4,661	-	49,595
Retirements	(247)	-	(747)	-	(994)
Reclassification	(273)	3	43	227	-
Contribution in aid of construction	-	(128)	-	-	(128)
December 31, 2019, end of year	3,791,208	349,445	94,316	5,073	4,240,042
Construction work in progress	102,132	14,199	1,862	-	118,193
Accumulated depreciation	(2,049,814)	(168,657)	(65,683)	(175)	(2,284,329)
Total utility plant	$ 1,843,526	$ 194,987	$ 30,495	$ 4,898	$ 2,073,906

Depreciation for the year ended December 31, 2019, was $97,629, of which $92,184 was charged to depreciation expense; $1,208 was charged to deferred regulatory debits (see *Note 10*); and $4,237 was included in contracted generation, transmission and generation operation expense.

Utility plant, at original cost, at December 31, 2018, consisted of the following:

	Generation Plant	Transmission Plant	General Plant	Water & Wastewater Facilities	Total
December 31, 2017, end of year	$ 3,522,878	$ 333,547	$ 85,779	$ -	$ 3,942,204
Additions	236,128	4,016	5,265	4,846	250,255
Retirements	(41)	-	(685)	-	(726)
Contribution in aid of construction	-	(164)	-	-	(164)
December 31, 2018, end of year	3,758,965	337,399	90,359	4,846	4,191,569
Construction work in progress	65,731	5,007	1,169	-	71,907
Accumulated depreciation	(1,967,069)	(161,394)	(59,969)	(19)	(2,188,451)
Total utility plant	$ 1,857,627	$ 181,012	$ 31,559	$ 4,827	$ 2,075,025

Included in asset additions for 2018 is Associated's purchase of New Madrid Unit 1 from the City of New Madrid, Missouri (CNM) for a total purchase price of $93,828. Of this amount, $45,000 was paid in previous years through a purchase option agreement between Associated and CNM. Additionally, Land 2 purchased the St. Jude Industrial Park Water & Wastewater Treatment Facilities (St. Jude Facilities) valued at $4,846.

Depreciation for the year ended December 31, 2018, was $96,812, of which $88,464 was charged to depreciation expense; $3,394 was charged to deferred regulatory debits (see *Note 10*); and $4,954 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 and New Madrid power plants; the reclamation of the landfill site at the New Madrid power plant; reclamation of ash ponds at the New Madrid and Thomas Hill facilities; the removal of fuel oil tanks at the Dell and Holden power plants; reclamation of a biosolids lagoon at St. Jude Facilities; and the removal of certain water lines contained in Associated's generating plants.

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 for the year ended December 31, 2019:

	Thomas Hill	New Madrid	Holden	Dell	Water & Wastewater Facilities	Total
December 31, 2018, end of year	$ 16,558	$ 35,721	$ 434	$ 606	$ 227	$ 53,546
Less current retirement obligations	(328)	(14,622)	-	-	-	(14,950)
Long-term retirement obligations	16,230	21,099	434	606	227	38,596
Current period settlements	(198)	(674)	-	-	-	(872)
Additions	-	-	-	-	-	-
Accretion expense	1,090	1,258	29	45	13	2,435
Cash flow revisions	9,537	-	-	-	-	9,537
December 31, 2019, end of year	26,987	36,305	463	651	240	64,646
Less current retirement obligations	(520)	(17,136)	-	-	-	(17,656)
Long-term retirement obligations	$ 26,467	$ 19,169	$ 463	$ 651	$ 240	$ 46,990

Accretion for the year ended December 31, 2019, was $2,435, of which $933 was charged to deferred regulatory debits. The 2019 cash flow revisions are primarily due to changes in the estimates of the amounts and timing of retirement costs related to coal combustion residual storage facilities at Thomas Hill. The 2019 current period settlements are primarily due to the remediation of asbestos at both Thomas Hill and New Madrid.

The following is a reconciliation of the beginning and ending aggregate carrying amount of asset retirement obligations for the year ended December 31, 2018:

	Thomas Hill	New Madrid	Holden	Dell	Water & Wastewater Facilities	Total
December 31, 2017, end of year	$ 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
Current period settlements	(322)	(450)	-	-	-	(772)
Additions	-	-	-	-	227	227
Accretion expense	998	1,733	27	42	-	2,800
Cash flow revisions	38	(2,855)	-	-	-	(2,817)
December 31, 2018, end of year	16,558	35,721	434	606	227	53,546
Less current retirement obligations	(328)	(14,622)	-	-	-	(14,950)
Long-term retirement obligations	$ 16,230	$ 21,099	$ 434	$ 606	$ 227	$ 38,596

Accretion for the year ended December 31, 2018, was $2,800, of which $1,370 was charged to deferred regulatory debits. An additional asset retirement obligation for a biosolids lagoon was established with the purchase of the St. Jude Facilities in November 2018. The 2018 cash flow revisions are primarily due to changes in the estimates of the amounts and timing of retirement costs of the assets 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.

