



# A MESSAGE FROM THE CEO

Ameren continues to make significant progress on the transformational changes necessary to reach net-zero carbon emissions while safeguarding affordability and long-term energy reliability and resiliency. This report, based on the Task Force on Climate-Related Financial Disclosure recommendations, demonstrates how we're responsibly transitioning to a clean energy future.

In July 2022, Ameren accelerated what was already the most aggressive clean energy goal in the company's history. Our science-based, well-thought-out transition plan now lays a path to reach net-zero carbon emissions by 2045, moving up our previous goal by five years. We're also now targeting a 60% reduction in carbon emissions by 2030 and an 85% carbon emissions reduction by 2040, based on 2005 levels, reflecting increased reductions over prior levels. In addition, our net-zero goal encompasses both Scope 1 and Scope 2 emissions, including other greenhouse gas emissions of methane, nitrous oxide and sulfur hexafluoride.

To achieve our emissions reduction goals, we are adding significant amounts of additional clean energy resources. In Missouri, we plan to add a total of 4,700 megawatts (MW) of renewable resources by 2040, with 2,800 MW being added by 2030. As these new resources come online, more than 3,500 MW of fossil-fired generation is scheduled to be retired by 2030, including three of the four Ameren Missouri coal-fired facilities.

Ameren's vision — To Lead the Way to a Sustainable Energy Future — includes partnering with a wide range of customers and offering innovative solutions to help them improve energy efficiency and achieve their own climate goals. All of our customers benefit by these actions as more clean energy is brought onto the grid at a lower cost and through investment in the communities we serve.

As we accelerate the transition to a cleaner and more diverse generation portfolio, we're targeting a 95% reduction of water withdrawn for thermal generation by 2045, based on 2005



levels. Our commitment to environmental stewardship also includes reducing other water uses and returning clean water to our environment.

We are excited about recent developments at the federal level with the passage of the Infrastructure Investment and Jobs Act and the Inflation Reduction Act, elements of which are positive for our industry and for our customers. Ameren actively advocated for components of these Acts, which will help facilitate the clean energy transformation and bring about long-term customer benefits.

These are just some examples of how we're executing our strategy, which remains unchanged, to invest in rate-regulated energy infrastructure; to enhance regulatory frameworks and advocate for responsible policies; and optimize our operating performance and capitalize on investment opportunities to benefit our customers and shareholders.

Thank you for your interest in this report. Further discussion of these important issues continue at <u>Ameren.com/Sustainability</u>.

Marty Lyons

President and CEO, Ameren Corporation

November 2022





# KEY UPDATES TO THIS REPORT FROM THE 2021 REPORT

- Integration of 2022 IRP goals into scenario analysis
- Net-zero by 2045
- Adding 2,800 MW of new clean renewable generation by 2030, and a total of 4,700 MW by 2040
- Advancing the retirement of certain coal-fired energy centers
- Revised 1.5°C pathway comparison with new targets
- Updates Sources of Energy charts with new targets
- Risk Mitigation Enhancements
- Updated Financial Impacts
- Updated Greenhouse Gas Emissions Data
- Just Transition Overview
- Updated TCFD Mapping

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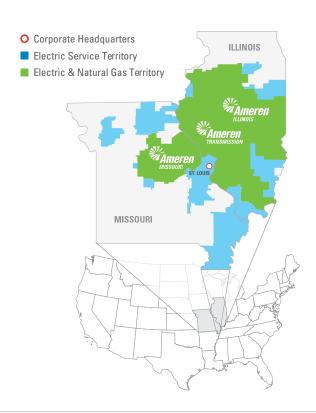
# AN INTRODUCTION TO AMEREN

Ameren Corporation and its subsidiaries' (collectively, "Ameren," the "company" or "we") mission is To Power the Quality of Life for over six million people and the hundreds of communities we serve in Illinois and Missouri. In addition, Ameren's co-workers live, work, raise their families and volunteer in these same communities. We are committed to delivering safe, reliable and affordable energy for all the communities we serve. Further, we are committed to being good environmental stewards, which is why we work to reduce emissions and waste, preserve natural resources, increase the use of renewable and other forms of cleaner energy, and create programs that allow customers to optimize their energy usage, such as energy-efficiency programs.

Ameren's family of operating companies includes:

- Ameren Illinois: Our regulated Illinois electric company provides electric transmission and distribution services and natural gas distribution service.
- Ameren Missouri: Our regulated Missouri energy company provides electric generation, transmission and distribution service, as well as natural gas distribution service.
- Ameren Transmission Company of Illinois (ATXI): ATXI develops, owns and operates rate-regulated regional electric transmission projects.

Together, our companies provide safe, reliable and affordable energy, which is critical to the well-being and security of our 2.4 million electric customers and more than 900,000 natural gas customers.





