ASSOCIATED ELECTRIC COOPERATIVE INC.

TWO THOUSAND TWENTY • ANNUAL REPORT

Connections

Our cover photo beautifully illustrates the connections that run deep throughout our three-tiered system of electric cooperatives, beginning with bonds in communities and families, like the father and son enjoying a ride in the cab of their tractor as the sun sets in northwest Missouri.

The two are among about two million members behind roughly 910,000 meters – homes, farms, schools, businesses and industries – served by 51 local electric cooperatives in Missouri, southeast Iowa and northeast Oklahoma.

Those 51 member systems formed six generation and transmission cooperatives, which provide the high-voltage transmission facilities that safely bring power Associated Electric Cooperative procures or generates to the local cooperatives for distributing to their members.

The six G&Ts formed Associated in 1961 to generate and secure their power supply. In 2020, Associated further diversified its resource mix by contracting with two more wind farms. In the cover photo, the two people are driving by the 235-megawatt Clear Creek wind farm.

Connections were even more important during the COVID-19 pandemic in 2020, when Associated conquered numerous challenges as it focused on its mission to provide an economical, reliable power supply and support services to its members.

Our workforce of about 700 skilled, dedicated employees connect to that mission in different ways, ranging from making wise financial and investment decisions to reducing operations and maintenance costs to keeping members informed about their wholesale power supply to working safely during a pandemic.

Also looking out for electric cooperatives and their members are three statewide organizations considered part of the three-tiered system: the Association of Missouri Electric Cooperatives, the Iowa Association of Electric Cooperatives and the Oklahoma Association of Electric Cooperatives.

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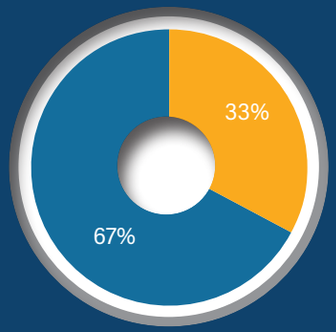
Featured in the report are a few of the 2020 Excel award recipients. Associated's Excel awards began in 1993 and are an important part of its culture. Employees are nominated by peers, then selected by an executive committee for one of 10 awards, which are a mark of distinction that lifts employees from the daily "just doing my job" mode to a select group recognized for turning the ordinary into the extraordinary.

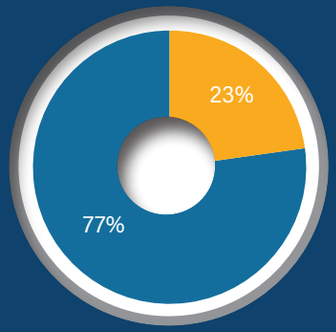
Associated's 2020 annual report was written, compiled and produced by the staff of Associated Electric Cooperative.
Editor: Linda Putman • **Graphic designer:** Glennon Scheid

2020 highlights



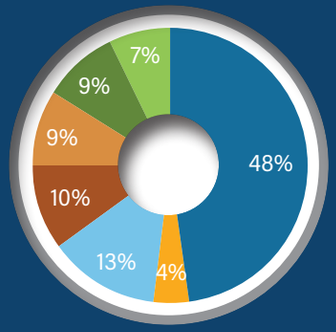
Kilowatt-hour sales (kWh in millions)

Members 18,734 Nonmembers 9,028



Operating revenue (dollars in millions)

Members $880 Nonmembers $256



Operating expenses (dollars in millions)

Generation operation $493 Contracted generation $43

Purchased power $131 Depreciation and amortization $101

Transmission $93 Generation maintenance $92

Administrative and general, taxes and accretion $79

Financial (in thousands)	**2020**	2019	Increase (Decrease)	% Increase (Decrease)
Operating revenue	**$1,135,982**	$1,247,298	$(111,316)	(8.9)
Operating expenses	**1,031,858**	1,147,055	(115,197)	(10.0)
Interest expense on long-term debt				
(less interest capitalized)	**63,769**	72,614	(8,845)	(12.2)
Net nonoperating income	**11,008**	22,042	(11,034)	(50.1)
Net margin	**51,363**	49,671	1,692	3.4

Operational

Energy sales (MWh)				
Members	**18,734,107**	19,284,984	(550,877)	(2.9)
Nonmembers	**9,028,260**	10,439,112	(1,410,852)	(13.5)
Member revenue per kWh sold (mills/kWh)	**46.98**	48.19	(1.21)	(2.5)
Peak hour member demand (MW)	**4,369**	4,539	(170)	(3.7)
Total nameplate capacity (MW)	**5,703**	5,657	46	0.8
Net generation (MWh)	**23,325,319**	26,212,389	(2,887,070)	(11.0)

Plant training specialist Ralph Palmer arrives to work at New Madrid Power Plant in early 2020, getting his temperature taken before entering the plant. Temperature checks were among many measures Associated took to ensure employee safety and business continuity in 2020 during the COVID-19 pandemic.

Three-tiered system remains cohesive, connected

Messages from the president of the board and CEO/general manager

When Associated's board of directors conducted its strategic meeting in December 2019, we never would have believed what we would face in 2020 – a worldwide pandemic?

Obviously, we all have made major adjustments in our personal lives, as well as in our cooperative businesses. However, I am happy to report the three-tiered system has managed through the pandemic well and remains cohesive across our service territories.

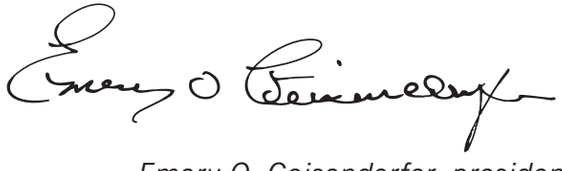
While we don't agree on every issue, Associated Electric Cooperative and the 57 member cooperatives that make up the three-tiered system continue to provide some of the most reliable and affordable electric rates and services in the United States, despite the challenges brought on by COVID-19.

Associated played a key role in 2020 toward this overall success. Throughout the year, we took measures to keep employees safe and protect members' reliable power supply, like moving maintenance outages and sending employees to work from home. We reached out to member systems, listening to their needs and providing assistance as requested.

Mostly, we remained connected and communicating, using virtual tools more than I care to remember.

The following report provides the details of many significant performance successes across Associated's portfolio of generation and transmission assets and 2020 initiatives.

As always, I continue to appreciate the opportunity to work with the dedicated and talented board and employees of Associated as its board president. Thank you for your continued support as we navigate through the ever-changing energy world.



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

Preparation proved key to our strong performance

Associated Electric Cooperative's board of directors and employees delivered another solid year of operational performance that led to excellent financial results, allowing the cooperative to further discount its member rates by an additional $25 million in the last half of the year. This brought the total to $84 million in demand and energy discounts to members in 2020.

In addition, the cooperative was able to add $27 million to its deferred revenue fund, allowing it to maintain member rates in 2021 at the levels established for 2020. After the discounts, deferred revenue and a $10 million write-off of certain deferred expenses, Associated was able to secure net margin of $51.4 million, which meets its goal of improving financial metrics that underpin its strong credit ratings.

Associated's operational success was led by cost savings at the New Madrid and Thomas Hill power plants, low fuel costs due to lower than expected natural gas and coal rail costs, significant use of its natural gas plants and sales to nonmembers. All of this was achieved while adding two new wind farms to its balanced resource portfolio.

This performance was delivered during the surprise of the COVID-19 pandemic. While Associated was initially concerned as to the effect on its member cooperatives' load, those systems were largely unaffected by the pandemic. Member load for 2020 finished at 2% below budget.

As to the COVID-19 pandemic, Associated updated its corporate pandemic plan for the initial coronavirus specifics known at that time and enacted it in late February. This resulted in a decision to close its headquarters building and to work from home, beginning March 19. Also, significant incremental safety measures were immediately implemented at its power plant sites for employee safety. More information on Associated's actions in 2020 concerning the COVID-19 pandemic is covered later in this report.

2020 was somewhat of a blur given the numerous initiatives established in the business plan complicated by the virus – Associated's employees were simply awesome in doing their part to both stay safe for each other and deliver reliable, affordable electricity to our members! In a year where so much uncertainty occurred, Associated's employees and portfolio of assets proved once again that preparation is the key to success.

We remain dedicated to our members' needs, always knowing that the member owns our assets and pays the bills.

David J. Tudor
CEO and general manager

Member governance strengthens Associated

Connections are evident in the planned, strategic makeup of Associated's board of directors that brings together the voices of the G&Ts, distribution cooperatives and member-owners at the end of the line.

2020 group photo taken prior to pandemic.

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.

Associated's 12-member board is comprised of chief executive officers from Associated's six member-owner G&Ts, who bring utility and cooperative experience to serve members.

Complementing these utility executives are six directors with experience ranging from farm and business owners to general managers of local electric cooperatives.

Diverse, yet united in their mission, board members review data, research and trends and make decisions for the good of the cohesive, three-tiered system.

The board took a variety of actions to use 2020's strong financial performance to benefit members last year and in the years to come by providing rate stability and financial strength.

In its actions, the board:

- Provided 2020 budgeted energy and demand rate discounts, and then approved additional rate discounts in September and December. Total rate discounts amounted to $84 million in revenue not collected from member G&Ts last year.
- Returned $23.9 million in patronage capital to the G&Ts, which included an additional $10 million – for the third year in a row – above the 2% of equity the board annually has returned since 1993.
- Wrote off $10 million of past expenses for environmental projects that had been deferred, reducing future revenue requirements of members.
- Deferred $27 million in revenue, increasing this fund to $147.6 million. This fund is one tool the board uses to provide future rate stability.

Associated's 2020 long-range financial forecast showed no rate increases through 2025 in part due to deferred revenue; however, Associated's board of directors annually reviews the financial forecast, cost of service study and integrated resource plan and adjusts as needed to ensure a reliable, affordable, responsible power supply for member systems.

Strong ratings connect to savings

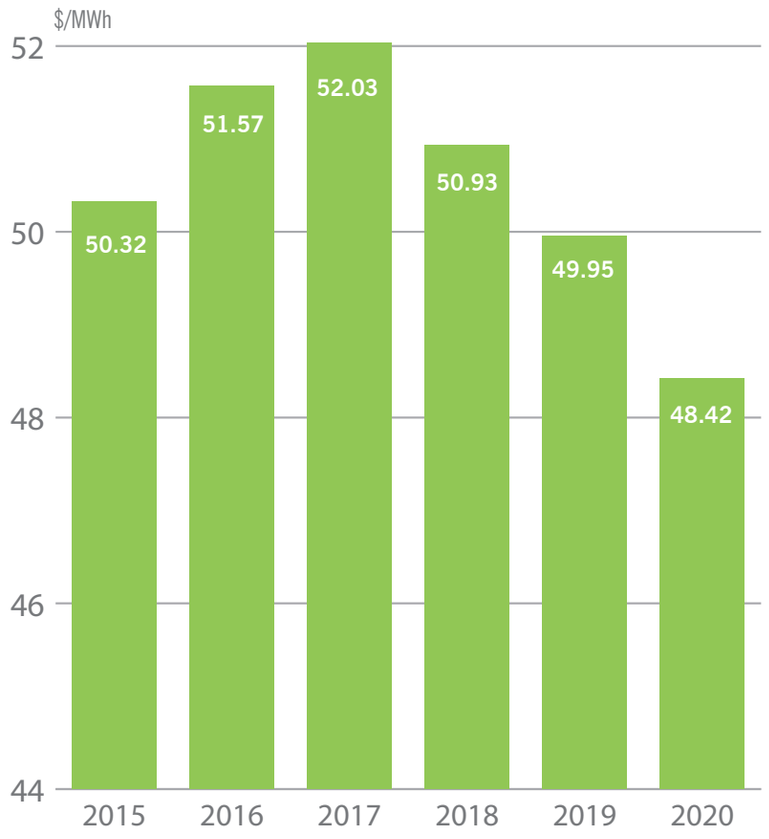
Associated's strong financial position and conservative, strategic management by its board and leadership team are among the reasons it remains one of the top-rated G&Ts by the three major credit rating agencies.

Associated's staff met virtually with all three agencies in 2020, instead of the annual trek to New York City. All three agencies affirmed Associated's ratings with a stable outlook: AA- by Fitch Ratings; Aa3 by Moody's Investors Service; and AA by Standard & Poor's Financial Services. Strong credit ratings confirm Associated is able to handle challenges and capture available opportunities, reduce Associated's cost for borrowing money and enhance other business opportunities.

Outlining Associated's strengths, the credit agencies mentioned financial position, engaged board of directors, capable management, diverse generation portfolio, conservative business model and risk management.

"The reports highlighted Associated's size, diverse customer base, strong and improving balance sheet, low rates, transmission and generation assets and long-term power contracts as strengths," said David McNabb, senior vice president and chief financial officer.

Average member cost per MWh



Average member cost before deferrals shows Associated continues to provide members a competitive power supply – one of the strengths listed by the three rating agencies.

Leaders connect safety and member service during pandemic

Associated's executive team is guided by the board of directors, as well as the mission to serve members, the cooperative's core values, vision and long-term strategic plan objectives. This nine-member team develops strategic direction for the cooperative, strengthening it by supporting operational, regulatory and technological best practices – as well as leading it through a pandemic.

2020 group photo taken prior to pandemic.

Ensuring Associated remains connected to its mission of 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.

Key actions for navigating the pandemic have been strong partnerships with relevant, detailed and timely communications

Always preparing for "what ifs," Associated maintains a pandemic plan for operating during events like the coronavirus outbreak in 2020. It is part of Associated's overall crisis management plan, managed and executed by security operations with input from every division in the cooperative.

"We can fix things that are broken, but I have never quite experienced anything like this before. It has been amazing to see the countless hours that groups throughout our organization have exhaustively worked to protect our most valuable assets – people."

– Manny Zeringue, senior plant manager, New Madrid Power Plant

Before the World Health Organization designated COVID-19 a global pandemic on March 11, 2020, Associated was meeting, planning and executing its plan on behalf of members and employee safety. Through it all, this culture of preparedness served Associated well.

In February, the executive team started meeting daily, enacting steps for the cooperative's response in early March. Then they activated the cross-divisional Pandemic Task Force. Led by Dave White, managing director, security operations, the task force began tracking updates from the Centers for Disease Control and Prevention, implemented safety protocols and managed the cooperative's yearlong response.

Even with pandemic and crisis communications plans in place, this was unchartered territory. CDC guidelines changed, then changed again, as more became known about the nature of the virus.

With Associated's key mission and values as its foundation, the task force developed effective solutions and products to protect employee health and allow Associated to fulfill its role in the bulk electric system.

The group met daily for two months, followed with biweekly meetings throughout 2020. Cross-divisional representation enabled diverse ideas and collaboration to address endless operational and logistical challenges.

Communication updates to employees started March 4, before office employees began working from home March 19. This was ahead of Missouri's April 6 stay at home order. Associated made this early decision to ensure safety and protect critical operations.

Both the executive team and task force provided detailed, frequent messages announcing and further explaining actions, protocols, business-continuity decisions and CDC guidelines.

Pandemic Task Force named Outstanding Team of the Year

"From navigating an outage at Thomas Hill, to acquiring PPE and installing temporary living quarters, to temperature screenings, to communication, this group has helped Associated weather COVID-19 and serve its members with little to no downtime. Through it all, the goal has remained employee safety, business continuity and sticking to the pandemic response plan."

– Excel award peer nominator

The Pandemic Task Force received Associated's prestigious Excel award as the Outstanding Team of the Year. Task force members receiving the honor:

Rick Armfield, senior manager, gas plant operations
Brad Austin, managing director, procurement
Alicia Baumhoer, corporate attorney
Alesia Caccamisi, occupational health nurse
Caleb Daughhetee, manager, organizational development
Renee Doremus, buyer III
Joe Foster, senior plant manager
Robin Harrison, senior corporate communicator
Steve Iwanowicz, senior manager, special projects
Rob Kramar, supervisor, energy risk management
Tammy Mason, manager, labor relations
Joe Nevel, manager, human resources
Karen Patti, supervisor, benefits and wellness
Brent Ross, managing director, environmental, health and safety
Warren Sharp, supervisor, physical security
Mark Viguet, senior manager, corporate communications
Dave White, managing director, security operations, and task force leader
Manny Zeringue, senior plant manager
Ryan Ziegler, supervisor, system operations

Preparedness pays off

Safety and protection are always at the forefront of Associated's efforts, including installation of new equipment and procedures; more security and nursing staff; temperature scans upon entry; masks; and more.

At Thomas Hill Energy Center, which started its spring maintenance outage March 7, staggered shifts and additional personal protection equipment allowed employees and contractors to complete the outage safely and without incident. Trailers were ordered and plans made for quarantining workers, but thankfully were not needed. At New Madrid Power Plant, maintenance outages were postponed.