Associated purchased New Madrid Unit 1 from CNM on April 30, 2018. Prior to the purchase, Associated operated CNM's power plant under the terms of an agreement with CNM and expenses related to the generation from Unit 1 were included in contracted generation. Associated purchased power at cost from CNM. In 2018, Associated's cost of power purchased from CNM was $33,578.

After the purchase, expenses related to the generation of Unit 1 were included in generation operation.

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 2019 and 2018, Associated's cost related to GRDA Unit 2 was $6,063 and $6,283, 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 2019 and 2018, Associated's cost of firm power purchased from SWPA was $34,483 and $34,783, respectively.

Note 6: Investments

Investments at December 31 consisted of the following:

	Available for Sale				Held to Maturity	
	Cost	Unrealized Gains	Unrealized Losses	Fair Value	Amortized Cost	Total
2019						
Restricted short-term investments						
RUS Cushion of Credit	$ -	$ -	$ -	$ -	$ 73,921	$ 73,921
	$ -	$ -	$ -	$ -	$ 73,921	$ 73,921
Other restricted and designated assets						
Mutual funds	$ 8,053	$ -	$ -	$ 8,053	$ -	$ 8,053
Pension reinvestment	7,459	-	-	7,459	-	7,459
RUS cushion of credit	-	-	-	-	180,568	180,568
Certificate of deposit	-	-	-	-	809	809
U.S. government treasury bills	-	-	-	-	7,261	7,261
	$ 15,512	$ -	$ -	$ 15,512	$ 188,638	$ 204,150

	Available for Sale				Held to Maturity	
	Cost	Unrealized Gains	Unrealized Losses	Fair Value	Amortized Cost	Total
2018						
Restricted short-term investments						
RUS cushion of credit	$ -	$ -	$ -	$ -	$ 96,312	$ 96,312
	$ -	$ -	$ -	$ -	$ 96,312	$ 96,312
Other restricted and designated assets						
Mutual funds	$ 6,708	$ -	$ -	$ 6,708	$ -	$ 6,708
Pension reinvestment	6,255	-	-	6,255	-	6,255
RUS cushion of credit	-	-	-	-	367,639	367,639
Certificate of deposit	-	-	-	-	862	862
U.S. government treasury bills	-	-	-	-	7,129	7,129
	$ 12,963	$ -	$ -	$ 12,963	$ 375,630	$ 388,593

Associated entered into a cushion of credit agreement with RUS in 2002. At December 31, 2019 and 2018, Associated had on deposit with the U.S. Treasury $254,489 and $463,951, respectively, restricted for future Federal Financing Bank (FFB) debt service payments or prepayment of FFB debt. Interest earned is restricted in a similar fashion.

Annual maturities of the investments at December 31, 2019, are classified as follows:

	Available for Sale		Held to Maturity
	Cost	Fair Value	Amortized Cost
Within one year	$ 15,512	$ 15,512	$ 73,921
After one year through five years	$ -	$ -	$ 188,638

Note 7: Nonoperating Income

For the years ended December 31, interest and dividend income consisted of the following:

	2019	2018
Investments	$ 21,523	$ 21,742
Patronage capital allocations	2,413	3,805
Leasing of transmission lines/equipment	322	798
	$ 24,258	$ 26,345

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:

	2019	2018
CoBank patronage capital equity	$ 20,259	$ 19,398
NRUCFC patronage capital equity	4,171	4,207
NRUCFC held-to-maturity securities	3,094	3,227
Other	674	438
	$ 28,198	$ 27,270

Investments in patronage capital equity are considered equity securities without a readily determinable fair value. Patronage capital equity is increased as patronage is allocated to Associated and decreased as patronage is retired and cash received. There were no impairments of patronage capital equity in 2019 or 2018.