# **ABOUT THIS REPORT**

This report was published in November 2022. An internal working group coordinated the preparation of this report and obtained input from subject matter experts across the company, including representatives from Electric Operations, Gas Operations, Transmission, Strategy and Innovation, Electrification, Sustainability, Environmental, Risk Management, Corporate Analysis, Communications, Finance, Human Resources and Legal departments. We collaborated with the Electric Power Research Institute (EPRI) to assess our plan against the prevailing body of knowledge around climate modeling. At the management team level, the Sustainability Executive Steering Committee and Ameren's Executive Leadership Team (ELT) oversaw and provided guidance on the report's preparation. Additionally, it has been reviewed by the Nuclear, Operations and Environmental Sustainability Committee of our Board of Directors.

The global net carbon emissions scenarios presented in this report are based in part on third-party information, including the United Nations Intergovernmental Panel on Climate Change (IPCC). We make no representations regarding the accuracy or reliability of this third-party information. These scenarios are based on specific assumptions and estimates made in the context of such scenarios and should not be mistaken for the company's forecasts or predictions. These scenarios are inherently subject to significant uncertainty, and caution should be exercised when interpreting the information provided. The actions of no single country, industry or company, for example, will determine the achievement of global climate emissions reduction goals. These scenarios are not indicative of, and this report does not represent, preferred or expected future outcomes, or promises or guarantees of future performance.





# **EXECUTIVE SUMMARY**

We recognize that climate change is a critical issue for our customers, our communities, our nation and our planet. We are committed to doing our part to protect and preserve the environment as described in this report. It provides a comprehensive look at the steps Ameren is taking to manage our climate-related risks — including policy and legal, physical, reputational, technology, market and financial risks – while continuing to meet our goal to provide safe, reliable and affordable energy to serve our customers. As part of our policy and legal risk analysis, this report also highlights the results of Ameren's scenario-based climate assessment. In alignment with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), this report outlines our climate risk strategy; describes our risk management system; highlights our metrics and targets for reaching our 2045 net-zero carbon emissions goal; and provides an overview of Ameren's governance structure on climate-related issues. Appendix A provides a chart mapping our disclosures to each of the four TCFD pillars.

To address and respond to climate risk, we evaluate all aspects of our electric, natural gas and transmission businesses. The primary sources of Ameren's greenhouse gas (GHG) emissions are Ameren Missouri's fossil-fueled energy centers. To a lesser extent, our natural gas and electric delivery operations also contribute to our GHG emissions. Consequently, we are taking actions across all parts of the business as we address the potential impacts of climate change and strive to reduce our total GHG emissions.

Our strategy addresses:

- **1. Electricity Generation.** We are transforming our generation fleet with the acceleration of clean energy additions, as set forth in our updated 20-year energy plan which will support affordability and long-term energy reliability and resiliency for customers for years to come. Ameren's strategy for addressing climate risk is largely embedded in Ameren Missouri's 2020 IRP, as updated in June 2022, which reflects Ameren Missouri's preferred generation resource plan between 2020 and 2040 (2022 IRP). This plan reduces carbon emissions even further in the short-term and advances Ameren's net-zero carbon emissions goal by five years to 2045. It outlines our intent to retire more than 3.500 MW of fossil-fired generation by 2030 and add 2,800 MW of additional new, clean, renewable (wind and solar) generation by 2030 and a total of 4,700 MW by 2040. Additionally, we plan to add 800 MW of battery storage. To maintain energy reliability and resiliency for customers after the retirement of three coal-fired energy centers by the end of 2030, the company plans a 1,200 MW combined-cycle energy center to be in service by 2031. This planned natural gas-fired generation will be designed to allow for the use of hydrogen fuel and carbon capture technology to mitigate carbon emissions. Beyond 2040, we plan to add another 1,200 MW of clean dispatchable resources, with the expectation that new clean technologies will be available.
- **2. Electric Transmission.** We are expanding and enhancing our electric transmission system to integrate additional clean, renewable energy resources while reducing energy losses and improving system reliability.



- **3. Electric Grid.** We are modernizing the electric grid to accommodate more energy from renewable sources, taking steps to strengthen our system to be more resilient to climate change and weather-related events, and improving efficiency and reliability, as well as enabling our customers to have greater control over their energy usage, both in terms of how much they use and when they use it.
- **4. Energy Efficiency.** We continue to expand programs that incentivize customers to reduce their energy consumption because the cleanest energy is the energy that is not needed. Over the last decade, Ameren's energy efficiency efforts have resulted in an estimated \$3 billion in net benefits for customers adopting energy efficiency measures.
- **5. Low- to No-Carbon Energy Resources.** Ameren will continue to build on an already solid base of clean energy resources. We are investing in the long-term operation of the Callaway Energy Center and expect to seek an extension of its operating license beyond 2044. We will also continue to invest in our hydropowered energy centers at Keokuk and Osage.
- **6. Continued Investment in Innovation.** Ameren is also part of the Greater St. Louis and Illinois Regional Clean Hydrogen Hub Industrial Cluster, a diverse group of industry, business and community groups and academic institutions. The group was formed with the intention to collaborate on infrastructure development and innovative technology deployment needed to drive toward individual company decarbonization goals and collectively achieve substantial greenhouse gas emission reductions for the region by 2035. Ameren is also a member of the Low Carbon Resources Initiative, an effort to accelerate the deployment of low- and zero-carbon energy technologies required for technologies to achieve deep decarbonization in a responsible fashion.