Finding and ordering supplies like masks and sanitizing supplies became an exercise in long hours and weeks of detective work by procurement staff. Staff ordered about 80,000 masks of various styles required for work at the plants and 1,600 gallons of hand sanitizer.

Normal lead times of two to five days extended to two to six weeks, depending on the item. Staff placed orders in bulk, split supplies between locations and kept key stakeholders at each work location updated weekly.

Staff also focused on the needs of G&T owners and their distribution cooperatives. Associated produced social media resources, a compilation of pandemic-related information, podcasts and more to assist the three-tiered system as all levels grappled with the pandemic.

For example, to help students and others working from home, Associated provided one-time financial assistance to member cooperatives that gave communities local Wi-Fi "hot spot" locations.

Resources weren't limited to communication tools. Associated staff cut through red tape, helping member systems find assistance available for their communities and key accounts.

As it became clear the pandemic would last longer than anyone imagined, the need to stay connected was vital. Software such as Microsoft's Teams and Cisco WebEx allowed Associated employees to gather virtually, with great attendance, for informal brown bag sessions with leaders. Virtual employee meetings helped maintain relationships, inform all and keep productivity high.

Instead of annual employee and family events, like Christmas parties, budgeted money was given to charitable organizations at all locations.

By summer and as shelter-in-place mandates expired, leadership outlined a plan to return to work locations. By early August, many employees were back in the office.

As winter approached, Associated's commitment to health and safety remained constant. The task force kept going, adjusting and reviewing the cooperative's response with Associated leadership.

Year-end brought a COVID-19 testing program to most work locations. By mid-March 2021, after working with the Association of Missouri Electric Cooperatives and the state of Missouri, Associated began offering vaccines at onsite clinics to employees, opening a path toward normalcy.

As of the date of this report, the pandemic continues, and so will Associated's steadfast commitment to employee safety and member service.

Content managers drive data

Associated's legal and technology staffs moved ahead on a content management program, a measure stemming from Associated's long-term strategic plan process. Goals include proactive management of data and documents, reliable electronic access, retention of required documents and data, reduction of storage requirements and improved efficiencies and productivity.

Led by document management specialists, teams across the organization moved content to secure online environments and new servers; adapted to new email retention policies and confidential paper disposal procedures; and served as record liaisons to help their departments continue to move ahead with the program.

The migration of data and documents helped to enable business continuity during the pandemic, when employees were working from home.

Three guys, a hot spot and long car ride tackle transition

March 12, 2020, Justin Kosar took a call as he and two co-workers traveled back to Springfield from New Madrid Power Plant. It was Dave White, managing director, security operations, on the phone, telling him the team must be ready for Associated employees to work remotely as the coronavirus spread across America.

In the car, Justin, supervisor of cybersecurity, Danny Dubree, applications analyst, and Jody Loftin, senior cybersecurity specialist, went to work.

The good news: Justin's team already had a 2020 project to use Microsoft Azure's application proxy to allow use of selected applications for everyday work without a virtual private network, or VPN. Now, the team needed to accelerate the project.

"I can't really take much credit; I was just driving," Justin said. "But we had a hot spot, so Danny and Jody started contacting everyone in solutions engineering back in Springfield to figure out which applications would be the most helpful to have available to anyone."

About seven days later, employees could access the essential applications they needed from home.

"Danny and Jody literally in the car built all this and started adding application after application to the portal, and pretty much, within a couple days had most of the tools (available VPN-free)," Justin said. "I was so proud of those guys for knocking that out and of how good a job they did."

'Just like we were there'

Bret Price, senior systems support analyst at Thomas Hill Energy Center, received Associated's prestigious 2020 Excel Award for Employee of the Year at Thomas Hill for ensuring technology needs were met for co-workers working remotely.

To complicate matters, Bret also was working from home. "There were times when I was working with one employee on the phone, two on chat and another on hold. There was a lot of juggling!" he said.

"It's a pretty incredible accomplishment that an organization that has never been remote and has always offered in-person support of these systems, within a matter of days was able to bring our infrastructure and our processes to a level where we're supporting our users and the technology just like we were there."

– Kolby Kallweit, manager, grid operations technology

Resilient organization adapts

Information Services was already down the road to enabling employees to work from anywhere, anytime. The pandemic only accelerated their work, enabling Associated employees to work remotely for months.

IS teams had already laid groundwork for a cloud-based system and tools to improve accessibility and security. "IS cannot afford to be reactive, to wait for the need," said Charlie Evans, managing director, technology transformation. "We saw a gap and knew we needed to modernize to meet the future needs of Associated."

Their preparation paid off during the pandemic with increased security, productivity and accessibility to data. "It really was the culmination of so much planning and work," Evans said.

A sampling:

- Service desk staff provided a mix of laptops, monitors, docks, headsets, hot spots, video cables and accessories to about 165 employees at four locations working remotely. Staff added a how-to guide for troubleshooting work-from-home issues and even helped employees negotiate better internet services at their homes.
- March 16, 2020, IS asked employees to log in remotely with VPN (still needed for some reports) that evening and test the system before it was needed; 170 joined in, issues were identified and resolved.
- To supplement Cisco WebEx, staff had rolled out Microsoft's Teams web-based meetings three months before the pandemic, which sped up its adoption. Having both platforms and redundancy were beneficial.

"What 2020 proved to me, is that we have a resilient organization," Evans said. "This was not a tabletop exercise. We lived it, and proved that so many things we put into place paid off in the end. It was not just IS. Everyone had to adapt, ... to change to make this successful, and they did."

Staff delivers exceptional financial performance

Grounded in a shared mission and focused on the critical strategic objective to keep Associated financially strong and flexible, staff throughout Associated met challenges and stayed tuned to opportunities.

Significant drivers of Associated's 2020 financial performance were strong management of operations and maintenance expenses; below-budget fuel costs; strong nonmember sales results; and the performance of the generating fleet and transmission system.

Being strong stewards of members' financial resources, Associated:

- Recorded a net margin of $51.4 million – after the board provided two rate discounts in addition to the budgeted discount; deferred revenue; and approved the write-off of expenses (referenced on Page 5).
- Strengthened Associated's financial position and reduced costs with several measures, including:
  - Paid off $261 million of debt with an interest rate of 3.93% with the U.S. Department of Agriculture Rural Utilities Service, providing an estimated $20 million or more in savings to Associated over the life of the debt.

This is the second year Associated's board of directors used this opportunity provided by the 2018 U.S. Farm Bill for penalty-free prepayment of federal USDA RUS debt with use of a RUS investment account.

  - Refinanced RUS debt by completing four private placement borrowings totaling $250 million at a rate well below the RUS rate on debt paid off.
  - Maintained its strong, strategic relationship with RUS as a source of low-interest funds for cooperatives, borrowing $79.6 million from RUS in four separate advances at an average rate of 1.4%.
  - Closed on a loan agreement with RUS for $52 million for a submerged flight conveyor system for bottom ash removal at New Madrid Power Plant required to meet Coal Combustion Residuals regulations.
  - The cooperative extended its line of credit with Commerce Bank. Lines of credit with six strategic firms, including Commerce, total $600 million and are a key part of Associated's strategy to maintain financial strength and flexibility.
  - Continued strategically to lower Associated's average interest rate on debt, decreasing it from 4.1% in 2018 to an average of 3.6%.

At Thomas Hill Energy Center, Associated's skilled workforce demonstrated its expertise in boiler repair, earning the stamp of approval from the National Board of Boiler and Pressure Vessel Inspectors. This enables employees, such as welders, to continue in-house boiler repairs that save time and money and ensure reliability. Audited in 2020, Associated proved it more than meets the National Board Inspection Code at both plants.

Challenge accepted, savings achieved

Early in 2020, Senior Vice President and Chief Operations Officer Ken Wilmot challenged the leadership and workforce at the two coal plants to come under budget on operations and maintenance expense by $6 million each – while maintaining safety and strong operational performance.

Overall, the plants ended the year $11.4 million under budget, a significant factor in Associated's overall 2020 financial performance. Scrutinizing budgets, reviewing costs, being innovative and seeking savings are practices grounded in the cooperative's mission. It takes a collaborative effort, from plant engineering to financial analysts to mechanics to coal yard equipment operators.

In one example of 2020 savings at New Madrid Power Plant, the pandemic brought a chance to skip boiler cleanings. This tested employees' longtime work to improve boiler performance. The goal: reduce boiler cleanings from twice to once a year without affecting performance.

Staff canceled the Unit 1 outage in the spring, reducing exposure during the pandemic for staff and contractors, as well as reducing costs. Staff also drastically reduced the scope of the spring outage on Unit 2. Results: Unit 1 went 361 days without a cleaning outage, and Unit 2 marked 384 days.

Overall, the plant reduced general maintenance due to outage schedule changes and having fewer people on site at one time under pandemic protocols. This did not have a negative impact on plant reliability or availability, as noted in the plants' exceeding many of their operating goals in 2020.

2020 fuel costs benefit members

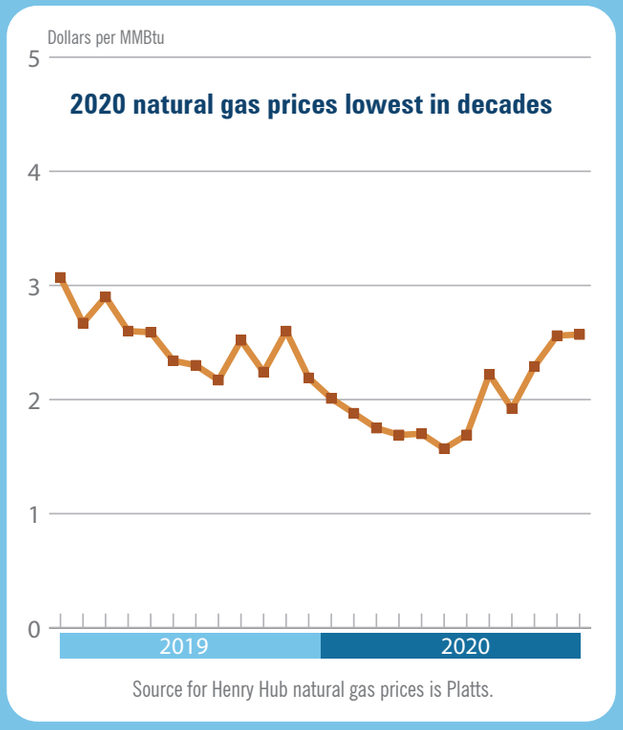
Associated was able to use its diverse resources last year to take advantage of some of the lowest natural gas prices in decades. Lower-than-budget fuel prices helped member and nonmember sales and were a main driver of Associated's financial performance in 2020.

Average fuel cost for the gas fleet was $3.34 per megawatt-hour below budget, or about 18% below financial plan. Staff estimates this saved Associated about $38 million compared to budget, including the impact of lower commodity costs offset by the variance in hedge costs.

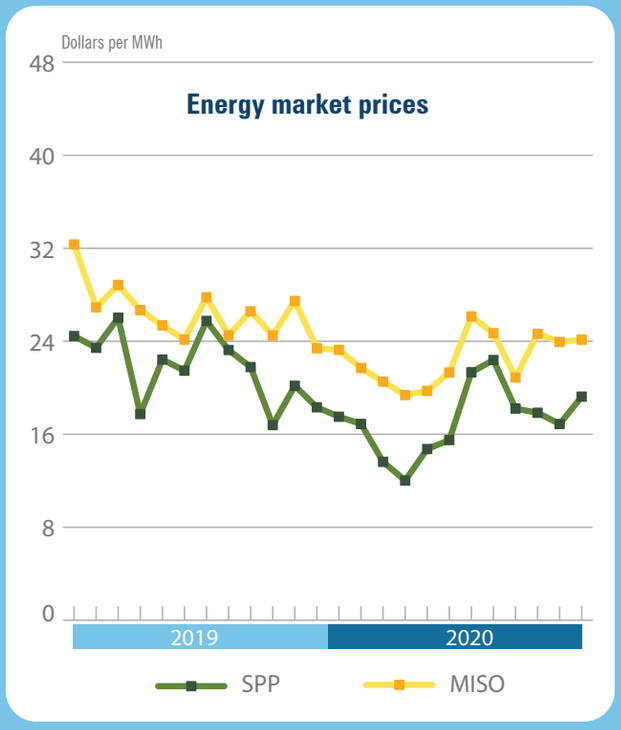
Adding to the benefit of low natural gas prices were below-budget delivered coal costs that resulted in more than $20 million in savings.

Associated has a longtime, strategic partnership with BNSF Railway, which leads to an understanding of Associated's mission, business model and resources. The railway participates as a partner, helping Associated keep its coal units competitive in an environment of low gas prices, as well as reliable by providing regular coal deliveries.

Associated also has a long relationship with Peabody Coal Co., which continues to improve mining efficiency to lower operating costs. This also helped drive delivered coal costs lower while maintaining a reliable supply to weather the storms.



Source for Henry Hub natural gas prices is Platts.



Diverse resources flex, bend and move to stay connected

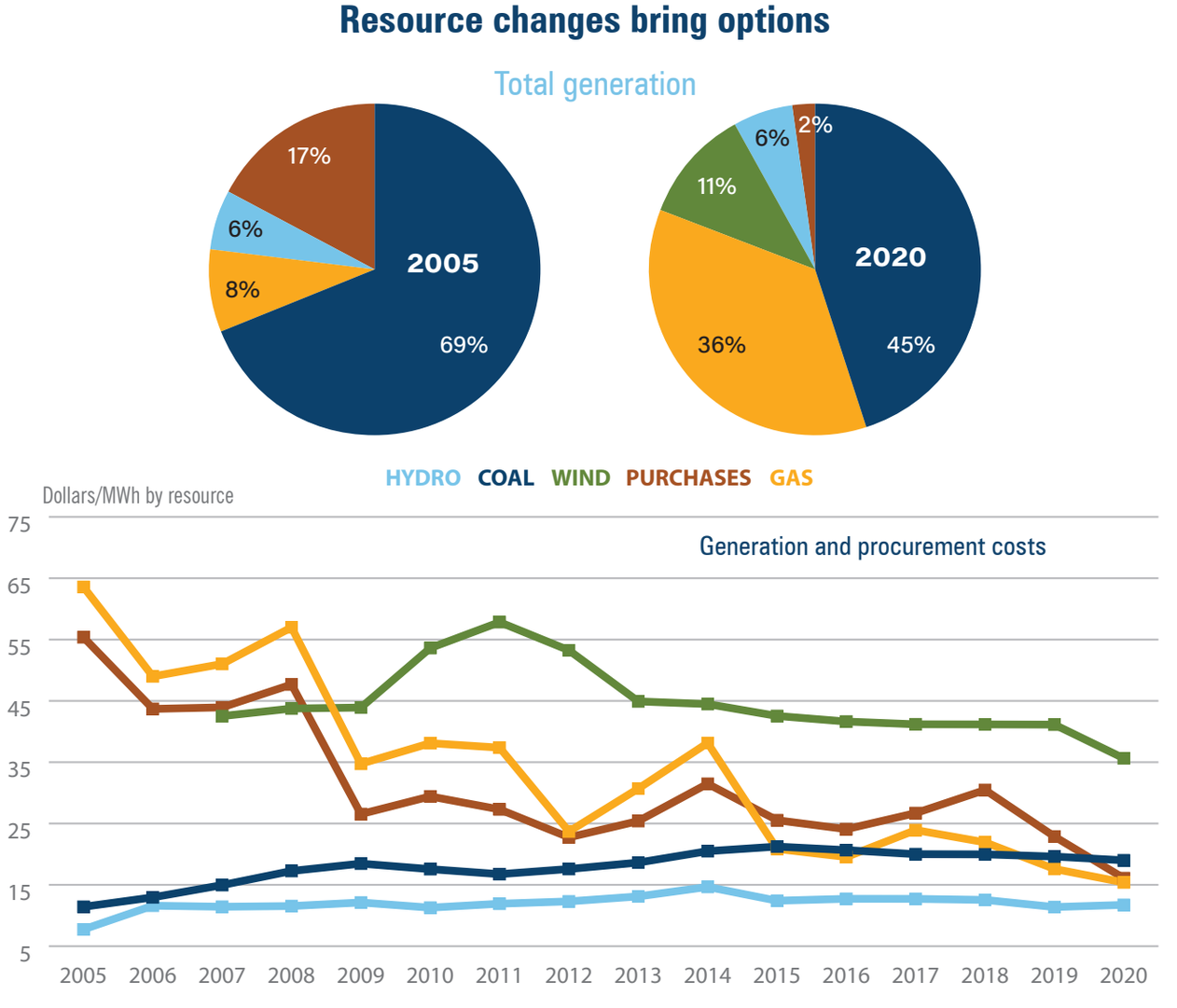
Good balance enables adaptability when change occurs, flexibility to bend and agility to stay on your feet and move with the situation. The same can be said for Associated's strategically planned diverse resources and integrated, high-voltage transmission system.