At December 31, 2019, 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, $496. 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 Construction and Financing Agreement related to the transmission line leases expires in 2028. The leases are classified as direct financing leases as follows:

	2019	2018
Total minimum lease payments receivable	$ 5,399	$ 6,026
Less unearned income	(1,491)	(1,813)
Less current portion	(627)	(627)
Net investment in direct financing leases	$ 3,281	$ 3,586

At December 31, 2019, future minimum lease receipts related to direct financing leases for the next five years and thereafter will be as follows:

2020	$	627
2021		627
2022		627
2023		627
2024		627
Thereafter		2,264
	$	5,399

Operating Leases

Associated leases railcars used in the delivery of coal to the New Madrid and Thomas Hill power plants through leases that expire between the end of 2021 and 2024. Rental expense for these cars was $3,007 and $3,060 for the years ended December 31, 2019 and 2018, respectively. Future minimum lease payments for these cars are as follows:

2020	$	4,494
2021		1,699
2022		1,699
2023		348
2024		348
	$	8,588

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, deferred regulatory debits consisted of the following regulatory assets:

	2019	2018
Loss on hedging activities	$ 33,423	$ 21,028
Asset retirement obligations	21,402	20,404
Maintenance costs	-	37,976
Energy efficiency costs	-	6,812
Impairment loss on equipment	-	5,364
	54,825	91,584
Less current portion of deferred regulatory debits	(8,586)	(3,528)
Long-term deferred regulatory debits	$ 46,239	$ 88,056

Deferred maintenance costs represent the cost of major maintenance and inspection projects that are capitalized in the year incurred. In 2018, additional maintenance costs of $10,927 were deferred and amortization of $12,568 was recorded. In 2019, Associated's Board of Directors approved the recovery of $37,976 in previously deferred maintenance costs and eliminated the deferred maintenance program.

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 (see *Note 17*). The current portion of the deferred loss is included as a current asset on the accompanying consolidated balance sheets and was $8,586 and $3,528 at December 31, 2019 and 2018, respectively.

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 (see *Note 4*). These costs are being amortized over the life of the underlying asset. In 2019 and 2018, $2,141 and $4,764, respectively, was deferred under this policy. In 2018, the deferred costs were reduced by $280 due to a cash flow revision related to the coal combustion residual storage facilities. In 2019 and 2018, $1,143 and $907, respectively, of amortization was recognized.

The costs associated with Associated's energy efficiency initiatives were previously capitalized. These costs are amortized and recovered through rates over a period of five years. In 2018, additions to the energy efficiency initiatives of $2,430 were deferred and amortization of $3,440 was recognized. In 2019, Associated's Board of Directors approved the recovery of $6,812 in previously deferred energy efficiency costs and eliminated the energy efficiency cost deferral plan.

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 2019 and 2018, scheduled amortization was $203. At the end of 2019, Associated's Board of Directors elected to write off the remaining deferred loss of $5,161.

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:

	2019	2018
NRECA pension prepayment	$ 7,417	$ 11,126
Long-term receivable on New Madrid substation	7,999	8,201
Preliminary surveys	4,452	6,793
Prepayment of payment in lieu of taxes	2,626	3,103
Other	4,117	3,401
Other deferred assets	$ 26,611	$ 32,624

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. Amortization of $3,709 was recognized in both 2019 and 2018. The long-term portion of the prepayment was $7,417 and $11,126 as of December 31, 2019 and 2018, 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 substation 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 its one-third share of the construction cost in 2014. The other party will pay its share of the construction costs over 20 years. The long-term receivable associated with this project was $7,999 and $8,201 at December 31, 2019 and 2018, 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 $4,452 and $6,793 at December 31, 2019 and 2018, respectively.

Associated entered into an agreement to make a prepayment of $5,729 for a payment in lieu of taxes. The long-term portion of this payment as of December 31, 2019 and 2018, was $2,626 and $3,103, respectively. The prepayment will be amortized into expense from 2014 through 2026. Amortization of $477 was recognized in both 2019 and 2018.

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:

	2019	2018
FFB mortgage notes with various maturities, due quarterly through 2052, at a weighted-average rate of 3.21%	$ 1,048,693	$ 1,178,681
Private placement notes with various maturities, due quarterly through 2047, at a weighted-average rate of 4.27%	320,386	330,524
CoBank notes with various maturities, due quarterly through 2031, at a weighted-average rate of 6.11%	196,040	215,108
CoBank revolving line of credit due in 2023, at a variable rate of 2.36%	-	154,000
NRUCFC notes payable due annually through 2029, at a weighted-average rate of 6.65%	33,333	36,667
	1,598,452	1,914,980
Less unamortized debt issuance costs	(2,783)	(3,560)
Less current maturities	(74,701)	(86,564)
	$ 1,520,968	$ 1,824,856

In 2019, Associated prepaid $227,360 in FFB debt through the cushion of credit. The FFB prepayment was made under provisions that affected the cushion of credit program pursuant to the *Agriculture Improvement Act of 2018* (the 2018 Farm Bill). This provision allowed prepayment of RUS direct or guaranteed loans without penalty. As a result of this provision, Associated was able to prepay older, higher interest rate FFB debt with an average rate of 4.86%.