In addition, Ameren joined EPRI's Climate READi effort. The goal of the Climate Power Resilience and Adaptation Initiative (READi) is to develop a common framework for addressing the entirety of the power system (planning through operations); to provide an informed approach to climate risk assessment and strategic resilience planning that can be replicated; and to drive stakeholder alignment on adaptation strategies for efficient and effective investment.

**7. Natural Gas Distribution System.** Our natural gas transmission and distribution investments are focused on upgrading and modernizing gas main and equipment infrastructure to strengthen the safety and reliability of our system for our customers and further reduce our low methane emissions. We eliminated cast-iron

- mains, which have the highest leakage rates, over 10 years ago and have eliminated the remaining few miles of unprotected steel pipe, the second highest source of leakage. Today, our Ameren Illinois and Ameren Missouri natural gas distribution systems are mostly made of plastic and protective coated steel pipelines.
- **8. Other Non-Energy Center Emissions.** We are promoting customer programs related to renewable energy as well as clean electrification in transportation. Ameren is investing millions across Illinois and Missouri to support the development of a network of charging infrastructure and implement time-based delivery service rates and other incentives to encourage greater levels of electrification.
- **9. Just Transition and Energy Equity.** We are committed to thoughtfully transitioning our energy generation sources without compromising on reliability, resiliency or affordability for our customers. As our energy equity initiatives evolve, we will be transparent and proactive as we focus on environmental justice, energy justice, economic/workforce development justice and social justice. We will continue to evaluate the impact to our stakeholders (including disadvantaged and underserved communities throughout the Ameren service territory) as we make decisions on energy center retirements and new projects.

In summary, our strategy for addressing climate risk, which is largely embedded in the Ameren Missouri 2022 IRP, is expected to deliver significant reductions in carbon emissions by the end of the decade, with the goal of ultimately reaching net-zero carbon emissions by 2045, while effectively balancing customer affordability and reliability, and managing related risks. We believe that the plan set forth in our 2022 IRP coupled with other plans of ours will enable us to effectively achieve our goals.

To test the resilience of our IRP, we compared our expected emission reductions under that plan to the emission pathways recently analyzed by EPRI and discussed in the Scenario Analysis section of this report. These emissions pathways, which represent estimated global annual carbon dioxide  $(CO_2)$  emissions levels over a given period of time, included hundreds of emissions pathways published by the IPCC, the United Nations body that assesses the science related to climate change.

As discussed in greater detail in the Scenario Analysis section of this report, based on current information, our projected  ${\rm CO_2}$  emissions are consistent with limiting global temperature rise to 1.5 degrees Celsius (1.5°C). This plan transitions our generation fleet to a cleaner, more diverse portfolio in a responsible fashion.





Our strategy and actions are subject to stringent governance requirements, both internally and externally. Internally, we have designed Enterprise Risk Management (ERM) and governance programs to identify, evaluate and manage risks in a manner that supports our ability to recover costs and earn fair returns on our investments.

Our ERM program is a comprehensive, consistently applied management framework that captures climate-related policy and related risks. Risk management is embedded in the business processes and key decision-making at appropriate levels of the company. In addition, our board of directors has extensive oversight over our strategy, execution and key risks, including climate risks.

Externally, we are subject to extensive regulatory oversight by state and federal regulators protecting the public interest by ensuring that our planned actions responsibly comply with applicable laws and regulations. In summary, Ameren's strategy to address climate change risk effectively balances and addresses key climate change risks and positions Ameren to deliver long-term value to its customers, communities and shareholders.

As the climate risk landscape continues to evolve, so too will our investment plans and pursuit of advanced technological solutions, as well as policies and related investments that will support a cleaner energy future, including efficient electrification, smart grid technologies, energy efficiency, demand response (DR) programs, renewable energy sources, transmission, energy storage, and developing clean technologies such as hydrogen.

Looking ahead, we plan to continue to work collaboratively with key stakeholders to address climate change risks in a responsible manner and deliver a brighter energy future for our customers, communities and our country.