The resources – coal, natural gas, hydropower and wind energy – all work together to provide members reliable, affordable electricity. Factors driving 2020 generating decisions included below-budget fuel prices, maintenance outages, transmission congestion, nearby markets and energy prices, reliability standards and more.

Natural gas prices were well below budget most of the year, leading Associated to run its natural gas fleet ahead of coal units. When gas prices went up year-end, Associated relied on its coal units.

Rainfall was plentiful in 2020. Associated received supplemental hydropower that was 104% above budget. This low-cost resource is in addition to Associated's firm contracted peaking hydropower from the Southwestern Power Administration.

Managing the ups and downs takes good communication throughout the organization, connecting system operators, energy marketers, maintenance planners, control room operators, fuel and financial analysts and the G&T system operators maintaining the high-voltage transmission system. All are tied to the mission to serve member-owners at the end of the line.



Charts show the diversification of Associated's resources since 2005, which added flexibility while reducing its carbon emissions per MWh produced.

Co-op steps up to manage new wind energy resources

Associated added about 470 MW of wind energy in 2020, taking its contracted wind energy resources to more than 1,240 MW of nameplate capacity that led to new wind production records.

These two farms in northwest Missouri advance Associated's strategy to deliver reliable, affordable, responsible power to member systems and contribute to the cooperative's diverse and balanced energy mix.

Construction on 111 turbines at the 235-MW Tenaska Clear Creek Energy Center began in spring 2019, and the farm was declared commercial in May 2020.

In December 2020, the 236-MW White Cloud wind farm began commercial operations. It's operated by Enel Green Power North America and has 89 turbines.

Associated's signing of long-term purchase agreements, as well as the cooperatives' strong high-voltage transmission system and two million member-owners, helped to bring the first utility-scale wind farm to Missouri nearly 15 years ago. Today, Associated buys all the output from eight wind farms located in Missouri, Kansas and Oklahoma.

Staff manages influx of wind on system

As Associated and nearby RTOs have added more wind energy, the cooperative has stepped up to manage this resource on the system.

In 2020, wind production records included:

- Achieving 95% capacity factor during the hour ending at 8 p.m. on Dec. 22, serving 45% of member load during that hour.
- Serving 68% of member load, the highest percentage yet, with just wind Nov. 10, hour ending at 4 a.m.
- Marking 74%, the largest for serving member load with wind energy and hydropower, on April 8 for the hour ending at midnight. This included 698 MWh of wind and 460 MWh of hydropower.

Credit goes to a collaborative effort of employees, who have improved ramp rates and flexibility of the coal units; Information Services staff's modification of the energy management system; the energy marketing group's use of forecasting tools; and Associated's and the G&Ts' system operators effectively managing the transmission system.

Northwest Missouri

White Cloud wind farm

Nonmember sales make most of members' resources

Sales to nonmembers, another positive factor in Associated's 2020 financial performance, were driven by staff focused on monetizing members' generation and transmission assets when they are not needed to serve members.

2020 marketing activity reduced member cost by $54 million, compared to the $27 million budget, and included bilateral sales, structured transactions, sales to regional transmission organizations and short-term market opportunities during the grid's traditional spring and fall maintenance seasons. Another key to success: close coordination with Power Production to optimize maintenance schedules with member load and market conditions.

Adding to the competitive edge, as well as risk management, is natural gas hedging, about 66% of its 2020 requirements, at competitive prices.

Supporting energy marketing is the Energy Risk Management Division, established in 2017 as part of Associated's Long-term Strategic Plan. The division has continued to mature the cooperative's control environment, enabling Associated to optimize members' generation and transmission assets.

E&O pursues energy exchange

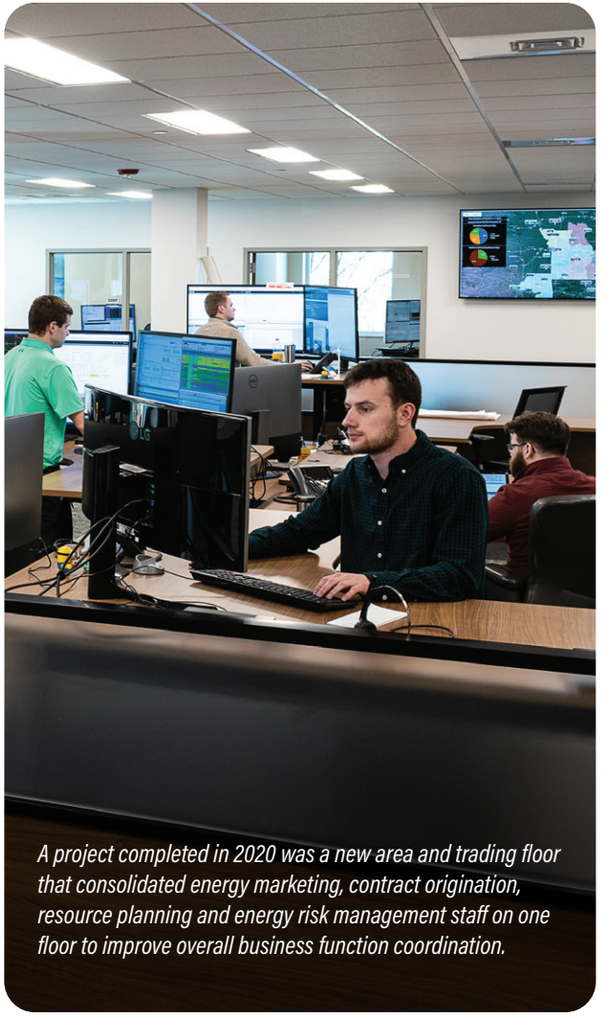
In 2020, Associated joined with utilities in the Southeast to advance development of a centralized, automated intrahour (15-minute) energy exchange. The proposed Southeast Energy Exchange Market is pending approval by the Federal Energy Regulatory Commission. While Associated would maintain control over its generation and transmission assets, the benefits of participation include improved grid reliability and optimization of diverse energy resources.

Staff manages risk for future success

In keeping with its risk-management practices, Associated began using stochastic analysis techniques in 2017 as part of its Long-term Strategic Plan. These techniques provide greater insights for strategic and operational decisions.

Staff recognize the cooperative is exposed to many risk factors, and key decisions require evaluation that considers a range of potential outcomes. Using stochastic analysis, staff can quantify these risk factors and provide more insights and probabilistic assessments of key decisions.

Typical risk factors considered for stochastic analysis include commodity prices, gas bases, load forecast, carbon policy risk factors, forced outage rates, interest rates and capital costs. Applicable risk factors are selected and used in support of multiple business needs, including the Integrated Resource Plan, the budgeting process used to create the Cost of Service Study and Long-range Financial Forecast, portfolio risk assessments in support of energy marketing and risk management departments, and business case analysis used in partnership with Power Production staff to analyze large capital decisions.



A project completed in 2020 was a new area and trading floor that consolidated energy marketing, contract origination, resource planning and energy risk management staff on one floor to improve overall business function coordination.

Employees ramp up flexibility on coal units

A team effort to improve ramp rates on the coal units paid off in 2020, when abundant wind blew in favorable market opportunities.

Through research and testing the last couple years, staff has increased the ability of the coal units to stay online at lower minimums. This avoids costly thermal cycles, ensures reliability and keeps Associated from producing electricity not needed by members or not profitable in the marketplace.

The benefits were evident last fall, when energy marketers worked with Power Production staff to lower generation output. This made room for Associated to bring in negatively priced wind energy from a nearby regional transmission organization. Associated served member load with that low-cost wind energy and sent some on to other entities needing energy, creating incremental nonmember margin.

Negatively priced wind energy happens due to the growing influx of wind energy on the transmission system. High wind output often occurs during off-peak hours, when energy prices are lower. Transmission systems also can get congested with too much wind, and a utility must act to alleviate conditions.

Being aware of such conditions, Associated staff acted to make the most of members' generation and transmission assets to bring in revenue that helps offset members' cost of service.

That includes adapting a coal unit, not originally designed to do so, to operate with better ramp rates and lower minimums.

- For example, at New Madrid Power Plant, both 600-megawatt units operated in 2020 at new minimum loads of 170 MW, compared with previous minimums of 300 MW.
- Ramp rates (megawatts per minute) improved on all three units at Thomas Hill Energy Center, enabling units to safely move up or down in load more quickly. Staff also tuned Unit 3's minimum output to 170 MW from 300 MW and will continue to test and tune the unit into early 2021.
- The ramp rate at the Dell combined-cycle natural gas plant improved, and greater gains are expected with additional testing in 2021. The plant's minimum output was lowered from 120 MW to about 90 MW.

"The added flexibility has put the cooperative in a great position to capitalize on recent market trends. As we continue to integrate additional wind generation on our system, the greater operating range on our coal plants allows us to successfully manage those times when power demand is low and renewable output is high."

– Michael Denning, manager, energy marketing

New Madrid Power Plant

Transmission lines link member systems

Associated and the G&Ts work together to ensure resiliency of their transmission system, which is vital for delivering reliable, affordable and responsible electricity to members.

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

The six G&Ts and Associated have built and maintain one of the largest, integrated transmission systems among G&Ts in the country that is reliable, resilient and cost-effective.

In 2020, Associated and the G&Ts continued to address aging infrastructure, enhance resiliency and conduct studies to identify risk areas and determine the best projects to improve the system.

Together, Associated and the G&Ts are better able to meet requirements of the North American Electric Reliability Corp. Staff meets regularly to coordinate operations, share information and maintain strategic partnerships through the G&T Operations Committee and G&T Resiliency Initiatives Subcommittee.

Preparation pays off in successful NATF peer review

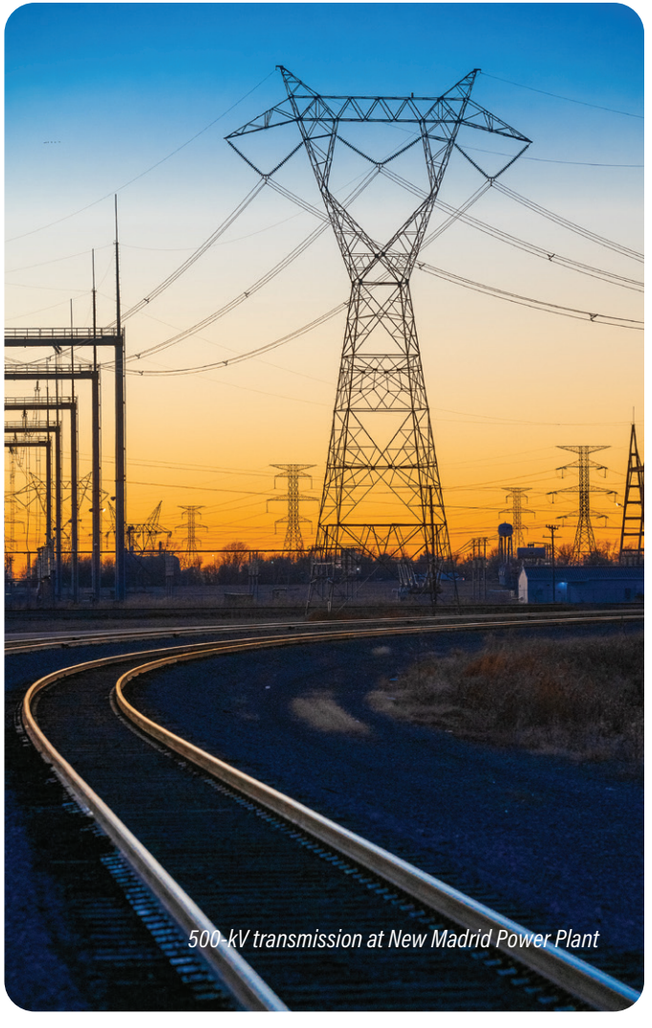
Associated participated in its second peer review with the North American Transmission Forum in February 2020, hosting about 45 outside subject matter experts from across the country (this was before pandemic social distancing requirements).

NATF is a group of utilities dedicated to information-sharing that leads to excellence in the reliable operation of the electric transmission system. Associated and member G&Ts have participated in the voluntary reviews to improve the resiliency and reliability of their transmission system. Associated staff also serves on the NATF board and as subject matter experts for other utilities' peer reviews.

The goal of this NATF review was to examine hundreds of principles identified for achieving operational excellence. The review team included NATF representatives, 36 subject matter experts representing 22 utilities, Associated and G&T staff.

After a year of preparatory work, Associated employees' pride in their work was evident by the amount of work completed since the 2015 review, said NATF review leaders, as well as by the open discussions that occurred in each of the nine operational areas evaluated.

Overall, reviewers identified 66 areas of strength; 11 noteworthy industry best practices; and 125 areas where suggested improvements could be implemented, which Associated considers a roadmap for future improvements.



500-kV transmission at New Madrid Power Plant

Teamwork leads to hosted EMS solution, reliability compliance

A culture of compliance connects Associated and its six G&T owners as they invest in staff, training, equipment and strategic planning. They work together to ensure the reliability of the bulk electric system and full compliance with requirements and standards of the North American Electric Reliability Corp. and SERC Reliability Corp.

In 2020, Associated and G&T owners finished work on a hosted energy management system – a project that began in 2018 as part of a comprehensive mitigation plan with SERC to ensure full compliance.

The Associated-hosted system monitors and controls generation and transmission assets for Associated and five of the G&T owners. It enables G&T system operators to access the hosted EMS to monitor and operate transmission facilities in their respective service areas.

As a joint registration organization, Associated and the G&Ts worked together to create the hosted EMS solution. This included developing implementation plans, budget estimates and support models. Associated upgraded EMS software and added hardware at Associated and the G&T regional dispatch centers. G&T staffs performed extensive work at substation facilities to support the Associated-hosted EMS and upgraded physical security at their dispatch centers. Associated also provided services to G&T owner Central Electric Power Cooperative, which developed its own control center.

Almost all system operators at the G&T dispatch centers are NERC certified; the remaining two will be by mid-2021. Associated provides continual training – online in 2020 due to the pandemic – to ensure safe, reliable operation of the bulk electric system. Associated has dedicated staff to keep operators abreast of changes, creating its own NERC-approved certification and training module and forming a training task force with the G&Ts to ensure compliance. In 2020, Associated provided 675 hours of training to about 30 G&T system operators, growing from just 395 hours in 2018.

Albert Tranchilla, cybersecurity specialist, received Associated's prestigious Excel Innovative Action award for his work in 2020 with one of the six G&T owners, Central Electric Power Cooperative. Collaborating with Central's staff, Albert helped the G&T become critical infrastructure protection compliant in the modification of its dispatch center to be a control center.

Interconnected, yet independent strength

Associated operates independently from organized markets, a long-held position evaluated and monitored through its long-term strategic planning process.

The strong performance of Associated's generation operations, of Associated's 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 buys and sells power with three regional transmission organizations (MISO, PJM and SPP), as well as other independent balancing authorities and marketing firms.

Associated relies on the Southwest Power Pool for reserve-sharing and on the Tennessee Valley Authority as its reliability coordinator.

Power plants keep operational excellence in line of sight

Reliability-centered maintenance, record runs, a new way of treating circulating water, well-managed maintenance outages … these measures and more connect back to the mission to provide members a reliable, economical power supply.

Operational excellence and safety guide the work of employees in the Power Production Division who met several goals in 2020. Among the highlights of the combined fleet was production of 23 million megawatt-hours, Associated's third highest all-time net generation.

Among the coal fleet:

- The coal fleet's availability factor, which is the percentage of time units are available to generate electricity, was 80.8% – just below the 81.2% target.
- Staff met contractual terms, despite an unexpected outage on the rotary car dumper. They unloaded eight million tons of coal, avoiding any penalties and safely managing coal stockpile inventories.
- Coal fleet improved its starting reliability, measured by having no derates or outages within the first seven days after breaker close following an outage, achieving 53% and exceeding its target for the year.
- The fleet achieved net heat rate of 9,959 Btu/kilowatt-hour, a measure of fuel efficiency; however, that is an increase from previous years due to increased cycling of the units to enable integration of wind energy on the system.

At New Madrid Power Plant:

- Achieved a top-10 record availability factor of 85.4%.
- Both units ran with a single cleaning outage, down from two a year, reducing costs.
- The plant had its fourth best planned outage factor of 7.19%.