In 2019, Associated entered into an agreement with RUS through FFB in the amount of $140,000 for a construction loan. As of December 31, 2019, there have been no advances made against this agreement.

In 2018, Associated entered into two separate agreements with RUS through FFB in the amount of $29,220 for a transmission construction loan and $48,776 for a plant purchase reimbursement. In 2019, Associated advanced $16,969 and $48,776, respectively, leaving available balances of $12,251 and $0, respectively.

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. In 2019, Associated advanced $77,404 against this loan leaving an available balance of $41,695 as of December 31, 2019.

As of December 31, 2019, Associated had $600,000 of committed lines of credit with scheduled expirations of $50,000 in 2021, $50,000 in 2022, and $500,000 in 2023. As of December 31, 2019

and 2018, Associated had $0 and $154,000, respectively, outstanding on the lines of credit. The interest rate is a variable rate with several reset options.

At December 31, unamortized debt issuance costs consisted of the following:

	2019	2018
RUS loans through FFB	$ 2,153	$ 2,296
CoBank loans and line of credit agreements	252	861
Private placement notes	378	403
Total unamortized debt issuance costs	$ 2,783	$ 3,560

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

2020	$ 74,701
2021	67,451
2022	79,003
2023	82,843
2024	95,771
Thereafter	1,198,683
	$ 1,598,452

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, deferred regulatory credits consisted of the following:

	2019	2018
Generation, Environmental and Insurance Reserve Fund	$ 155,671	$ 157,021
Member revenue subject to refund	120,561	86,561
Deferred gain on hedging activities	3,541	2,010
	279,773	245,592
Less current portion of deferred regulatory credits	(2,621)	(435)
Long-term deferred regulatory credits	$ 277,152	$ 245,157

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 (GEIF). Between 2013 and 2018, Associated's Board of Directors designated $45,000 of this fund to be used for the purchase of CNM's power plant. This amount will be amortized into income over the depreciable life of the asset. In 2019 and 2018, respectively, Associated amortized $1,350 and $900 into income which is included in member revenue. Cash or investments are segregated for this fund until a designated use has been identified by Associated's Board of Directors. At December 31, 2019 and 2018, $112,921 was included in other designated and restricted assets for this purpose.

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 2019 and 2018, respectively, Associated's Board of Directors directed the deferral of $34,000 and $72,000 of member revenue for this purpose. Total member revenue subject to refund was $120,561 and $86,561 at December 31, 2019 and 2018, 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, 2019 and 2018, Associated had deferred $3,541 and $2,010, 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 consolidated balance sheets and was $1,271 and $435 at December 31, 2019 and 2018, respectively.

Note 14: Pension and Other Postretirement Benefits

Defined Benefit Plan

Associated participates in the NRECA RS Plan (the RS Plan). The legal name of the plan is the NRECA Retirement Security Plan; the employer identification number is 53-0116145 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 that 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 2019 and 2018 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 $10,520 and $11,033 in 2019 and 2018, 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, 2019 and 2018, 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 date of hire. Associated contributed $3,485 and $3,050 to the 401(k) Plan in 2019 and 2018, 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, 2019 and 2018, was a decrease of $2,244 and $2,169, respectively, which serves to reduce the net periodic cost by $74 and $76, respectively, annually.

	2019	2018
Change in accumulated benefit obligation		
Accumulated benefit obligation, beginning of year	$ 37,041	$ 35,059
Interest cost	1,485	1,182
Actuarial loss	6,007	3,266
Benefit payments	(2,468)	(2,596)
Medicare subsidy	210	129
Accumulated benefit obligation, end of year	$ 42,275	$ 37,040
Funded status		
Accumulated benefit obligation	$ (42,275)	$ (37,040)
Net liability recognized	$ (42,275)	$ (37,040)
Net periodic benefit cost		
Interest cost	$ 1,485	$ 1,182
Amortization of actuarial loss	915	626
Total net periodic benefit cost	$ 2,400	$ 1,808
Amounts recognized in the accompanying consolidated balance sheets consist of		
Other current and accrued liabilities	$ (2,514)	$ (2,345)
Other deferred liabilities	(39,761)	(34,695)
	$ (42,275)	$ (37,040)
Amounts recognized in accumulated other comprehensive loss		
Net actuarial loss	$ 19,872	$ 14,780
Weighted-average assumptions used to determine benefit obligation at December 31		
Discount rate	3.11%	4.14%
Weighted-average assumptions used to determine net periodic benefit cost for the year ended December 31		
Discount rate	4.14%	3.47%