# **AMEREN'S CLIMATE RISK STRATEGY**

### Our Approach to Addressing Climate Change

Greenhouse gases trap heat and warm the planet. When producing, transmitting and distributing energy, these gases are released in two primary ways:

- **1. Generation.** Burning fossil fuels, such as coal, natural gas and oil, releases greenhouse gasses (GHG) as byproducts, including carbon dioxide and nitrous oxide (N<sub>2</sub>O). At Ameren, our fossil fuelfired generation fleet is our largest source of GHGs. As a result, the largest reduction in our emissions, both now and over the long-term, will come from finding ways to reduce fossil generation emissions and integrating clean energy sources into the grid.
- 2. Delivery and transmission. Other GHGs, such as sulfur hexafluoride (SF<sub>s</sub>) and methane (CH<sub>d</sub>), are released on a much smaller scale through the process of delivering electricity and natural gas to customers' homes and businesses. SF<sub>6</sub> is used as an insulator for transmission equipment, such as circuit breakers, and CH<sub>4</sub> is the principal component in natural gas. Our investments in smarter, cleaner, more efficient and reliable delivery and transmission technology will continue to reduce these kinds of emissions. We are also committed to finding ways to manage and reduce GHG emissions from other aspects of our operations, such as by electrifying the company's transportation fleet over time (see page 13). Advances in technology and decreases in the cost of clean and renewable energy are helping us take steps across our business to reduce GHG emissions significantly. Our goal is to integrate these new sources and technologies so that we can deliver meaningful reductions in

carbon emissions while effectively balancing and managing key risks associated with climate change, including financial and reputational risks, with customer costs and reliability.

In alignment with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), this report outlines our climate risk strategy; describes our risk management system; highlights our metrics and targets for reaching our 2045 net-zero carbon emissions goal; and provides an overview of Ameren's governance structure on climate-related issues. Appendix A provides a chart mapping our disclosures to each of the four TCFD elements.

# Ameren Missouri's 2022 Integrated Resource Plan is Designed to Drive Significant Emission Reductions

Every three years, Ameren Missouri files a new IRP with the Missouri Public Service Commission (MoPSC), as required by Missouri law. This plan is based on two questions: What is our customers' peak demand and energy consumption expected over the next 20 years and what is the best way to meet that demand and energy consumption?

Each IRP filing involves a complex analysis that considers a range of trends, expectations and assumptions. The result is a robust analysis that provides insights about the costs, risks and opportunities of our future resource decisions. The IRP also considers key implications for the environment, customers, co-workers, and the communities we serve. In June 2022,



# DEVELOPING AN IRP IS MUCH LIKE CLIMATE MODELING NET-ZERO

Like the models used to evaluate climate change, our IRP modeling reflects assumptions about energy use, energy production and the broader economy.

These include assumptions regarding:

- Changes in the use of electricity, including;
  - Economic growth and energy intensity.
- Improvements in energy efficiency.
- Electrification, including adoption of electric vehicles.
- Adoption of customer owned generation, such as private solar.
- The price of carbon.
- The price of fuels, such as natural gas and coal.
- The cost of new energy generation technologies, such as wind and solar, natural gas, nuclear, hydro and storage solutions.
- The retirement of coal-fired and other generation.
- The addition of new generation, including wind, solar and natural gas-fired generation.
- Interest rates and investment returns.
- Environmental regulations and legislation.

Ameren updated its preferred generation plan to reflect a further acceleration of the transition laid out in the 2020 IRP. One required part of the IRP analysis is evaluating the GHG emissions impact of our generation plan. The 2022 IRP represents a further acceleration and expansion over our prior plans by setting deeper carbon reduction goals from a 2005 baseline. This has enabled Ameren to target a 60% reduction in  $\mathrm{CO}_2\mathrm{e}$  emissions by 2030, an 85%  $\mathrm{CO}_2\mathrm{e}$  emissions reduction target by 2040, and a target of achieving net-zero carbon emissions by 2045.

Ameren's overall plans, including the Ameren Missouri IRP, reflect the following strategies to achieve our targeted reductions:

1. Increasing renewable solar and wind energy. We plan to invest approximately \$7.5 billion in renewable energy over the next two decades. By 2030, Ameren Missouri is expected to add an additional 2,800 MW of renewable generation, reflecting a combined investment of approximately \$4.3 billion. These amounts do not include the High Prairie and Atchison Renewable Energy Centers acquired by Ameren Missouri in late 2020 and 2021, respectively. By 2040, the overall total additions of renew-

able resources are planned to be 4,700 MW, bringing total wind and solar capacity to 5,400 MW.