At Thomas Hill Energy Center:

- Unit 3 set a continuous run record of 296 days, the longest operational run for any unit within Associated's fleet.
- The plant marked its lowest station derate factor of all time at 0.63%, as well as its second lowest net plant heat rate of 9,801 Btu/kWh.
- The plant had a top-10 capacity factor of 65.2%, helped by top-10 records from all three units.
- Completed planned maintenance outage on Unit 3, including a rewind of the generator and installing an updated distributed control system.

Gas fleet achievements:

- Generated a net 10.3 million MWh, second highest for the gas fleet.
- Capacity factor was 40.9%, the second-best record for the fleet.
- Set an availability factor of 85.1%, just short of the 87.9% target.
- Achieved a "best-in-class" start reliability of 98.1%. Defined differently than a coal unit, starting reliability on a gas unit is successful generator circuit breaker close after a start is initiated.
- Set a record of 636 consecutive days with a gas unit online, a result of low natural gas prices and reliable performance. While that streak ended in October 2020, there were only five days in 2020 when a gas unit was not online.
- Among the simple-cycle units, the Essex and Holden plants achieved record capacity factors, as well as record net generation driven by low natural gas prices. The Nodaway plant had 100% starting reliability.

In tandem with operational records, the gas fleet executed several projects, including installation of a new distributed controls system to improve the reliability of the Dell Power Plant, where the outage was shifted from spring to fall in response to the pandemic. A planned maintenance outage at Chouteau Power Plant also was moved from spring to fall, demonstrating staff's flexibility.

While turbines turn, work occurs across the fleet to ensure safe, reliable and compliant operations, including:

- Reliability-centered maintenance incorporated engineering projects into new enterprise asset management system before commissioning, making some 700 drawings and other assets for new light ash systems at New Madrid ready for reference.
- NERC compliance group met three NERC standards related to generator modeling and protection and trained staff at all generating stations on the standards related to their work.
- Staff completed cyber assessments on plant control systems and developed a plant control system cybersecurity program for implementation in 2021.

Safety stays top of mind

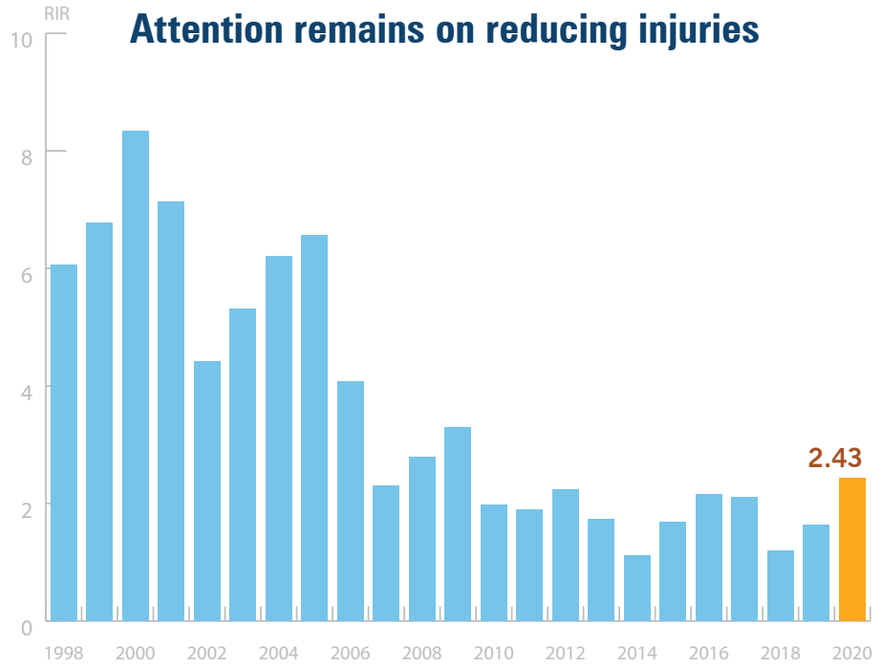
One injury is too many, and Associated's downward trend for recordable incidents was interrupted in 2020. Blame it on the pandemic, but 2020 results did not meet the cooperative's expectations.

Associated has initiated back-to-basics tactics and other measures to ensure all employees focus on their own safety and the safety of others.

"Clearly, I am disappointed with our safety performance in 2020, but we can utilize the lessons learned from our experiences last year to improve our performance going forward," said Ken Wilmot, chief operations officer and senior vice president. "Already we have implemented safety practices to improve safety performance. Each coal plant also developed a comprehensive safety plan for their facility to assist plant leaders and staff in recognizing and eliminating potential safety hazards."

Safety initiatives move forward

- At the coal plants, staff successfully converted its lockout, tagout program from a tags-only to one with padlocks and tags to prevent an employee from energizing a system being worked on by another employee. Both plants added hardware, training and procedures to protect employees from hazardous energy and bring Associated in line with industry best practices.
- Associated's gas plants already use padlocks in their LOTO procedures when performing maintenance on equipment. Procedures at the Dell Power Plant were revised as part of Associated's transition to self-operation of the plant that began fall 2019.
- The Dell Power Plant had no recordable or lost-time accidents in 2020.
- The entire gas fleet finished 2020 with zero lost time due to safety-related events.
- Safety is a priority in its contracts too, including the operations and maintenance contracts Associated has with Siemens for its St. Francis and Chouteau combined-cycle power plants.



Associated ended 2020 with an OSHA Recordable Incident Rate (RIR) of 2.43, compared to the 2019 rate of 1.63. The 2020 RIR does not include COVID OSHA recordable cases in 2020. RIR represents the number of injuries per 100 employees requiring more than first-aid treatment.

Chemical lab technicians Kevin Davis and Christopher Philipps work safely, wearing masks during the pandemic, at New Madrid Power Plant.

Stewardship stems from serving members

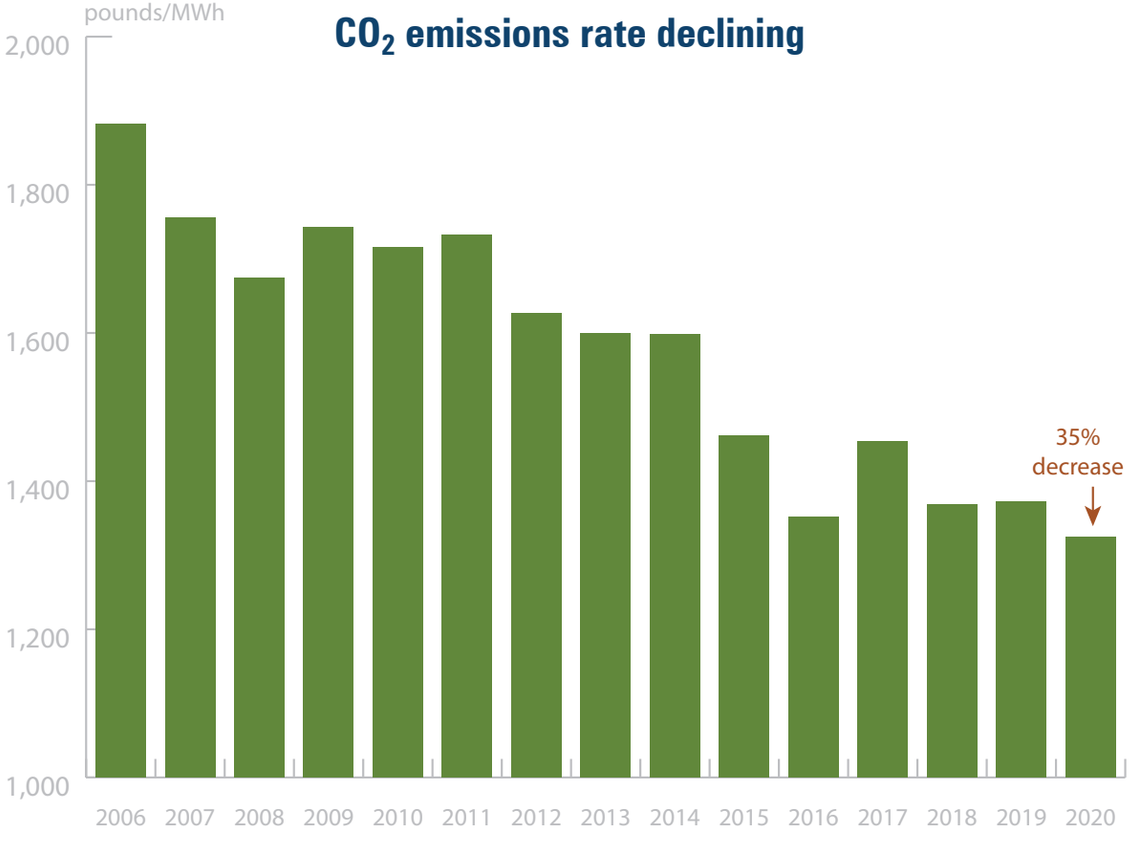
Associated's environmental stewardship connects back to members, who depend on natural resources for their livelihoods and quality of life in their communities.

Associated has invested more than $1 billion in the past 25 years to improve air quality – and achieved significant results since 1994. It continues to do so with its research and commitment to air quality.

- Its achievements include converting all coal units to low-sulfur coal, reducing sulfur dioxide emissions more than 90% since 1994.
- Later, Associated was one of the first utilities to construct selective catalytic reduction equipment on large cyclone units, reducing nitrogen oxide emissions about 80% since 1994.
- Low-sulfur coal also is lower in mercury. Associated further reduced mercury emissions – about 85% overall since 2010 – with use of a refined coal additive and construction of an activated carbon injection system.

Associated also has steadily managed its carbon footprint, despite decades of regulatory uncertainty, by diversifying its generating resources and improving the efficiency of its units. Overall, the cooperative's carbon dioxide emissions per megawatt-hour produced has continued to decline.

Certainty on the regulation of carbon emissions remains elusive. The Environmental Protection Agency put forth a new plan, the Affordable Clean Energy (ACE) rule, under the Trump Administration. It was released in August 2018, replacing the Clean Power Plan. In January 2021, the D.C. Circuit Court vacated the ACE rule, sending it back to EPA to develop a new rule.



Since 2006, when Associated's first contracted wind farm was complete, Associated has reduced its carbon emissions rate 35% for total generation, including member and nonmember energy sales.

Associated continues to break ground on environmental controls

Associated's commitment has led it to invest in environmental controls to improve air quality, transform once-mined land, preserve habitat for wildlife, innovate and initiate measures to protect resources and ensure compliance. Associated does this in balance with its mission to generate reliable, economical power.

In 2020 Associated constructed several projects to meet Coal Combustion Residuals and Effluent Limitation Guidelines, commonly referred to as CCR and ELG. First issued in 2015, and constantly changing, the regulations set stricter coal-ash handling and wastewater standards for coal-based power plants.

Work on $115 million in capital projects, which are in addition to previous projects to ensure compliance, began in 2014 with study, planning and engineering and then construction in 2019-2020.

At both plants, Associated closed ash ponds and reconfigured basins to improve settling of coal fines and other materials from water. Conveyance ditches were improved to prevent erosion and extend the life of ditches. Concrete pads were built for storing bottom ash, which is sold to vendors for recycling. In coal pile runoff ponds, new concrete floors and walls will make cleaning and maintenance easier.

At Thomas Hill Energy Center, a 70-by-200-foot concrete dewatering tank for handling bottom ash from units 1 and 2 was finished, and staff is completing piping and recirculating water systems on this $17 million project. Ash is now sluiced to the tank, where it settles out of the water and then is scooped out and placed on a concrete pad to be removed or recycled. The closed loop system returns water for reuse, reducing water needs by about 12 million gallons annually.

Major CCR & ELG projects:

- Associated completed all groundwater sampling at its coal plants and posted results and operational data on its public website to ensure compliance and transparency.
- A pneumatic system to take fly ash from environmental controls and light ash from air heaters inside the plant to storage was installed and commissioned at New Madrid.
- A submerged flight conveyor system for bottom ash is tracking to be completed on time at New Madrid.

Also in 2020, staff:

- Participated in 22 governmental agency inspections and reviews related to environmental, health and safety without incident or citations. Staff also focused on the internal audit process, reviewing the past three years, updating protocols and integrating quality assurance measures into the process.

HR connects people with purpose

Associated's Human Resources Division connects employees with the culture, work and purpose of the organization, empowering them to meet its member-focused mission. Their work ranges from developing proactive business solutions, wage and salary toolkits, labor relations, recruitment, succession planning, development and enhancing employee engagement.

In 2020, staff led the charge to implement first phases of Workday, new human capital management software, virtually onboarded employees during a pandemic, served on the pandemic task force – and looked ahead to ensure Associated's workforce is fit for future challenges too.

Among the highlights in the division:

- To build bench strength for hard-to-fill jobs, staff partnered with Power Production to develop and launch a rotational engineering development program. New engineering graduates gain hands-on, diverse experience in the power industry – and a job after successful completion of the 24-month program.
- Staff launched dual-career paths, the second phase of its multistage professional growth opportunities initiative began in 2018 to retain and attract top talent. Staff knows it takes diverse skills with differing aspirations and career goals at Associated. Dual paths enable pursuit of leadership or individual contributions. So far, nine jobs offer a dual path with the same pay for being an individual expert or working in a leadership position.
- Human Resources launched its Power Forward initiative, providing online resources and workshops in key competencies at Associated to enable employees to build their own development plans.

Patti puts pen to protocols

Karen Patti, supervisor, benefits and wellness, is the woman who put together many of the pandemic-related protocols at Associated that are still guiding employees. She was recognized with Associated's prestigious Excel Award for Employee of the Year.

"She has been a shoulder to lean on when times are tough, she always provides her well-thought-out opinions even if they are in conflict with mine or others on the task force, but most of all, she has been instrumental in countless initiatives over the past nine months. Her actions have had massive impacts on the safety of our employees and the reliability of our operations," said her peer nominator.

Collaboration leads to contract extension

Continuity of skilled craftsmanship also is vital to the operations and maintenance of Associated's power plants. Working in 2020 with employees represented by the International Brotherhood of Electrical Workers Local 53 led to a three-year extension of the current collective bargaining agreement in early 2021.

"Our efforts to collaborate with the IBEW continue to yield benefits. Being able to reach agreement on an early offer to extend the contract is a great example of that collaboration."

– Shawn Calhoun, senior vice president and chief human resources officer

Thomas Hill Energy Center

'Empower, protect, connect' directive endures for IS division

Connections are core to the mission of Associated's Information Services Division, ranging from partnering with other divisions and G&T owners to networks and virtual connections that enable work to be done efficiently and securely.

In 2020, Information Services teams were critical to ensuring work continued during the COVID-19 pandemic; their contributions are highlighted on Page 9.

Information Services also successfully achieved all its projects to improve operations, including:

- Worked with reliability compliance staff and G&T member owners to install hardware and incorporate substations and related communications equipment to support a hosted energy management systems with five of its G&T owners to ensure SERC compliance.
- Implemented the Infor enterprise asset management system, a move to a cloud-based system that replaces a 2004 system to meet evolving needs of the workforce.
- Partnered with Human Resources to launch Workday, replacing three systems, eliminating manual processes and improving mobile access to data and reports. More phases of Workday will come in 2021.

Derek Hime, supervisor, applications development, said, "Historically, the majority of time has been devoted to keeping the wheels on the legacy systems, providing little opportunity to innovate or enhance capabilities for our business partners. Workday opens up opportunities far beyond what we could have considered before."

"When the Workday implementation started in February, we didn't realize we would soon be in an all-virtual world," said Kristin Budzyna, human resources business partner. "However, the team pivoted and successfully completed all required process evaluations, configuration decisions and ultimately implementation virtually. There will be a lot of value added with this new system."

Adding to that list, IS teams:

- Rebuilt and redesigned the data center to increase reliability, improve scalability and provide testing/lab suites.
- Worked with Power Production to implement ImageSite, a solution for accessing and maintaining more than 30,000 plant drawings and documents.
- Replaced multiple tools with one, ServiceNow, to manage support ticketing, projects, IT asset management, change management and incident response.
- Supported control system upgrades at two power plants with network design and cybersecurity expertise. Typically, staff travels to the vendor to build the system and perform factory acceptance testing. During the pandemic, Associated built the system on site, shipped it to the vendor for testing, who then shipped it back for installation.
- Provided new situational awareness tool for system operators that integrates contingency analysis and weather data, alarms and geographical information systems data into one map display.
- Continued to expand real-time contingency analysis to each G&T, which requested the tool include the 69-kV system in addition to the high-voltage system used by Associated as the balancing authority.