For measurement purposes, a 4.7% annual rate of increase in medical and prescription cost trend rates was assumed for 2020 and 2021. The annual medical trend rate decreases over time to the ultimate trend rate after 2075 of 4.04%. The annual trend rate for vision expense was assumed to increase 5.0% per year through 2075. A 1.0% increase in assumed health care cost trend rates would increase total service and interest costs by $143 and increase the postretirement benefit obligation by $4,944. A 1.0% decrease in assumed health care cost trend rates would decrease total service and interest costs by $121 and decrease the postretirement benefit obligation by $4,302.

Associated expects approximately $1,349 of the actuarial loss to be recognized as a component of net periodic benefit cost in 2020.

Associated contributed $2,468 and $2,596 in 2019 and 2018, respectively, to the postretirement benefit plan. Based on actuarial projections, Associated expects to contribute $2,514 to the postretirement benefit plan in 2020. No discretionary contributions are planned in 2020.

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
2020	$ 2,679	$ (165)
2021	2,666	(166)
2022	2,669	(164)
2023	2,672	(161)
2024	2,681	(157)
2025–2029	13,189	(711)
	$ 26,556	$ (1,524)

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 2019 and 2018 is as follows:

	2019		2018	
	Current	Deferred	Current	Deferred
Federal	$ (378)	$ 15,375	$ (772)	$ 14,688
State	-	4,481	-	4,384
Change in valuation allowance	-	(19,856)	-	(19,072)
Income taxes credited	$ (378)	$ -	$ (772)	$ -

Current income 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 bases 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.

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

	2019	2018
Deferred tax asset		
Net operating loss carryforwards	$ 332,755	$ 318,948
Mine reserves	2,244	1,718
AMT credit carryforwards	378	772
Postretirement benefits	2,002	1,523
Interest expense liability	8,010	
Other	4,029	2,983
Total deferred tax asset	349,418	325,944
Deferred tax liability		
Utility plant	(24,309)	(17,260)
Deferred debits	-	(3,431)
Total deferred tax liability	(24,309)	(20,691)
Valuation allowance	(325,109)	(305,253)
Net deferred tax asset	$ -	$ -

Associated has federal net operating loss carryforwards for income tax purposes of $1,142,521, incurred prior to January 1, 2018, which are available to offset future taxable income. If not utilized, these loss carryforwards expire between 2020 and 2037. In 2019, $14,545 of the loss carryforwards expired.

Associated has federal net operating loss carryforwards for income tax purposes of $165,052, incurred from December 31, 2018, which are available indefinitely to offset future taxable income up to 80%.

As of December 31, 2019, Associated has alternative minimum tax credit carryforwards for income tax purposes of $764, which are refundable each year after 2018 and before 2022 at 50% of the remaining credit balance, under the *Tax Cuts and Jobs Act of 2017*.

A valuation allowance of $325,109 has been established primarily to reflect net operating loss carryforwards estimated to expire before utilization. The valuation allowance had a net increase of $19,856 in 2019.

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, 2019 and 2018, 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, 2019, tax years 2016, 2017 and 2018 are subject to examination by the tax authorities. With few exceptions, as of December 31, 2019, Associated is no longer subject to federal and state examinations by tax authorities for years before 2016. 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 tables present information regarding the method of valuation for assets and liabilities as of December 31:

		Fair Value Measurements Using		
	Fair Value	Quoted Prices in Active Markets for Identical Assets or Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
2019				
Assets				
Long-term investments	$ 15,512	$ 15,512	$ -	$ -
Derivative assets	$ 3,541	$ -	$ 3,541	$ -
Liabilities				
Derivative liabilities	$ 33,473	$ -	$ 33,473	$ -

		Fair Value Measurements Using		
	Fair Value	Quoted Prices in Active Markets for Identical Assets or Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Unobservable Inputs (Level 3)
2018				
Assets				
Long-term investments	$ 12,963	$ 12,963	$ -	$ -
Derivative assets	$ 2,427	$ -	$ 2,427	$ -
Liabilities				
Derivative liabilities	$ 21,395	$ -	$ 21,395	$ -

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. There were no transfers between Level 1 and Level 2 in 2019 or 2018.