### 2. Building on a solid base of carbon-free generation.

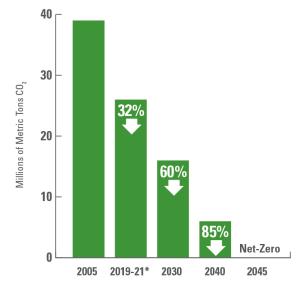
Ameren Missouri continues to invest in its existing carbon-free energy sources — including nuclear, hydroelectric, solar and wind, while also evaluating and pursuing additional clean energy innovations. Approximately 30% of Ameren Missouri's current energy generation comes from these sources. In the future, Ameren Missouri expects to seek an extension of the operating license for the Callaway Energy Center beyond the current date of 2044.

### 3. Advancing the retirement of coal-fired energy centers.

More than 3,500 MW of fossil-fired generation is scheduled to be retired by 2030, an increase from the 2020 IRP of more than 1,600 MW. By the end of 2030, three of the four Ameren Missouri coal-fired energy centers are scheduled to be fully retired. Planned retirements begin in 2022 with the Meramec Energy Center. The 2022 IRP included further advancing the retirement of Rush Island Energy Center to 2025. All coal-fired energy centers are scheduled to be retired by 2042.

**4. Dispatchable Resources.** Deploying dispatchable resources to ensure reliability – To meet our customers reliability needs, we plan to add dispatchable resources that can be called upon at any time to fill in the gaps when energy from solar and wind resources may not be sufficient. This includes adding 800 MW of

# TARGET TO ACHIEVE NET-ZERO CARBON EMISSIONS BY 20451

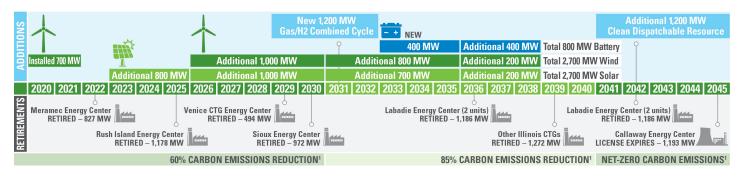


<sup>\*</sup>Three-year average CO<sub>2</sub> emissions for 2019, 2020, and 2021

Ameren's goals encompass both Scope 1 and Scope 2 emissions including other greenhouse gas emimissions of methane, nitrous oxide and sulfur hexafluoride.



### PLANNED GENERATION TRANSFORMATION



battery storage by 2038, 1,200 MW of natural gas-fired combined cycle generation in 2031, and 1,200 MW of additional clean, dispatchable generation after 2040. The 1,200 MW of natural gas-fired generation planned for 2031 will be designed to allow for the use of hydrogen fuel and carbon capture technology to mitigate carbon emissions. Beyond 2040, we plan to add another 1,200 MW of clean dispatchable resources, with the expectation that new clean technologies will be available.

- **5. Meeting renewable energy standards.** Missouri's Renewable Energy Standard currently requires investor-owned utilities to acquire renewable energy equal to 15% of retail sales by 2021, subject to an average annual retail rate impact limitation of no more than 1%. Similarly, the state of Illinois, through its Renewable Portfolio Standard, requires investor-owned utilities to obtain 25% of electricity for retail sales from renewable sources by 2025.
- **6. Investing in Transmission.** We believe transmission investments will play a critical role in the effective transition to a cleaner energy future, as they will enhance the resiliency and reliability of the energy grid and facilitate access to renewables. We anticipate increasing our transmission investments over time to support the addition of increasing levels of cleaner energy resources to the regional electric grid.
- **7. Upgrading delivery infrastructure.** Ameren is investing in its electric power energy delivery systems in both Missouri and Illinois under constructive regulatory frameworks, including Missouri's Smart Energy Plan and the Illinois Energy Transition Legislation enacted in 2021. These investments build additional resilience into the grid, increase reliability and help facilitate the addition of renewables. Ameren is also investing in building a smarter, more reliable natural gas delivery system, including through programs designed to reduce and eliminate methane emissions.
- **8. Supporting energy efficiency (EE) programs.** Helping our customers use energy more efficiently is a key part of reducing overall emissions. Together, Ameren Missouri and Ameren Illinois

are investing approximately \$185 million annually to fund electric and natural gas programs that reward customers for installing newer, energy-saving measures. EE and DR programs offered to our residential and business electric customers in Missouri and Illinois include LED lighting upgrades energy efficient heating and air conditioning systems, home energy audits, low-income weatherization programmable thermostat rebates and educational outreach. Ameren Missouri and Ameren Illinois also offer natural gas EE program incentives to customers when they purchase specific energy efficient gas equipment, such as furnaces, boilers or manufacturing equipment. These programs further our efforts to reduce GHG emissions and lower customer bills. Robust energy efficiency programs have helped residential and business customers save more than 5.9 million megawatt hours from 2012 to 2021. In addition to these customer-facing programs, Ameren has implemented various voluntary initiatives to improve efficiency and reduce GHG emissions at companyowned facilities, including recent renovations and installments of more efficient equipment at our corporate headquarters in Missouri and our Collinsville, Illinois location.