Member relations keep systems connected

Associated's Member Services and Corporate Communications staff quickly adapted to keep member systems informed throughout 2020, connecting them to a range of COVID-19 information, resources and updates on Associated's operations and performance.

While the pandemic prevented favored face-to-face communications with members, Associated staff relied on virtual meetings, videos, websites, podcasts, newsletters and the old-fashioned phone call.

Instead of hitting the road in spring 2020 for annual update meetings with the G&Ts and their distribution member systems, Associated's executive leaders presented financial and operational updates with a video.

For the first time in almost 60 years, Associated's annual meeting – a three-day event each June packed with industry speakers – was a virtual meeting to conduct business outlined in bylaws.

Yet, working with its statewide organizations, Associated found ways to share information with member cooperatives, including distribution cooperative managers' meetings and the range of member advisory meetings that enable Associated to listen and learn the needs of member systems.

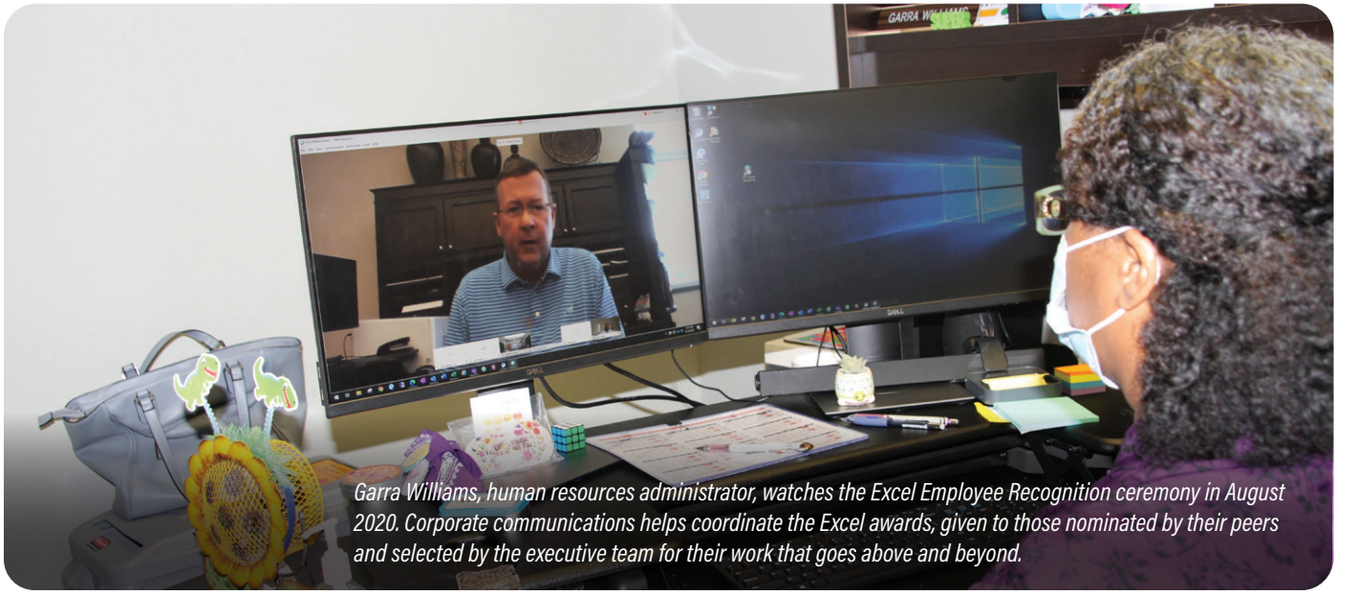
When possible, Chief Member Relations Officer Joe Wilkinson held one-on-one meetings with managers of distribution systems and their boards of directors, meeting with 44 of the 51 managers last year.

Staff provided a plethora of information and communication pieces on the pandemic and assistance available through the Coronavirus Aid, Relief and Economic Security (CARES) Act and other programs.

The board approved staff's collection of data on member systems from January through August 2020 to help board members monitor pandemic impacts on members. It included aggregated data on residential, commercial and industrial members' energy sales, nonpayment and lost revenue and delinquent payments.

In general, data showed member loads remained steady, although revenue was affected early on. Member distribution cooperatives relieved financial pressures felt by member-owners by waiving various fees, offering discounts and giving capital credit reimbursements ahead of schedule. They also stopped disconnects and worked with members struggling to pay their bills.

Along with information to members, corporate communications staff worked with leadership to keep employees posted on pandemic protocols, safety practices, operational changes, return-to-office plans and more. Using daily updates in the beginning, the team transitioned to an intranet page devoted to pandemic stories, announcements and information. Staff wrote or edited about 40 update emails or intranet stories for employees and increased the use of video to communicate outside Teams and WebEx meetings.



Garra Williams, human resources administrator, watches the Excel Employee Recognition ceremony in August 2020. Corporate communications helps coordinate the Excel awards, given to those nominated by their peers and selected by the executive team for their work that goes above and beyond.

Serving members rolls on and past the pandemic

The pandemic, however, did not slow work on other services provided to member systems, including:

- 2020 was the largest year to date for Power for Progress matching grant dollars, which support projects that increase and retain kilowatt-hour sales, grow the local economy or assist with critical needs of member-consumers, such as housing.

Last year, 35 member systems partnered with Associated to invest $234,440 of grants into load growth initiatives. These included manufacturing equipment for an industrial member, public infrastructure for a residential housing development and support of local economic development organizations.

- In a continuing initiative, Associated partnered with the G&Ts on their regional economic development work plans. Four plans are in progress. Associated also began a strategic review of its member-led Power for Progress program to ensure it's hitting the mark, involving member systems' input in the process.
- Use of the ChooseEV program grew. Provided by Associated to member systems in late 2019, the web-based program provides information and calculators on electric vehicles, making local cooperatives the trusted source for their members. Fifty G&T and distribution cooperatives are using ChooseEV resources on their websites.
- Associated's Take Control & Save energy efficiency program continues to enable member-owners to save on their electric bills. 2020 rebates amounted to $2.5 million. To date, program measures will save an estimated 2.7 billion KWh over the lifetime of funded equipment and improvement, such as Energy Star appliances and energy audits.
- First offered in 2003 and revised in 2020, Associated's Green Power Program was expanded to enable commercial and industrial member-owners to buy renewable energy credits for a part or all their energy needs from their local cooperatives. Residential members continue to have that option too.
- Keeping with the cooperative principle of informed, involved members, communications staff launched a balanced generation campaign, providing a range of communication products to help member systems explain to their members the benefits of Associated's diverse resources.

Co-ops bring first electric bus

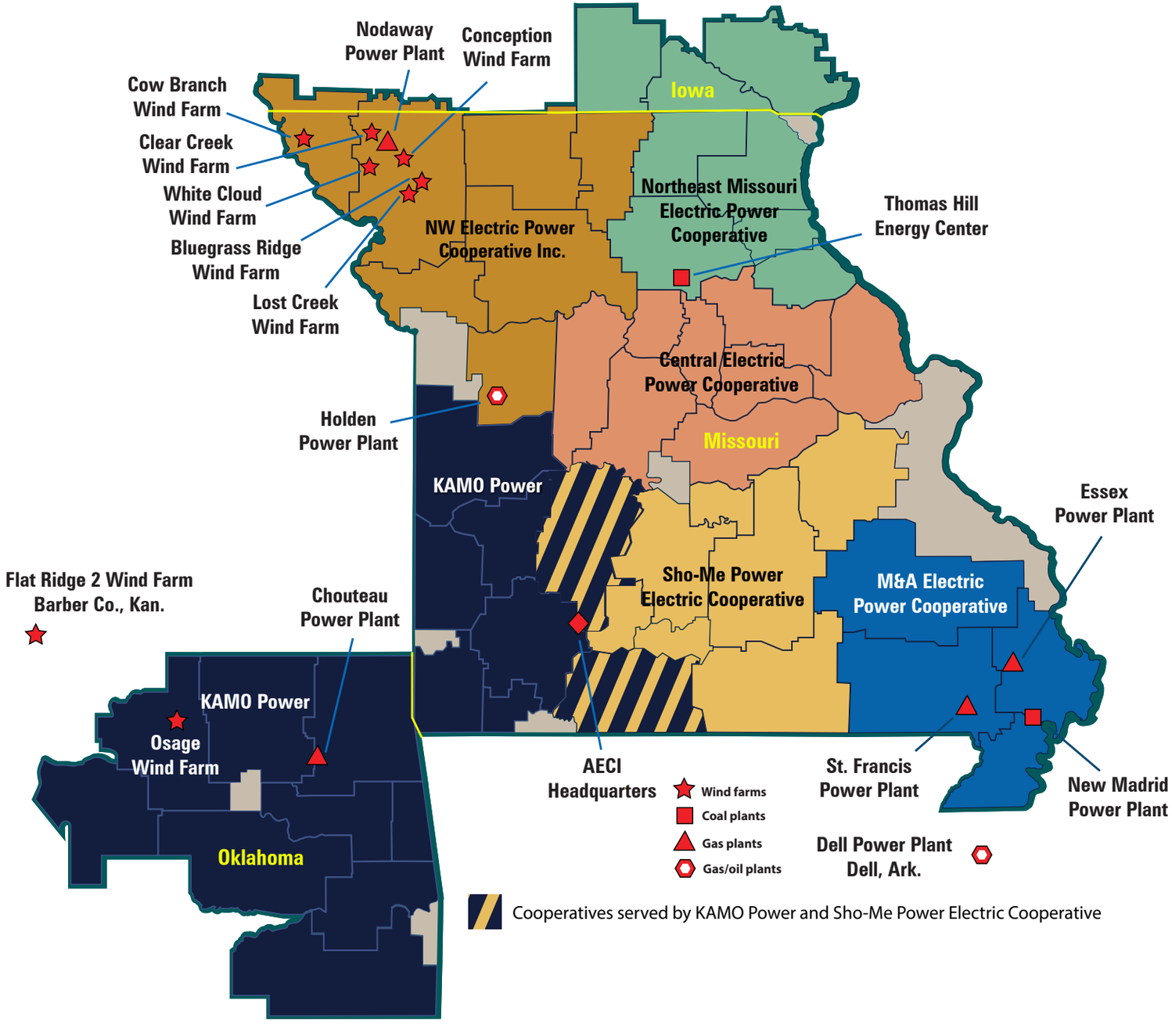
Associated worked with Lewis County Rural Electric Cooperative to help Knox County and Lewis County school districts buy the first electric school buses in Missouri. Arriving in 2021, each bus is expected to add 3,500 kilowatt-hours monthly on Lewis County REC's system.

Associated staff serves on the statewide Volkswagen Environmental Mitigation Trust advisory committee and advocates for cooperative-served projects, such as electric buses and direct current fast-charging stations.

It's just one example of the assistance provided through Associated's Power for Progress economic development program, launched in 2017. Program assistance includes financing, learning, project management and distribution rate analysis to help cooperative communities.

Photo courtesy of Rural Missouri

Three-tiered system serves members' power needs



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

Central Electric Power Cooperative – Jefferson City, Missouri

• Founded in 1949 • 34 counties served • 1,629 miles of line energized

- 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 in 1941 • 51 counties served • 2,601 miles of line energized

- 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 in 1948 • 18 counties served • 1,025 miles of line energized

- 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 in 1948 • 33 counties served • 1,003 miles of line energized

- 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 in 1949 • 32 counties served • 1,710 miles of line energized

- 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 in 1941 • 29 counties served • 1,829 miles of line energized

- 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

Ten-year statistical summary

Year (calendar year basis)	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Operating revenue (in thousands)	**$1,135,982**	$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
Sales (kWh in thousands)	**27,762,367**	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
Total member sales	**18,734,107**	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
Central Electric Power Cooperative	**3,734,710**	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
KAMO Power	**6,978,652**	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
M&A Electric Power Cooperative	**1,732,893**	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
Northeast Missouri Electric Power Cooperative	**1,460,073**	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
NW Electric Power Cooperative Inc.	**1,723,436**	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
Sho-Me Power Electric Cooperative	**3,104,343**	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
Total nonmember sales	**9,028,260**	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
Peak hour member demand (MW)	**4,369**	4,539	5,104	4,374	4,379	4,506	4,598	3,905	4,354	4,441
Member load factor (%)	**48.2**	47.8	44.0	46.3	46.1	44.7	45.8	53.1	46.7	47.3
Member load growth (%)										
Energy	**(2.9)**	(3.4)	11.9	(0.3)	(0.2)	(4.1)	2.0	1.4	(2.8)	(1.9)
Demand	**(3.7)**	(11.1)	16.7	(0.1)	(2.8)	(2.0)	17.7	(10.3)	(2.0)	(1.2)
Investment in facilities (original cost in thousands)	**$4,555,644**	$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
Total assets (in thousands)	**$3,028,804**	$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
Long-term debt (in thousands, excluding current maturities)	**$1,551,646**	$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
Total capacity (MW) (see capacity notes, back cover)	**5,703**	5,657	5,655	5,700	5,700	5,891	5,827	5,787	5,895	5,895
Revenue from members (mills per kWh)	**46.98**	48.19	47.33	51.48	51.57	51.16	49.94	48.93	49.21	47.51

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 and/or dispatched by Associated; and purchased power.

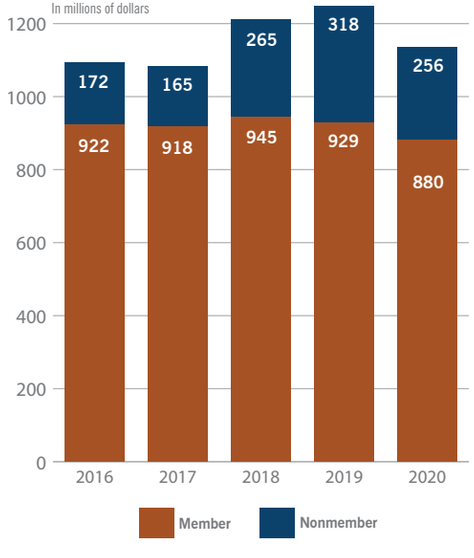
Pursuant to the wholesale power contract, each member is obligated to pay scheduled demand and energy charges designed to cover all of Associated's costs as determined by Associated's board of directors. These rates are the same to each member. At such intervals as it deems appropriate, but not less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

Earnings overview

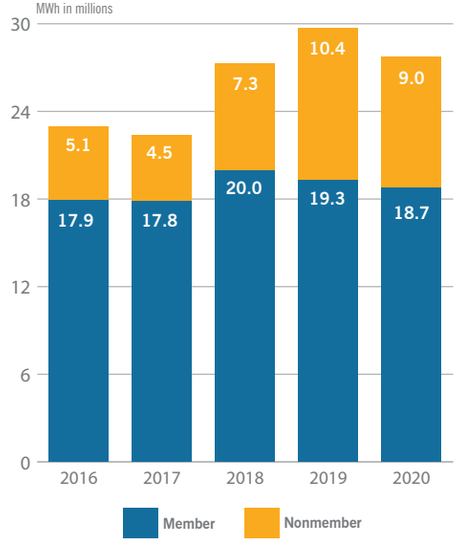
Associated recorded another year of strong financial performance in 2020. The outbreak of the COVID-19 pandemic brought unique challenges to Associated and cooperatives across the country. However, the pandemic did not significantly impact Associated's business operations or financial performance. Associated performed extremely well with total revenue exceeding $1.1 billion along with well-managed operating expenses that resulted in a net margin of $51.4 million.

These strong financial results allowed Associated's board to take several rate-related actions, including unbudgeted rate discounts to members of $25.0 million delivered in September and December 2020, the deferral of $27.0 million of member revenue and the write-off of $10.1 million of previously deferred expenses. Absent these actions, Associated's margin would have been

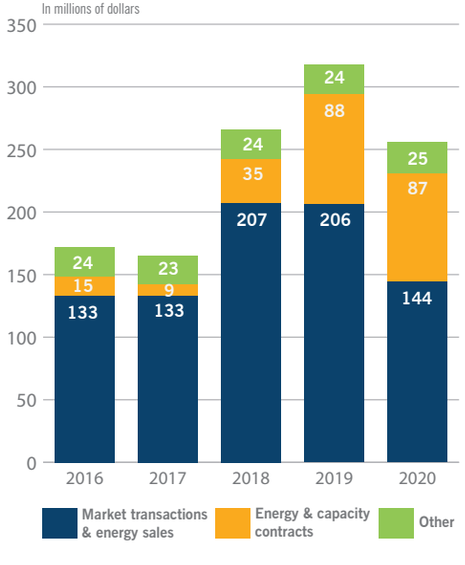
Operating revenues – $



MWh sales volume



Breakdown of nonmember sales revenue – $



$113.5 million.