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

	2019		2018	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
Long-term investments	$ 15,512	$ 15,512	$ 12,963	$ 12,963
Derivative assets	$ 3,541	$ 3,541	$ 2,427	$ 2,427
Derivative liabilities	$ 33,473	$ 33,473	$ 21,395	$ 21,395

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 instruments 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 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, 2019.

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 and natural gas 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 $1,421 and $1,640 in 2019 and 2018, respectively. At December 31, 2019 and 2018, derivative liabilities of $21,815 and $16,406, respectively, were recorded within other current liabilities and other deferred liabilities. An asset that represents the amount to be recovered through future rates is included in deferred regulatory debits (see *Note 10*).

In 2009, the Board established a policy to defer changes in fair value of derivative instruments as a regulatory item to be recovered through future rates. Associated has entered into a series of diesel fuel swap agreements that are designed to manage the fuel price risk related to Associated's coal delivery costs through 2022 and a series of natural gas agreements that are designed to limit exposure to fluctuation in natural gas prices through 2024. In 2019, current period settlements increased fuel costs by $1,362. In 2018, current period settlements decreased fuel costs by $6,081. At December 31, 2019 and 2018, a derivative asset of $3,541 and $2,427, respectively, was recorded within other current assets and other deferred assets, as well as a derivative liability of $11,659 and $4,989, respectively, within other current and accrued liabilities. The classification of derivative instruments is as follows at December 31:

	2019	2018
Derivative asset	$ 3,541	$ 2,427
Derivative liability	(33,473)	(21,395)
	(29,932)	(18,968)
Less current portion	5,991	2,856
	$ (23,941)	$ (16,112)

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, 2019 and 2018, these securities amounted to $8,002 and $8,060, respectively.

As of December 31, 2019, 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 2030 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 Dell power plants through 2021 and the Chouteau power plant through 2041. Associated paid transportation fees of $8,026 and $6,707 in 2019 and 2018, respectively. Associated's commitment to the transporters of gas at the Essex, Dell and Chouteau power plants will be $7,992 for 2020, $8,184 for 2021, $5,216 annually for 2022 through 2030, and an average of $7,465 annually for 2031 through 2041.

Associated has entered into various fixed price, physically settled natural gas contracts through 2022. The commitments for the Chouteau power plant are $47,153 in 2020, $29,406 in 2021 and $13,630 in 2022. The commitments for the Dell power plant are $32,982 in 2020 and $12,121 in 2021.

The long-term wholesale electric service contracts with its members require Associated to reimburses each member for the costs of their qualified transmission facilities, including depreciation, interest and operations and maintenance. Expenses for these contracts in 2019 and 2018 totaled $71,392 and $67,591, 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 $6,063 and $6,283 for 2019 and 2018, respectively (see *Note 5)*. Projected payments to members for the next five years are:

	Transmission	Generation
2020	$ 72,482	$ 5,967
2021	$ 77,040	$ 5,818
2022	$ 83,909	$ 5,668
2023	$ 84,502	$ 5,519
2024	$ 85,755	$ 5,369

Associated has a commitment to purchase the output from seven wind farms. In November 2019, Clear Creek wind farm began generating preliminary power with an estimated commissioning date of February 2020. 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 $103,337 and $105,605 in 2019 and 2018, respectively.

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 2019 and 2018. Energy payments, including supplemental energy, totaled $20,406 and $14,553 for 2019 and 2018, respectively. In 2019, Associated entered into a contract with The Energy Authority, Inc. (TEA), effective through December 2021, that entitles Associated to purchase a fixed amount of firm capacity. In 2019, capacity payments totaled $1,576.

Capacity payments for these contracts for the next five years are projected to be as follows:

2020	$	27,388
2021	$	27,388
2022	$	25,812
2023	$	26,586
2024	$	27,384

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, 2019, and before February 11, 2020, which is the date the consolidated financial statements are available to be issued, that required recognition or disclosure.

Associated Electric Cooperative Inc.

A Touchstone Energy® Cooperative

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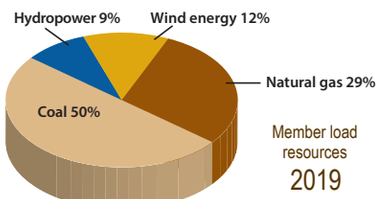
Associated Electric Cooperative

Balanced, diverse resources meet member load

Associated's resources include gas, coal, wind and hydropower, complemented by its Take Control & Save energy-efficiency program.