**9. Just Transition and Energy Equity.** Ameren is committed to leading a transition that is just, inclusive and equitable. We strive for our customers, especially the underserved and vulnerable, to benefit from our efforts to transition to clean energy generation and to grow sustainable communities. Efforts include:

We've realigned our organization structure to meet the evolving needs of the customer. This includes the addition of the Chief Sustainability, Diversity and Philanthropy Officer, a member of Ameren's ELT, which is the highest level of leadership team within the company. We aligned our organization for an optimized outcome by integrating the work of Diversity, Equity and Inclusion (DE&I) as well as Corporate Philanthropy into Sustainability. With this structure, we will continue to drive Ameren's environmental stewardship, positive social impact,

Ameren's goals encompass both Scope 1 and Scope 2 emissions including other greenhouse gas emimissions of methane, nitrous oxide and sulfur hexafluoride.



robust corporate governance and ongoing sustainable growth initiatives in to the company's strategy to realize our vision, "Leading the Way to a Sustainable Energy Future."

Ameren issued our <u>Environmental Justice Principles</u>, focused on enabling the communities we serve to have meaningful opportunities to provide input as we consider operational programs, new plans and investments. We continue to build and enhance relationships with stakeholders to address potential environmental justice concerns.

Actively and consistently listening to the voice of our customers and the communities we serve is an integral part of our clean energy transition. The Ameren Missouri and Ameren Illinois Community Voices workshops are annual events with diverse community stakeholders in a forum that facilitates two-way communication. Additionally, the Ameren Missouri Community Voices Advisory Board (CVAB) comprised of a diverse group of community leaders selected to share community perspectives on relevant utility issues. The CVAB assists Ameren Missouri to further understand the priorities and interests of their constituents. Together, these initiatives serve as standing avenues for proactive community engagement.

As we transition to a cleaner and more diverse generation portfolio, we will continue to look to the "Just Transition" framework, developed by the International Labor Organization (ILO), and approach energy center closures thoughtfully and responsibly. For example, from a workforce perspective, as we retire the Meramec Energy Center, 100% of the workforce will be reassigned or will retire by July 2023. We will leverage the learnings from the retirement of Meramec as we move to retire the Rush Island Energy Center as well.

Our evolving energy equity framework focuses on working collaboratively to help transform disadvantaged communities into thriving communities. Our approach considers four key pillars as drivers in the journey to energy equity: environmental justice, energy justice, economic/workforce development justice and social justice. All four key pillars have a focus on providing equitable access to the benefits and protection from the risks associated with the shift to a low carbon economy for workers and communities.

**10. Maintaining a long-term view.** Planning for the long-term transition of our generation portfolio is an important part of evaluating and addressing climate-related risks. It is subject to a range of uncertainties associated with technology, energy costs, load forecasts, and regulatory and legislative changes that make it

difficult to predict our ability to achieve our plan, and therefore our energy mix that far into the future. Today, coal-fired and nuclear generating units supply the majority of the energy we generate. While the Ameren Missouri 2022 IRP is focused on the 2021-2040 time frame, we also evaluated our resource portfolio through 2050 to account for the retirement of the remaining coal units.

The previously mentioned retirements are expected to facilitate the achievement of Ameren's goal of achieving net-zero carbon emissions by 2045. To ensure continued reliability as existing energy centers are retired, we anticipate that new low- to no-carbon generation resources with the capability to produce electricity when needed (i.e., dispatchable) will be needed in the early 2040s to achieve the last 10%-15% of emissions reductions toward our net-zero goal. These technologies may include advanced nuclear generation, carbon capture and storage, hydrogen-fueled generation, long-duration battery storage, and possibly other technologies. Ameren is actively supporting the development and demonstration of these technologies through collaborations with industry groups such as the Edison Electric Institute (EEI) and EPRI and is preparing to be able to integrate new technologies when they become commercially available. Provisions of the recently-passed IRA also provide significant and ongoing support for the development of low- to no-carbon technologies. Ameren expects that efforts like these are likely to support the availability of the technologies needed to enable the achievement of our 2045 net-zero goal.

# **EPRI and Gas Technology Institute (GTI) Low-Carbon Resources Initiative.** Ameren is investing in EPRI's Low-Carbon Resources Initiative to evaluate various low-carbon generation technologies and energy carriers to support clean energy decarbonization efforts. This collaboration focuses on the need to accelerate the development of low-carbon technologies necessary

beyond 2030 to aid utilities in meeting their net-zero targets.

**EEI Carbon-Free Technology Initiative.** The EEI Carbon-Free Technology Initiative is a collaboration among member companies and various non-governmental organizations (NGOs) with a goal of securing government funding for research, development, and deployment for 24/7 zero emitting technologies. Ameren participates in this collaboration as an EEI member.