During 2020 there were also planned discounts in place, approved in 2019, which included a $49.6 million demand rate discount and a $9.4 million energy rate discount. In total, the 2020 member discounts amounted to about $84.0 million.

With the strong financial performance in 2020, Associated maintained its excellent credit ratings and continued to strengthen equity to capitalization at 31.0% compared to 30.4% in 2019. The results of 2020 continued to strengthen Associated's financial position for the future. The following are some significant factors that impacted 2020 financial performance as compared with 2019.

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 2020 totaled $880.1 million, a decrease of $49.2 million from 2019 revenue, as a result of the following factors:

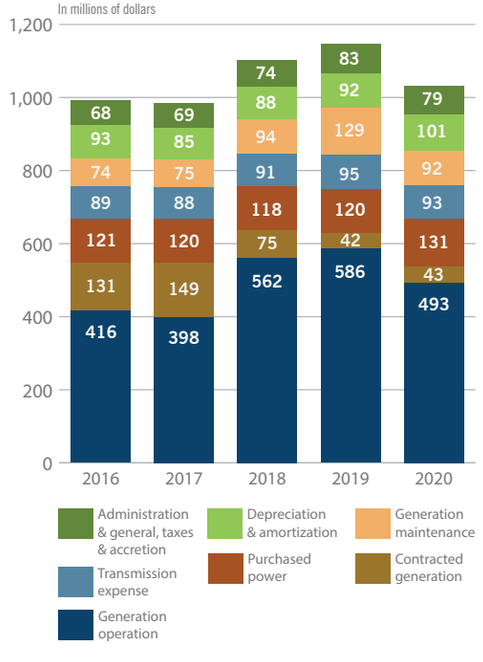
- Member energy sales volumes in 2020 were 18,734 GWh, a decrease of 2.9% from 2019 volumes.
- Member base billing demand in 2020 was lower than 2019 by 1.0%.
- Member rate discounts totaled $84.0 million in 2020, an increase of $19.0 million from the 2019 member rate discounts of $65.0 million.
- Associated's board deferred $27.0 million and $34.0 million of member revenue collected in 2020 and 2019, respectively, which will be used to offset future member revenue requirements and provide future rate stability. As of Dec. 31, 2020, a total of $147.6 million in deferred revenue is subject to refund.

Nonmember revenue decreased by $62.1 million in 2020, primarily due to a decrease in market transactions of $60.4 million as a result of decreased sales into the MISO, SPP and PJM markets. This decrease was driven by a 13.5% reduction in nonmember MWh sales and a decrease of 9.8% in average market price for energy from $26.68/MWh in 2019 to $24.07/MWh in 2020.

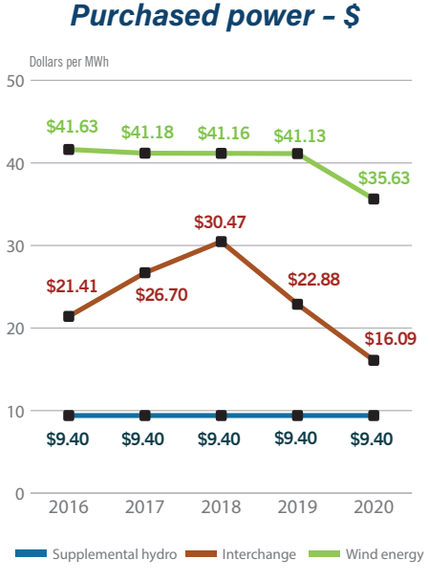
Operating expenses

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 pow-

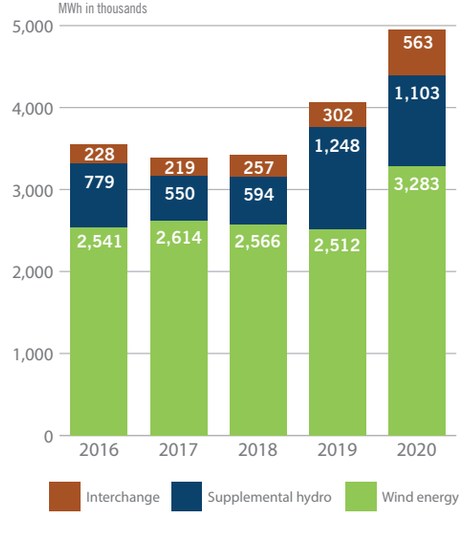
Operating expenses – $



Purchased power – $



Purchased power – MWh



er to nonmembers. Total operating expenses decreased $115.2 million in 2020 compared to 2019, primarily due to changes in generation operation and generation maintenance as detailed below.

Generation operation expense, which largely consists of fuel, decreased $93.6 million or 16.0% compared to 2019. The decrease in fuel costs was due to lower coal and natural gas prices and decreased generation at Associated-owned generation units, which produced 23,325,319 MWh in 2020 compared with 26,212,341 MWh in 2019.

Coal generation decreased 12.9%, and gas generation decreased 8.5% compared to 2019. The decrease in coal generation was due primarily to outage time at Thomas Hill Unit 3 and low natural gas prices that resulted in gas units being dispatched ahead of coal units for much of the year. For the coal fleet, fuel cost was $19.00/MWh for 2020, a decrease of 3.1% from $19.61/MWh in 2019. The decrease in gas generation at the Dell and Chouteau power plants was due primarily to lower nonmember sales volumes. For the gas fleet, fuel cost was $15.39/MWh for 2020, a decrease of 12.5% from $17.59/MWh in 2019. The generation mix for Associated's owned assets in 2020 consisted of 56.0% coal generation and 44.0% natural gas generation.

Generation maintenance expense decreased $36.8 million, or 28.6% compared to 2019. The decrease was primarily due to the elimination of the deferred maintenance program at the end of 2019, which resulted in additional expense in 2019. Also contributing to the decrease were lower variable fees that resulted from decreased generation at the gas plants.

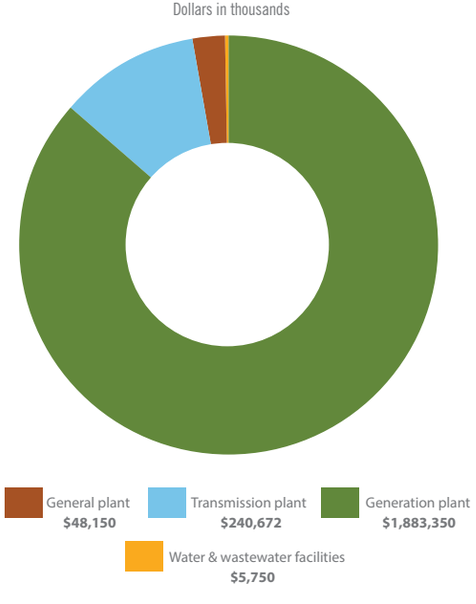
Purchased power expense, which includes energy purchased in the wholesale market and from eight wind farms as well as supplemental hydropower, increased $10.9 million, or 9.1%, compared to 2019. The increase was primarily due to an increase in wind farm purchase volume from two new wind farms that became commercial in 2020 with Clear Creek wind farm in May and White Cloud wind farm in December.

Significant balance sheet changes

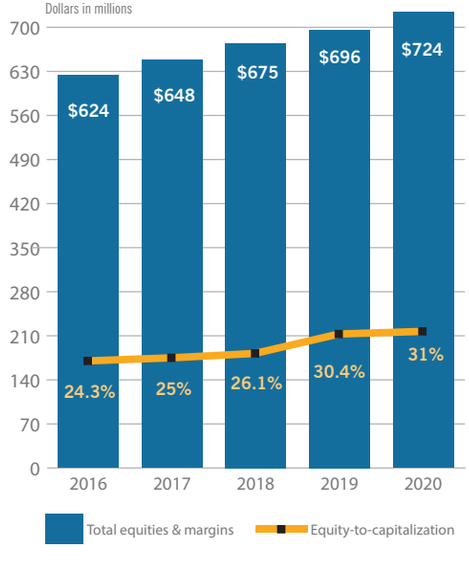
Associated's balance sheet is a statement of the assets, liabilities and capital at a particular point in time. Significant changes in the balance sheet at Dec. 31, 2020, from Dec. 31, 2019, include:

- Total utility plant, net of accumulated depreciation, at Dec. 31, 2020, was $2.2 billion, an increase of $104.0 million compared to 2019. Utility plant including work in progress, at original cost, increased $197.4 million. This increase was primarily due to transmission network

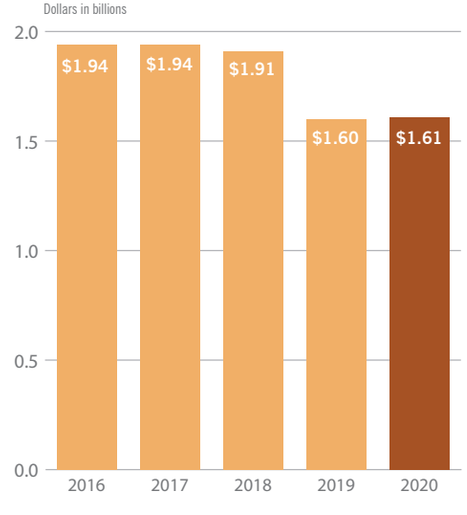
Net utility plant 2020



Total equities and margins & equity-to-capitalization ratio



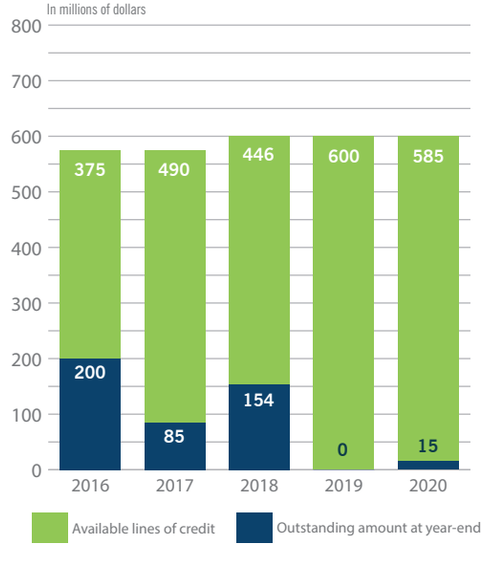
Total long-term debt



upgrades, boiler component, generator and environmental projects at New Madrid Power Plant, a compressor mass flow project at the Chouteau Power Plant and various ongoing projects at the Thomas Hill Energy Center. Offsetting these plant additions was an increase in accumulated depreciation of $93.4 million.

- Other restricted and designated assets decreased $179.1 million, primarily due to the depletion of the RUS Cushion of Credit in 2020 and the subsequent reclassification of funds segregated for the Generation, Environmental and Insurance Fund and the deferred revenue fund to designated cash and cash equivalents.
- Designated cash and cash equivalents increased by $260.5 million due to the reclassification of funds segregated for the Generation, Environmental and Insurance Fund and member revenue subject to refund that were previously included in other restricted and designated assets.

Liquidity through credit facilities – $



- Restricted and short-term investments decreased by $73.9 million due to the depletion of the RUS Cushion of Credit in 2020.
- Fuel inventory increased by $10.5 million, primarily due to a 52.1% increase in tons of coal on the ground as compared to Dec. 31, 2019.
- Patronage capital increased $27.4 million as a net result of $51.4 million in net margins for the year and patronage capital retirements of $23.9 million. At Dec. 31, 2020, patronage capital and other equities were 31.0% of total capitalization.
- Long-term debt, including current maturities, increased $15.3 million. Associated prepaid $261.2 million of FFB debt through use of the Cushion of Credit investment and also made principal payments of $67.7 million, but these decreases were more than offset by $250.0 million in private placement notes used for refinancing the prepayment of FFB debt; $79.6 million in construction loan advances; and a $15.0 million advance on a line 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). As a result of the provision, Associated was able to prepay older, higher interest rate FFB debt with an average rate of 3.93% and 4.86% in 2020 and 2019, respectively. The average interest rate on long-term debt was 3.56% in 2020 and 3.86% in 2019.
- Deferred regulatory credits, including the current portion, increased $30.3 million. The increase was due to the deferral of $27.0 million of member revenue, an increase of $4.6 million in deferred gains on hedging activities offset by $1.4 million of previously deferred revenue being amortized into income over the depreciable life of the purchased New Madrid Unit 1 assets.
- Accounts payable increased $37.5 million. General payables increased $45.4 million primarily due to larger capital project accruals, as compared to 2019, and an increase in retainage payable of $4.5 million. These increases were partially offset by a $12.4 million decrease in accrued gas purchases.

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 Dec. 31, 2020, patronage capital and other equities were $724.5 million.

Associated maintains substantial liquidity through credit facilities with several lenders. As of Dec. 31, 2020, total credit facilities equaled $600 million, and total available credit under these agreements was $585 million. Please see footnote 12 to the financial statements for additional information regarding long-term debt and liquidity instruments.

Working capital at Dec. 31, 2020, was $366.6 million. This represents a $175.9 million increase from 2019. Associated's current ratio was 2.17 and 1.63 at Dec. 31, 2020 and 2019, respectively.

In management's view, Associated's financial position at the end of 2020 continues to provide a strong foundation and positive outlook with ample generation resources and a strong liquidity position that will help us meet the challenges of the future.

AECI relies on diverse power resources

Associated's coal-based power plants:	MW capacity
New Madrid Power Plant	1,200
Thomas Hill Energy Center	1,153
Associated's combined-cycle, gas-based power plants:	
Chouteau Power Plant	1,062
Dell Power Plant (dual fuel)	580
St. Francis Power Plant	501
Associated's peaking gas-based power plants:	
Essex Power Plant	107
Holden Power Plant (dual fuel)	321
Nodaway Power Plant	182
Contracted power sources:	
Hydroelectric peaking power, Southwestern Power Administration	478
Wind energy *	119
Total	**5,703**

*Associated contracts with eight wind farms totaling 1,240 MW of nameplate capacity. Staff estimates 6% to 10% of that as capacity for peak planning purposes (about 119 MW for summer peak and 72 MW for winter peak).

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

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417-881-1204, www.aeci.org

An equal opportunity employer and provider/disability/veteran.

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ASSOCIATED ELECTRIC COOPERATIVE INC.

Independent Auditor's Report and Consolidated Financial Statements

December 31, 2020 and 2019

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

Report on the Financial Statements

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, 2020 and 2019, 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.

PRAXITY
Empowering Business Globally

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, 2020 and 2019, and the results of its operations and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we also have issued our report dated February 12, 2021, on our consideration of Associated's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of Associated's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Associated's internal control over financial reporting and compliance.

BKD, LLP

Oklahoma City, Oklahoma
February 12, 2021

Associated Electric Cooperative, Inc.

Consolidated Balance Sheets
December 31, 2020 and 2019
(In Thousands of Dollars)

Assets

	2020	2019
Utility Plant		
Electric plant in service	$ 4,373,761	$ 4,240,042
Construction work in progress	181,883	118,193
	4,555,644	4,358,235
Less accumulated depreciation	(2,377,722)	(2,284,329)
Total utility plant	2,177,922	2,073,906
Other Property and Investments		
Member construction advances, net	18,102	19,288
Nonutility property	31,663	31,663
Net investment in direct financing leases	2,951	3,281
Total other property and investments	52,716	54,232
Restricted and Designated Long-Term Assets		
Other restricted and designated assets	25,070	204,150
Investments in associated organizations, at cost	27,764	28,198
Total restricted and designated long-term assets	52,834	232,348
Other Long-Term Assets		
Deferred regulatory debits	40,913	46,239
Other deferred assets	23,496	26,611
Total other long-term assets	64,409	72,850
Current Assets		
Cash and cash equivalents	132,588	133,011
Designated cash and cash equivalents	260,482	-
Restricted short-term investments	-	73,921
Accounts receivable	113,922	128,517
Materials and supplies inventory	86,680	88,436
Fuel inventory	54,728	44,252
Other current assets	23,032	18,170
Current portion of deferred regulatory debits	9,491	8,586
Total current assets	680,923	494,893
Total assets	$ 3,028,804	$ 2,928,229

See notes to consolidated financial statements.

Associated Electric Cooperative, Inc.