Associated sells and does not retain or retire all of the environmental attributes of energy generated by 768 megawatts of contracted wind facilities. This brings in revenue that helps keep members' electricity affordable.

Coal-based fleet

New Madrid Power Plant – New Madrid, Mo.
Unit 1 – 1972, Unit 2 – 1977
Brown-Boveri turbines, 600 MW each
Coal burn rate 7,150 tons/day per unit

Thomas Hill Energy Center – Clifton Hill, Mo.
Unit 1 – 1966
General Electric turbine, 180 MW
Coal burn rate 2,340 tons/day
Unit 2 – 1969
Westinghouse turbine, 303 MW
Coal burn rate 3,785 tons/day
Unit 3 – 1982
Westinghouse turbine, 670 MW
Coal burn rate 8,480 tons/day

Combined-cycle gas fleet

Chouteau Power Plant – Pryor, Okla.
Chouteau 1 – 2000, two Siemens combined-cycle, gas-based units, 176 MW each; one steam turbine, 170 MW
Chouteau 2 – 2011, two Siemens combined-cycle, gas-based units, 176 MW each; one steam turbine, 188 MW
Plant operated by Siemens.

Dell Power Plant – Dell, Ark.
Units 1 and 2 – 2007, dual-fuel (gas and oil)
Two General Electric combined-cycle, gas-based units, 170 MW each; one steam turbine, 240 MW

St. Francis Power Plant – Glennonville, Mo.
Unit 1 – 1999, Siemens combined-cycle, gas-based unit, 176 MW; one steam turbine, 69 MW
Unit 2 – 2001, Siemens combined-cycle, gas-based unit, 176 MW; one steam turbine, 80 MW
Plant operated by Siemens.

Simple-cycle gas fleet

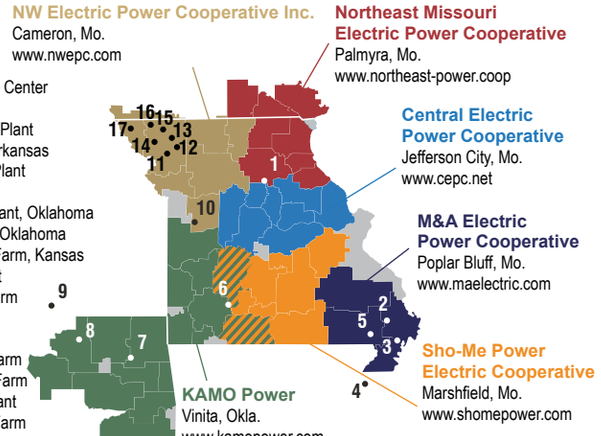
Essex Power Plant – Idalia, Mo.
Unit 1 – 1999
Siemens simple-cycle, gas-based unit, 107 MW

Holden Power Plant – Holden, Mo.
Units 1, 2 and 3 – 2002
Siemens simple-cycle, dual-fuel (gas and oil) units, 107 MW each

Nodaway Power Plant – Maryville, Mo.
Units 1 and 2 – 1999
Siemens simple-cycle, gas-based units, 91 MW each

G&Ts' service areas & AECI facilities

Facilities (clockwise)
1. Thomas Hill Energy Center
2. Essex Power Plant
3. New Madrid Power Plant
4. Dell Power Plant, Arkansas
5. St. Francis Power Plant
6. Headquarters
7. Chouteau Power Plant, Oklahoma
8. Osage Wind Farm, Oklahoma
9. Flat Ridge 2 Wind Farm, Kansas
10. Holden Power Plant
11. Lost Creek Wind Farm
12. Bluegrass Ridge Wind Farm
13. Conception Wind Farm
14. White Cloud Wind Farm
15. Nodaway Power Plant
16. Clear Creek Wind Farm
17. Cow Branch Wind Farm



Diverse power sources

Source	Nameplate capacity (MW)
Chouteau Power Plant	1,062
Dell Power Plant	580
Essex Power Plant	107
Holden Power Plant	321
New Madrid Power Plant	1,200
Nodaway Power Plant	182
St. Francis Power Plant	501
Thomas Hill Energy Center	1,153
Subtotal	5,106
Contract sources	
SWPA hydropower peak	478
Wind energy*	73
Subtotal	551
Total	**5,657**

**Associated contracts with six wind farms totaling 768 MW of nameplate capacity. Staff estimates 6% to 10% of that as capacity for peak planning purposes.*

Associated will add 471.5 MW in 2020 from two new wind projects in northwest Missouri, bringing contracted wind nameplate capacity to 1,240 MW. After both farms are operational, staff estimates 119 MW as capacity for peak planning purposes.