# Ameren is Focused on Innovation to Further Reduce Carbon Emissions

The electric grid is becoming increasingly complex. While Ameren believes the grid will remain at the center of value creation, Ameren also believes the traditional central station



# LEADING THE WAY THROUGH INNOVATION

Ameren is leveraging innovation to help address climate change and reduce emissions, both today and in the future. These efforts provide the means to create and develop forward-thinking ideas — internally and externally — to advance promising technological solutions.

A sampling of these efforts include:

- Partnering with and investing in Ameren Accelerator and Energy Impact Partners — to bring external perspectives and fund incubation of businesses poised to enable cleaner energy choices for customers and the company.
- Partnering and collaborating with the University
  of Illinois and Missouri University of Science and
  Technology to evaluate the potential of microgrids
  and distributed energy resources to increase the
  amount of cleaner energy in the electric grid, while
  giving customers more choices, bolstering system
  resiliency and enhancing the customer experience.
- Developing and delivering programs that support efficient electrification and electric transportation technologies – to reduce GHG emissions by offering cleaner alternatives to burning fossil fuels.
- Voltage Optimization (VO), the use of automation to safely lower voltage levels to reduce end-use customer energy consumption and utility distribution losses.
   Ameren Illinois' seven-year VO Plan is designed to achieve 422 Gigawatt hours (GWh) of total energy savings on approximately 1,050 distribution circuits that would yield a savings of 1.5% by 2025, which exceeds the cumulative savings goal of 1.0% established in the Future Energy Jobs Act (FEJA).

Actively promoting and enabling technological innovations will continue to position Ameren as a leader in developing business and regulatory solutions to implement new products and services that help to address climate change.

generation, transmission and distribution system will evolve into what EPRI calls the "integrated grid." The integrated grid will incorporate increasing levels of distributed energy resources (DERs) (such as community and private solar panels), improved customer energy management tools (such as smart home devices) and electric vehicle infrastructure, all working together in a coordinated fashion to continuously and reliably maintain the balance between energy supply and demand.

The integrated grid offers a wide range of opportunities to further address climate risks, but it also comes with significant complexity and challenges. Some examples of how we are innovating within the company and with key external partners to reduce GHG emissions and improve system operations and reliability include:

**1. Electrification.** The use of electric alternatives to displace higher emitting fossil-fueled end-use technologies assists customers in increasing operational efficiencies and reducing their overall energy consumption and emissions.

On a system basis, electrification supports better utilization of the electric grid and helps lower energy costs for all customers.

Our electrification strategy includes efforts to implement policies and programs as well as making infrastructure investments to promote and enable electric vehicle (EV) adoption, including charging opportunities for multifamily dwellings, lower-income areas, public transportation and fleet electrification.

To support this strategy, Ameren has committed that 35% of our overall vehicle fleet, including light-duty, medium-duty and heavy-duty trucks, forklifts, ATVs (all-terrain vehicles) and UTVs (utility task vehicles) will be electrified by 2030. A part of reaching this goal is the commitment that 100% of our light-duty fleet vehicle purchases by 2030 will be electric.







Ameren is also working with customers to support the electrification of their vehicle fleets. Ameren Illinois' Electric Vehicle Charging Program Tariff provides special rate and line extension provisions to encourage electric vehicle adoption and promote grid efficiency for home, multifamily, school and transit bus, and corridor charging. Ameren Illinois also filed its Beneficial Electrification Plan with the Illinois Commerce Commission on June 30, 2022, which will support additional electric transportation programs, particularly focused on equity eligible and low-income customers.

Ameren Missouri's Charge Ahead program incentivizes the installation of more than 1,800 local charging stations at over 500 locations across the state through 2024. The program also provides incentives for the development of 14 fast-charging EV locations along highway corridors. Those locations are part of the National Electric Highway Coalition, a collaboration among electric companies who are committed to working together to build a vast network of charging stations by the end of 2023. Longer-term, our efforts will be extended to other commercial and industrial equipment where electrification will deliver similar benefits to customers and the environment.

To support cleaner alternatives in public transportation, Ameren Missouri partnered with Metro Transit in launching its first 60-foot electric bus. In addition to the potential cost savings they offer taxpayers, these buses reduce greenhouse gas emissions by 100-160 tons annually when compared to diesel buses. Through this partnership, Ameren Missouri built a new substation next to the Brentwood MetroBus facility to serve the growing electric needs of St. Louis Metro Transit and the surrounding communities.

Ameren Missouri sponsored the SiLVERS project, a collaboration with Forth (nonprofit organization focused on advancing electric, smart and shared mobility), the City of St. Louis, and Department

of Energy. This project is designed to show how community-based organizations nationwide can use electric vehicles to deliver their services more efficiently and cost-effectively. It is a model for providing electric vehicles and charging stations to social service agencies that provide transportation and delivery services to low-income senior citizens.