Consolidated Balance Sheets, continued

December 31, 2020 and 2019

(In Thousands of Dollars)

Capitalization and Liabilities

	2020	2019
Patronage Capital and Other Equities		
Memberships	$ 12	$ 12
Patronage capital	688,052	660,615
Other equities	55,543	55,543
Accumulated other comprehensive loss	(19,122)	(19,872)
Total patronage capital and other equities	724,485	696,298
Long-Term Debt, Excluding Current Maturities		
Federal Financing Bank	814,396	1,005,738
CoBank	169,321	175,713
National Rural Utilities Cooperative Finance Corporation	26,667	30,000
Private placement notes	541,262	309,517
Total long-term debt, excluding current maturities	1,551,646	1,520,968
Other Long-Term Liabilities		
Deferred regulatory credits	303,812	277,152
Other deferred liabilities	45,957	42,847
Asset retirement obligations	49,083	46,990
Accumulated provision for postretirement benefits	39,519	39,761
Total other long-term liabilities	438,371	406,750
Current Liabilities		
Accounts payable	160,278	122,753
Current maturities of long-term debt	59,366	74,701
Payable to member cooperatives	38,521	46,699
Other current and accrued liabilities	42,268	39,783
Current portion of asset retirement obligations	7,636	17,656
Current portion of deferred regulatory credits	6,233	2,621
Total current liabilities	314,302	304,213
Total capitalization and liabilities	$ 3,028,804	$ 2,928,229

See notes to consolidated financial statements.

Associated Electric Cooperative, Inc.

Consolidated Statements of Revenues and Expenses

Years Ended December 31, 2020 and 2019

(In Thousands of Dollars)

	2020	2019
Operating Revenues		
Members	$ 880,093	$ 929,323
Nonmembers	255,889	317,975
Total operating revenues	1,135,982	1,247,298
Operating Expenses		
Generation operation	492,856	586,417
Generation maintenance	91,790	128,588
Power purchased	130,872	120,005
Transmission	92,892	94,918
Depreciation and amortization	101,520	92,184
Contracted generation	43,070	42,122
Administrative and general	69,897	75,009
Taxes	5,651	6,075
Accretion of asset retirement obligations	3,310	1,737
Total operating expenses	1,031,858	1,147,055
Operating Margin Before Interest Expense	104,124	100,243
Interest on Long-Term Debt	66,631	74,843
Less interest capitalized	(2,862)	(2,229)
	63,769	72,614
Operating Margin	40,355	27,629
Nonoperating		
Interest and dividend income	11,872	24,258
Other nonoperating income	2,321	1,802
Postretirement benefit expense	(2,624)	(2,477)
Interest expense	(561)	(1,541)
Total nonoperating	11,008	22,042
Net Margin	$ 51,363	$ 49,671

See notes to consolidated financial statements.

Associated Electric Cooperative, Inc.

Consolidated Statements of Comprehensive Income

Years Ended December 31, 2020 and 2019

(In Thousands of Dollars)

	2020	2019
Net Margin	$ 51,363	$ 49,671
Other Comprehensive Income (Loss)		
Actuarial income (loss)	750	(5,092)
Comprehensive Income	$ 52,113	$ 44,579

See notes to consolidated financial statements.

Associated Electric Cooperative, Inc.

Consolidated Statements of Patronage Capital and Other Equities

Years Ended December 31, 2020 and 2019

(In Thousands of Dollars)

	Memberships	Patronage Capital	Other Equities	Accumulated Other Comprehensive Loss	Total
Balance, January 1, 2019	$ 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
2020 net margin	-	51,363	-	-	51,363
Other comprehensive income	-	-	-	750	750
Patronage capital retirements	-	(23,926)	-	-	(23,926)
Balance, December 31, 2020	$ 12	$ 688,052	$ 55,543	$ (19,122)	$ 724,485

See notes to consolidated financial statements.

Associated Electric Cooperative, Inc.

Consolidated Statements of Cash Flows
Years Ended December 31, 2020 and 2019
(In Thousands of Dollars)

	2020	2019
Operating Activities		
Net margin	$ 51,363	$ 49,671
Reconciliation of net margin to net cash provided by operating activities		
Depreciation and amortization	106,301	96,421
Net gain on sale of property, plant, and equipment	(266)	(78)
Amortization of loan costs and member contribution advances	1,571	1,714
Changes in deferred regulatory debits	(615)	49,220
Changes in asset retirement obligations	(10,285)	1,562
Changes in deferred regulatory credits	25,650	32,650
Changes in current assets and liabilities		
Accounts receivable	14,629	1,982
Fuel inventory	(10,476)	3,133
Materials and supplies inventory	1,756	(4,270)
Accounts payable	(19)	(10,158)
Other current and accrued liabilities	5,260	4,124
Other operating activities, net	(867)	(1,157)
Net cash provided by operating activities	184,002	224,814
Investing Activities		
Capital expenditures	(165,452)	(77,462)
Reimbursement of capital expenditures	361	307
Proceeds from sale of property, plant, and equipment	147	148
Purchases of available-for-sale investments	(1,758)	(1,295)
Purchases of held-to-maturity investments	(8,624)	(19,415)
Sales of available-for-sale investments	1,225	935
Proceeds from held-to-maturity investments	262,956	228,935
Maturity of investments in associated organizations, net	2,982	1,746
Other investing activities, net	627	627
Net cash provided by investing activities	92,464	134,526
Financing Activities		
Net investments (withdrawals) from member cooperatives	(8,178)	11,588
Issuance of long-term debt	344,612	163,149
Retirement of long-term debt	(328,915)	(479,677)
Retirement of patronage capital	(23,926)	(23,504)
Net cash used in financing activities	(16,407)	(328,444)

See notes to consolidated financial statements.

Associated Electric Cooperative, Inc.

Consolidated Statements of Cash Flows, continued

Years Ended December 31, 2020 and 2019

(In Thousands of Dollars)

	2020	2019
Net Change in Cash and Cash Equivalents and Designated Cash and Cash Equivalents	$ 260,059	$ 30,896
Cash and Cash Equivalents and Designated Cash and Cash Equivalents, Beginning of Year	133,011	102,115
Cash and Cash Equivalents and Designated Cash and Cash Equivalents, End of Year	$ 393,070	$ 133,011
Cash and Cash Equivalents	$ 132,588	$ 133,011
Designated Cash and Cash Equivalents	260,482	-
Cash and Cash Equivalents and Designated Cash and Cash Equivalents	$ 393,070	$ 133,011
Supplemental Cash Flows Information		
Cash paid for interest (net of amount capitalized)	$ 62,702	$ 72,988
Supplemental Noncash Activities		
Change in capital expenditures included in accounts payable	$ 37,544	$ 8,915

See notes to consolidated financial statements.

Associated Electric Cooperative, Inc.

Notes to Consolidated Financial Statements
December 31, 2020 and 2019
(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 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 2020 or 2019.

Nonutility Property

Nonutility property consists of land not currently used for utility purposes. In 2020 and 2019, there were no material 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 $2,862 and $2,229 in 2020 and 2019, respectively. The average capitalization rates for 2020 and 2019 were 3.325% and 3.795%, 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. The classification between current and noncurrent assets is determined by the maturity of the underlying asset.

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 changes in fair value, including earnings, except deferred compensation funds, which are adjusted through the liability

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.

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, 2020 and 2019, Associated's cash and cash equivalents balance was $132,588 and $133,011, respectively.

Designated Cash and Cash Equivalents

When the Board designates certain cash and cash equivalents for specific purposes, Associated considers the amounts to be designated. The Board may un-designate the amounts in the future. All designated 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, 2020 and 2019, Associated's designated cash and cash equivalents balance was $260,482 and $0, 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 $18,102 and $19,288 at December 31, 2020 and 2019, respectively, with related amortization of $1,186 and $1,183 in 2020 and 2019, respectively.

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 0.55% and 2.22% in 2020 and 2019, respectively. The interest expense is reflected as nonoperating interest expense. At December 31, 2020 and 2019, the members had invested $38,521 and $46,699, 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

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 they require 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

	2020	2019
Energy and capacity contracts		
Market transactions	$ 115,512	$ 175,902
Energy and capacity contracts	87,052	88,029
Other	28,376	30,435
Other nonmember revenue	24,949	23,609
Total nonmember revenue	$ 255,889	$ 317,975

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.

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.

Nonoperating Income

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

	2020	2019
Investments	$ 9,190	$ 21,523
Patronage capital allocations	2,385	2,413
Leasing of transmission lines/equipment	297	322
	$ 11,872	$ 24,258

Credit Risk

Concentration of credit risk with respect to total accounts receivable is due to Associated's customer base. Approximately 63% of accounts receivable at December 31, 2020, 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, 2020, taxable margins of $175,984 were allocated to members. Cumulatively, $2,716,635 has been allocated and $2,445,810 is unpaid at December 31, 2020. 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	2020	2019
Postretirement benefits actuarial losses	$ (19,122)	$ (19,872)

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 within the accompanying consolidated financial statements.

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

Accounting Standards Update 2016-02, *Leases (Topic 842)*, was issued in February 2016 and is effective for fiscal years beginning after December 15, 2021. The Financial Accounting Standards Board 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, 2020, consisted of the following:

	Generation Plant	Transmission Plant	General Plant	Water and Wastewater Facilities	Total
December 31, 2019	$ 3,791,208	$ 349,445	$ 94,316	$ 5,073	$ 4,240,042
Additions	71,723	27,900	18,254	1,035	118,912
Retirements	(6,058)	-	(369)	-	(6,427)
Contribution in aid of construction	-	21,234	-	-	21,234
December 31, 2020	3,856,873	398,579	112,201	6,108	4,373,761
Construction work in progress	162,548	18,435	900	-	181,883
Accumulated depreciation	(2,136,071)	(176,342)	(64,951)	(358)	(2,377,722)
Total utility plant	$ 1,883,350	$ 240,672	$ 48,150	$ 5,750	$ 2,177,922

Depreciation for the year ended December 31, 2020, was $106,301, of which $101,520 was charged to depreciation expense and $4,781 was included in contracted generation, transmission, and generation operation expense. Included in depreciation expense was $8,372 of previously deferred depreciation that the Board approved to be recognized in 2020. Depreciation expense was decreased by $3,369 and was charged to deferred regulatory debits (see *Note 10*).

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

	Generation Plant	Transmission Plant	General Plant	Water and Wastewater Facilities	Total
December 31, 2018	$ 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	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.

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; reclamation of the landfill site at the New Madrid power plant; reclamation of ash ponds at the New Madrid and Thomas Hill facilities; removal of fuel oil tanks at the Dell and Holden power plants; reclamation of a biosolids lagoon at St. Jude facilities; and 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, 2020:

	Thomas Hill	New Madrid	Holden	Dell	Water and Wastewater Facilities	Total
December 31, 2019	$ 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
Current period settlements	(50)	(11,119)	-	-	-	(11,169)
Accretion expense	1,473	1,184	31	49	14	2,751
Cash flow revisions	2,358	(1,867)	-	-	-	491
December 31, 2020	30,768	24,503	494	700	254	56,719
Less current retirement obligations	(2,541)	(5,095)	-	-	-	(7,636)
Long-term retirement obligations	$ 28,227	$ 19,408	$ 494	$ 700	$ 254	$ 49,083

Accretion for the year ended December 31, 2020, was $2,751, of which $1,407 was charged to deferred regulatory debits. The 2020 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 and New Madrid. The 2020 current period settlements are primarily due to the closure of the lined ash pond and slag dewatering pond at New Madrid along with the remediation of asbestos at both Thomas Hill and New Madrid. In 2020, the Board approved the accelerated recovery of $1,700 in previously deferred accretion expenses related to coal combustion residual storage facilities (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 and Wastewater Facilities	Total
December 31, 2018	$ 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)
Accretion expense	1,090	1,258	29	45	13	2,435
Cash flow revisions	9,537	-	-	-	-	9,537
December 31, 2019	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.

Note 5: Contracted Generation

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

Under the terms of an agreement with 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 2020 and 2019, Associated's cost related to GRDA Unit 2 was $5,923 and $6,063, 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 2020 and 2019, Associated's cost of firm power purchased from SWPA was $35,570 and $34,483, 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
2020						
Other restricted and designated assets						
Mutual funds	$ 9,109	$ -	$ -	$ 9,109	$ -	$ 9,109
Pension reinvestment	7,801	-	-	7,801	-	7,801
Bank deposits	-	-	-	-	6,876	6,876
Certificate of deposit	-	-	-	-	774	774
U.S. government treasury bills	-	-	-	-	510	510
	$ 16,910	$ -	$ -	$ 16,910	$ 8,160	$ 25,070
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

Associated entered into a cushion of credit agreement with RUS in 2002. Investments held in the cushion of credit were fully depleted in 2020 pursuant to a prepayment made against outstanding FFB debt. This compares to a balance of $254,489 as of December 31, 2019.

All investments held at December 31, 2020, mature within one year.

Note 7: Designated Cash and Cash Equivalents

For the years ended December 31, designated cash and cash equivalents consisted of the following:

	2020	2019
Member revenue subject to refund	$ 147,561	$ -
Generation, Environmental and Insurance Reserve Fund	112,921	-
	$ 260,482	$ -

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:

	2020	2019
CoBank patronage capital equity	$ 21,053	$ 20,259
NRUCFC patronage capital equity	4,171	4,171
NRUCFC held-to-maturity securities	1,695	3,094
Other	845	674
	$ 27,764	$ 28,198

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 2020 or 2019.

At December 31, 2020, future maturities of NRUCFC held-to-maturity securities at amortized cost are as follows: after 1 through 5 years, $666; after 5 through 10 years, $533; 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:

	2020	2019
Total minimum lease payments receivable	$ 4,772	$ 5,399
Less unearned income	(1,194)	(1,491)
Less current portion	(627)	(627)
Net investment in direct financing leases	$ 2,951	$ 3,281

At December 31, 2020, future minimum lease receipts related to direct financing leases for the next five years and thereafter will be as follows:

2021	$ 627
2022	627
2023	627
2024	627
2025	627
Thereafter	1,637
	$ 4,772

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 2022 and 2024. Rental expense for these cars was $2,597 and $3,007 for the years ended December 31, 2020 and 2019, respectively. Future minimum lease payments for these cars are as follows:

2021	$ 1,848
2022	1,848
2023	483
2024	483
	$ 4,662

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:

	2020	2019
Loss on hedging activities	$ 36,226	$ 33,423
Asset retirement obligations	14,178	21,402
	50,404	54,825
Less current portion of deferred regulatory debits	(9,491)	(8,586)
Long-term deferred regulatory debits	$ 40,913	$ 46,239

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 $9,491 and $8,586 at December 31, 2020 and 2019, 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 2020 and 2019, $5,883 and $2,141, respectively, was deferred under this policy. In 2020, the deferred costs were reduced by $1,867 due to a cash flow revision related to the coal combustion residual storage facilities. In 2020, the deferred cost was reduced by $10,051 following the approval of Associated's Board of Directors to accelerate the recovery of previously deferred expenses. In 2020 and 2019, $1,189 and $1,143, respectively, of amortization was recognized.

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:

	2020	2019
Long-term receivable on New Madrid substation	$ 7,762	$ 7,999
NRECA pension prepayment	3,709	7,417
Preliminary surveys	4,915	4,452
Prepayment of payment in lieu of taxes	2,148	2,626
Other	4,962	4,117
Other deferred assets	$ 23,496	$ 26,611

In February 2013, Associated made a prepayment of $37,087 to the National Rural Electric Cooperative Association (NRECA) Retirement Security Plan (the RS Plan) (see *Note 14*). Associated is amortizing this amount over 10 years. Amortization of $3,709 was recognized in both 2020 and 2019. The long-term portion of the prepayment was $3,709 and $7,417 as of December 31, 2020 and 2019, 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 $7,762 and $7,999 at December 31, 2020 and 2019, 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 $4,915 and $4,452 at December 31, 2020 and 2019, 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, 2020 and 2019, was $2,148 and $2,626, respectively. The prepayment will be amortized into expense from 2014 through 2026. Amortization of $478 was recognized in both 2020 and 2019.

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:

	2020	2019
FFB mortgage notes with various maturities, due quarterly through 2052, at a weighted-average rate of 2.81%	$ 835,251	$ 1,048,693
Private placement notes with various maturities, due quarterly through 2050, at a weighted-average rate of 3.76%	557,933	320,386
CoBank notes with various maturities, due quarterly through 2031, at a weighted-average rate of 6.18%	175,965	196,040
CoBank revolving line of credit due in 2023, at a variable rate of 1.30%	15,000	-
NRUCFC notes payable due annually through 2029, at a weighted-average rate of 6.65%	30,000	33,333
	1,614,149	1,598,452
Less unamortized debt issuance costs	(3,137)	(2,783)
Less current maturities	(59,366)	(74,701)
	$ 1,551,646	$ 1,520,968

In 2020 and 2019, Associated prepaid $261,236 and $227,360, respectively, in FFB debt utilizing funds invested in the RUS 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 3.93% and 4.86% in 2020 and 2019, respectively.