Associated Electric Cooperative

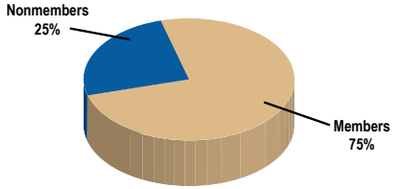
AECI is owned by and provides affordable, reliable and responsible electricity to six regional and 51 local electric cooperative systems in Missouri, southeast Iowa and northeast Oklahoma that serve about 910,000 meters.

P.O. Box 754 • Springfield, MO 65801-0754
417-881-1204 • www.aeci.org

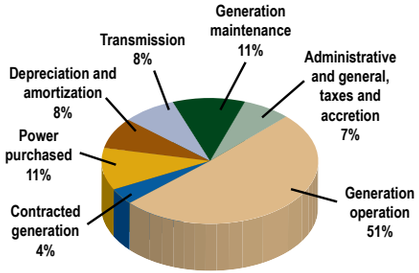
2019 financial highlights

(in thousands)	
Operating revenue	$ 1,247,298
Operating expenses	$ 1,147,055
Interest expense on long-term debt (less interest capitalized)	$ 72,614
Net nonoperating income	$ 22,042
Net margin	$ 49,671
Investment in facilities	$ 4,358,235
Long-term debt, excluding current maturities	$ 1,520,968
Total assets	$ 2,928,229

Operating revenue



Operating expenses



2019 statistical highlights

Net generation (coal & gas)	26,212,389 MWh
Member sales	19,284,984 MWh
Fuel, operations and maintenance	27.24 mills/kWh
Summer peak demand* (8-12-19)	4,051 MW
Winter peak demand* (3-4-19)	4,539 MW

**Peak hour member demand*

Revenue from members (mills per kWh)	48.19
Total part- and full-time employees	700
Dell Power Plant	20
Headquarters	282**
New Madrid Power Plant	174
Thomas Hill Energy Center	224

***Includes staff in various divisions located at power plants.*

Associated's and its six G&T owners' integrated, high-voltage transmission system enables Associated to reliably and economically serve member load, as well as transact business with investor-owned and municipal utilities, electric cooperatives, power marketing firms and regional transmission organizations.

Transmission lines owned by AECI and six G&T owners:

69-kV – 7,064 miles	345-kV – 760 miles
138-kV – 274 miles	500-kV – 46 miles
161-kV – 2,039 miles	**Total – 10,183**

2019 operating statistics

Coal burned	8.6 million tons
Coal units' availability factor	87.6 percent
(Percentage of time units are available to generate electricity)	
Coal units' unplanned-outage factor	7.0 percent
AECI three-year average	6.3 percent
Industry three-year average for peer group	7.6 percent
Coal units' capacity factor	70.5 percent
(Actual generation as percent of full-load capacity)	
Coal units' net heat rate	9,911 Btu/kWh
(weighted average)	
Gas fleet capacity factor	44.7 percent
Gas fleet starting reliability	99 percent *(with 1,101 starts)*
Gas fleet accumulated unit hours of operation	80,747
Natural gas burned	82 Bcf

Focus fixed on safety

Associated targets zero injuries. Its 2019 recordable incident rate was 1.63 per 200,000 hours worked, the third lowest in the cooperative's history.

Associated Electric Cooperative

David J. Tudor, CEO and general manager

Headquarters, 417-881-1204
Accounting and Finance – David W. McNabb
General counsel and compliance – Brian A. Prestwood
Energy Risk Management – Scott E. Thompson
Engineering and Operations – Roger S. Clark
Human Resources – Shawn P. Calhoun
Information Services – Brent W. Bossi
Member Services and Corporate Communications – Joseph E. Wilkinson
Power Production – Kenneth S. Wilmot

Dell Power Plant, 870-564-9169
Nathan Budreau, plant manager

New Madrid Power Plant, 573-643-2211
Charles "Manny" Zeringue, senior plant manager

Thomas Hill Energy Center, 660-261-4211
Stephen E. Iwanowicz, senior plant manager

SYSTEM FACTS

April 2020

Associated Electric Cooperative Inc.

A Touchstone Energy® Cooperative