In 2020, Associated issued new borrowings in the form of four private placements as follows:

Loan Designation	Loan Amount	Loan Maturity
Series 2020A	$ 100,000	April 30, 2050
Series 2020B	35,000	January 31, 2050
Series 2020C	17,000	April 30, 2050
Series 2020D	98,000	April 30, 2050
	$ 250,000	

In 2020 and 2019, Associated entered into various construction loans with RUS through FFB as follows:

RUS Loan Designation	Origination Year	Loan Amount	Advances 2020	Advances 2019	Available Balance 2020
AD48	2020	$ 52,000	$ -	$ -	$ 52,000
AC48	2019	$ 140,000	54,960	-	85,040
AB48	2018	$ 48,776	-	48,776	-
AA48	2018	$ 29,220	5,431	16,969	6,820
Z8	2016	$ 190,836	19,221	77,404	22,474
			$ 79,612	$ 143,149	$ 166,334

As of December 31, 2020, Associated had $600,000 of committed lines of credit with scheduled expirations of $50,000 in 2022 and $550,000 in 2023. As of December 31, 2020 and 2019, Associated had $15,000 and $0, 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:

	2020	2019
RUS loans through FFB	$ 2,055	$ 2,153
CoBank loans and line of credit agreements	495	252
Private placement notes	587	378
Total unamortized debt issuance costs	$ 3,137	$ 2,783

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

2021	$ 59,366
2022	67,427
2023	70,727
2024	78,242
2025	65,630
Thereafter	1,272,757
	$ 1,614,149

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:

	2020	2019
Generation, Environmental and Insurance Reserve Fund	$ 154,321	$ 155,671
Member revenue subject to refund	147,561	120,561
Deferred gain on hedging activities	8,163	3,541
	310,045	279,773
Less current portion of deferred regulatory credits	(6,233)	(2,621)
Long-term deferred regulatory credits	$ 303,812	$ 277,152

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 City of New Madrid's power plant. This amount will be amortized into income over the depreciable life of the asset. In both 2020 and 2019, Associated amortized $1,350 into income, which is included in member revenue in the accompanying consolidated financial statements. Cash or investments are segregated for this fund until a designated use has been identified by Associated's Board of Directors (see *Note 7*).

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 2020 and 2019, Associated's Board of Directors directed the deferral of $27,000 and $34,000, respectively, of member revenue for this purpose. Total member revenue subject to refund was $147,561 and $120,561 at December 31, 2020 and 2019, respectively. Cash or investments are segregated for this purpose until a designated use has been identified by Associated's Board of Directors (see *Note 7*).

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, 2020 and 2019, Associated had deferred $8,163 and $3,541, respectively, of unrealized gains on hedging activities (see *Note 17*). The current portion of the deferred gain is included in other current and accrued liabilities in the accompanying

consolidated balance sheets and was $4,883 and $1,271 at December 31, 2020 and 2019, respectively.

Note 14: Pension and Other Postretirement Benefits

Defined Benefit Plan

Associated participates in 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 2020 and 2019 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 $10,490 and $10,520 in 2020 and 2019, 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 more than 80% funded on January 1, 2020 and 2019, 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 $4,186 and $3,485 to the 401(k) Plan in 2020 and 2019, 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, 2020 and 2019, was a decrease of $2,411 and $2,244, respectively, which serves to reduce the net periodic cost by $81 and $74, respectively, annually.

	2020	2019
Change in accumulated benefit obligation		
Accumulated benefit obligation, beginning of year	$ 42,275	$ 37,041
Interest cost	1,276	1,485
Actuarial loss	598	6,007
Benefit payments	(2,409)	(2,468)
Medicare subsidy	162	210
Accumulated benefit obligation, end of year	$ 41,902	$ 42,275
Funded status		
Accumulated benefit obligation	$ (41,902)	$ (42,275)
Net liability recognized	$ (41,902)	$ (42,275)
Net periodic benefit cost		
Interest cost	$ 1,276	$ 1,485
Amortization of actuarial loss	1,348	915
Total net periodic benefit cost	$ 2,624	$ 2,400

	2020	2019
Amounts recognized in the accompanying consolidated balance sheets consist of		
Other current and accrued liabilities	$ (2,383)	$ (2,514)
Other deferred liabilities	(39,519)	(39,761)
	$ (41,902)	$ (42,275)
Amounts recognized in accumulated other comprehensive loss		
Net actuarial loss	$ 19,122	$ 19,872
Weighted-average assumptions used to determine benefit obligation at December 31		
Discount rate	2.26%	3.11%
Weighted-average assumptions used to determine net periodic benefit cost for the year ended December 1		
Discount rate	3.11%	4.14%

For measurement purposes, a 6.0% annual rate of increase in medical and prescription cost trend rates was assumed for 2021 and 2022. 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 $205 and increase the postretirement benefit obligation by $4,786. A 1.0% decrease in assumed health care cost trend rates would decrease total service and interest costs by $173 and decrease the postretirement benefit obligation by $4,152.

Associated expects $1,370 of the actuarial loss to be recognized as a component of net periodic benefit cost in 2021.

Associated contributed $2,409 and $2,468 in 2020 and 2019, respectively, to the postretirement benefit plan. Based on actuarial projections, Associated expects to contribute $2,383 to the postretirement benefit plan in 2021. No discretionary contributions are planned in 2021.

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
2021	$ 2,562	$ (178)
2022	2,585	(176)
2023	2,599	(173)
2024	2,611	(168)
2025	2,612	(162)
2026–2030	12,628	(728)
	$ 25,597	$ (1,585)

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 2020 and 2019 is as follows:

	2020		2019	
	Current	Deferred	Current	Deferred
Federal	$ -	$ 24,777	$ (378)	$ 15,375
State	-	(20,427)	-	4,481
Change in valuation allowance	-	(4,350)	-	(19,856)
Income taxes credited	$ -	$ -	$ (378)	$ -

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 tax rate for Missouri decreased from 6.25% to 4% in 2020, which resulted in a decrease in the state portion of the deferred income taxes.

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

	2020	2019
Deferred tax asset		
Net operating loss carryforwards	$ 338,298	$ 332,755
Mine reserves	1,947	2,244
AMT credit carryforwards	-	378
Postretirement benefits	1,766	2,002
Interest expense carryforward	6,024	8,010
Other	3,950	4,029
Total deferred tax asset	351,985	349,418
Deferred tax liability		
Utility plant	(22,526)	(24,309)
Total deferred tax liability	(22,526)	(24,309)
Valuation allowance	(329,459)	(325,109)
Net deferred tax asset	$ -	$ -

Associated has federal net operating loss carryforwards for income tax purposes of $1,104,441, incurred prior to January 1, 2018, which are available to offset future taxable income. If not utilized, these loss carryforwards expire between 2021 and 2037. In 2020, $38,080 of the loss carryforwards expired.

Associated has federal net operating loss carryforwards for income tax purposes of $314,587, incurred subsequent to January 1, 2018, which are available indefinitely to offset future taxable income up to 100% under the *Coronavirus Aid, Relief, and Economic Security Act* (the CARES Act).

As of December 31, 2019, Associated had alternative minimum tax credit carryforwards for income tax purposes of $378, which were fully refunded during 2020 under the CARES Act.

A valuation allowance of $329,459 has been established primarily to reflect net operating loss carryforwards estimated to expire before utilization or not be used. The valuation allowance had a net increase of $4,350 in 2020.

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, 2020 and 2019, 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, 2020, tax years 2017, 2018, and 2019 are subject to examination by the tax authorities. With few exceptions, as of December 31, 2020, Associated is no longer subject to federal and state examinations by tax authorities for years before 2017. 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)
2020				
Assets				
Other restricted and designated assets	$ 16,910	$ 16,910	$ -	$ -
Derivative assets	$ 8,163	$ -	$ 8,163	$ -
Liabilities				
Derivative liabilities	$ 33,441	$ -	$ 33,441	$ -

		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				
Other restricted and designated assets	$ 15,512	$ 15,512	$ -	$ -
Derivative assets	$ 3,541	$ -	$ 3,541	$ -
Liabilities				
Derivative liabilities	$ 33,473	$ -	$ 33,473	$ -

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 2020 or 2019.

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

	2020		2019	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
Other restricted and designated assets	$ 16,910	$ 16,910	$ 15,512	$ 15,512
Derivative assets	$ 8,163	$ 8,163	$ 3,541	$ 3,541
Derivative liabilities	$ 33,441	$ 33,441	$ 33,473	$ 33,473

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 carrying amounts of cash and cash equivalents, accounts receivable and accounts payable approximate fair value at December 31, 2020.

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 $2,218 and $1,421 in 2020 and 2019, respectively. At December 31, 2020 and 2019, derivative liabilities of $27,516 and $21,815, 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 2023 and a series of natural gas agreements that are designed to limit exposure to fluctuation in natural gas prices through 2025. In 2020, current period settlements increased fuel costs by $15,369. In 2019, current period settlements increased fuel costs by $1,362. At December 31, 2020 and 2019, a derivative asset of $8,163 and $3,541, respectively, was recorded within other current assets and other deferred assets, as well as a derivative liability of $5,925 and $11,659, respectively, within other current and accrued liabilities.

The classification of derivative instruments is as follows at December 31:

	2020	2019
Derivative asset	$ 8,163	$ 3,541
Derivative liability	(33,441)	(33,473)
	(25,278)	(29,932)
Less current portion	695	5,991
	$ (24,583)	$ (23,941)

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 other restricted and designated assets. At December 31, 2020 and 2019, these securities amounted to $8,160 and $8,002, respectively.

As of December 31, 2020, 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 power plant through 2021, the Dell power plant through 2026 and the Chouteau power plant through 2041. Associated paid transportation fees of $8,069 and $8,026 in 2020 and 2019, respectively. Associated's commitment to the transporters of gas at the Essex, Dell, and Chouteau power plants will be $9,144 for 2021, $10,965 annually for 2022 through 2025, $10,004 for 2026, $5,216 annually for 2027 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 $35,338 in 2021 and $15,193 in 2022. The commitments for the Dell power plant are $11,537 in 2021.

The long-term wholesale electric service contracts with its members require Associated to reimburse each member for the costs of their qualified transmission facilities, including depreciation, interest, and operations and maintenance. Expenses for these contracts in 2020 and 2019 totaled $72,383 and $71,392, 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 $5,923 and $6,063 for 2020 and 2019, respectively (see *Note 5*).

Projected payments to members for the next five years are:

	Transmission	Generation
2021	$ 77,697	$ 5,818
2022	$ 80,613	$ 5,818
2023	$ 83,440	$ 5,668
2024	$ 87,558	$ 5,519
2025	$ 89,054	$ 5,369

Associated has a commitment to purchase the output from eight wind farms. In 2020 two new wind farms were declared commercial with Clear Creek wind farm in May and White Cloud wind farm in December. 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 $116,942 and $103,337 in 2020 and 2019, 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 2020 and 2019. Energy payments, including supplemental energy, totaled $20,125 and $20,406 for 2020 and 2019, 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. Capacity payments totaled $1,576 in both 2020 and 2019.

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

2021	$	27,388
2022	$	25,812
2023	$	26,586
2024	$	27,384
2025	$	28,205

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. The federal statute of limitations, 28 U.S.C. Section 2462, bars civil penalties, however, for any violation arising from projects more than five years before a complaint is filed. The facts related to the proceeding and this statute eliminate or significantly reduce Associated's exposure. However, 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, 2020, and before February 12, 2021, which is the date the consolidated financial statements were available to be issued, that required recognition or disclosure.

Associated Electric Cooperative Inc.

A Touchstone Energy® Cooperative

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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.

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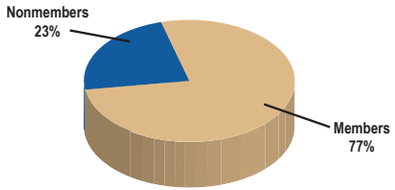
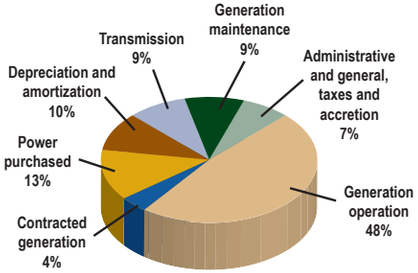
2020 financial highlights

(in thousands)	
Operating revenue	$ 1,135,982
Operating expenses	$ 1,031,858
Interest expense on long-term debt (less interest capitalized)	$ 63,769
Net nonoperating income	$ 11,008
Net margin	$ 51,363
Investment in facilities	$ 4,555,644
Long-term debt, excluding current maturities	$ 1,551,646
Total assets	$ 3,028,804

Operating revenue



Operating expenses



2020 statistical highlights

Net generation (coal & gas)	23,325,319 MWh
Member sales	18,734,107 MWh
Fuel, operations and maintenance	25.16 mills/kWh
Summer peak demand* (7-11-20)	4,006 MW
Winter peak demand* (2-15-21)	5,549 MW
**Peak hour member demand*	

Revenue from members (mills per kWh)	46.98
Total part- and full-time employees	695
Dell Power Plant	22
Headquarters	267
Gas plants	11
New Madrid Power Plant	179
Thomas Hill Energy Center	216

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 – 7,085 miles	345-kV – 760 miles
138-kV – 274 miles	500-kV – 46 miles
161-kV – 2,031 miles	**Total – 10,196**

2020 operating statistics

Coal burned	7.5 million tons
Coal units' availability factor	80.8 %
(Percentage of time units are available to generate electricity)	
Coal units' unplanned-outage factor	7.4 %
AECI three-year average	7.1 %
Industry three-year average for peer group	7.5 %
Coal units' capacity factor	61.3 %
(*Actual generation as percent of full-load capacity*)	
Coal units' net heat rate	9,959 Btu/kWh
(weighted average)	
Gas fleet capacity factor	41 %
Gas fleet starting reliability	98 %
	(with 1,092/1,113 starts)
Gas fleet availability factor	85.1 %
Gas fleet accumulated unit hours of operation	75,742
Natural gas burned	75 Bcf

Focus fixed on safety

Associated targets zero injuries. Its 2020 recordable incident rate was 2.43 per 200,000 hours worked.

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
Joe T. Foster, senior plant manager

AECI board of directors

Emery O. Geisendorfer, president	Thomas W. Howard
John B. Killgore, vice president	David L. McDowell
John E. Hibdon, secretary	John T. Richards
John R. Bledsoe, treasurer	Dan A. Singletary
Douglas H. Aeilts	Daryl R. Sorrell
Theodore J. Hilmes	Christopher M. Turner

SYSTEM FACTS

April 2021

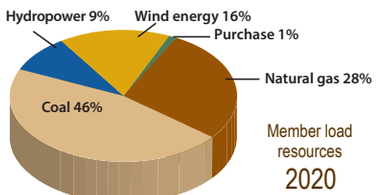
Associated Electric Cooperative Inc.

A Touchstone Energy® Cooperative

Associated Electric Cooperative

Balanced, diverse resources meet members' needs

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 1,240 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

NW Electric Power Cooperative Inc.
Cameron, Mo.
www.nwepc.com

Northeast Missouri Electric Power Cooperative
Palmyra, Mo.
www.northeast-power.coop

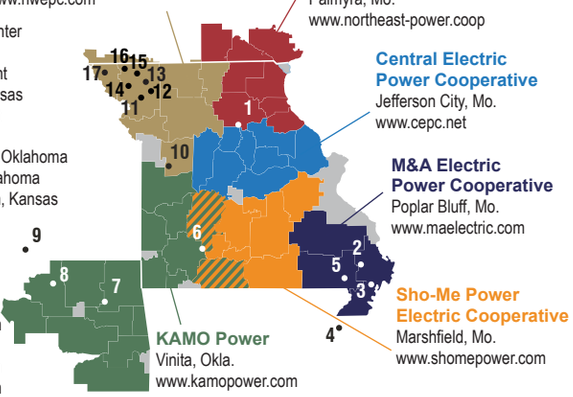
Central Electric Power Cooperative
Jefferson City, Mo.
www.cepc.net

M&A Electric Power Cooperative
Poplar Bluff, Mo.
www.maelectric.com

Sho-Me Power Electric Cooperative
Marshfield, Mo.
www.shomepower.com

KAMO Power
Vinita, Okla.
www.kamopower.com

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



Area served by KAMO Power and Sho-Me Power Electric Cooperative

Diverse power sources

Owned sources	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*	119
Subtotal	597
Total	**5,703**

**Associated contracts with eight wind farms totaling 1,240 MW of nameplate capacity. Staff estimates 6% to 10% of that as capacity for peak planning purposes (about 119 MW for summer peak and 72 MW for winter peak).*