- **2. Data Analytics.** We have established an internal Data Analytics team to enhance our analytics capabilities. We believe data analytics will become increasingly important as we analyze larger amounts of data to make our operations more efficient and environmentally friendly. Example projects include sensors on generation and distribution assets to better manage efficiency of operations; using drones and advanced imaging technologies; machine learning and artificial intelligence to support operations; event response time improvements; and predictive maintenance modeling.
- **3. Advanced Street Lighting.** The installation of LED street lights reduces energy consumption. By the end of 2022, Ameren Illinois expects customers to save more than \$6 million a year in energy costs as a result of LED upgrades.
- **4. Microgrids.** The Technology Applications Center (TAC) microgrid in Champaign, Illinois, continues to provide learnings related to the integration and operation of distributed energy resources (solar, wind and gas-fired generation with energy storage) on the electric distribution system. These learnings help promote the reliable operation of cleaner, low-carbon emission generation. Future research will focus on economic optimization of the microgrid assets to more clearly understand how the utility and/or customers might deploy and leverage these concepts.
- **5. Strategic Alliances.** Ameren is actively engaged in innovative activities with several strategic partners and independent groups



to identify, assess and potentially implement innovative technologies that would benefit our customers. These alliances include:

- Energy Impact Partners (EIP), where our direct investment and collaboration is focused on strategic investments in high growth companies involved in new energy technologies.
   Several of the companies in EIP's portfolio of investments offer products designed to deliver a cleaner energy future.
- EPRI, where we are leveraging programs to advance our long-term vision for adoption of forward-looking technologies, including electric transportation, energy storage, artificial intelligence, information and communication technology, and security architecture for distributed energy resources integration, and transmission and substation asset analytics. Most recently, Ameren engaged EPRI to provide an objective overview of energy storage technologies, applications and the current understanding of their costs and benefits when applied to the electric power system. The study also included examples of energy storage deployments and the results of initial investigations into deployment opportunities within Ameren's service territory.
- The Alliance for Transportation Electrification (ATE), formed to accelerate the deployment of EVs and support grid transformation by promoting open standards, helps shape state-level policies and rate structures, and facilitates expansion of EV infrastructure. Ameren is a founding member.
- Local/regional universities, where we collaborate with faculty and students on projects related to innovation and the integrated grid, including robotics, sensors, distribution automation, weather forecasting, DERs and energy storage. Through the Microgrid Industrial Consortium, Ameren partners with Missouri University of Science and Technology to develop a living laboratory for microgrid studies at the campus' EcoVillage. The Consortium tests advanced lead

- battery energy storage and renewable energy sources for communities of the future. The batteries are managed by cloud-based charging algorithms, with students occupying the homes and participating in research on smart living.
- Institute for Electric Innovation, where we leverage the learnings of other investor-owned utilities in electrification, renewable energy, providing customer value, and the integrated grid.
- **6. Ameren Missouri's Community Solar and Renewable Solutions Programs.** These programs are designed to offer customers access to clean renewable energy resources, thereby reducing dependence on fossil fuel resources.
- **7. Ameren Illinois Solar.** In Illinois, comprehensive energy legislation puts the state on a path to achieve 100% clean energy by 2050 and contains provisions allowing Ameren Illinois to construct solar facilities in East St. Louis and Peoria. Construction is already underway in East St. Louis. To support the state's transition to renewable energy, we are transforming the energy system to make it safer, more reliable, resilient and secure.
- **8. Ameren Accelerator.** Ameren partnered with the University of Missouri System, Capital Innovators and industry associations to invest, mentor and support energy technology startups. Through this innovative public-private partnership, Ameren invested \$1.9 million from 2017-2019 in energy startups and technologies with the goal of meeting future needs for clean energy in our service territory. To date, over 150 jobs have been created along with an additional \$20 million in follow-on funding for these companies. Ameren is also participating in EPRI's Incubatenergy Labs Network. This collaborative endeavor, consisting of over a dozen peer utilities, focuses on demonstration pilots of new technologies set to transform the energy landscape, including those that have a focus on carbon and the environment.





# **SCENARIO ANALYSIS**

### Testing Our Carbon Reduction Plan

As we evaluate climate risks, we are increasingly focused on contributing to the achievement of a goal of limiting global average temperature rise to no more than 1.5°C, the target established by the Paris Agreement. To help us assess the resilience of Ameren Missouri's 2022 IRP against potential future climate policies and associated emissions requirements, we leveraged the EPRI study "Grounding Decisions: A Scientific Foundation for Companies Considering Global Climate Scenarios and Greenhouse Gas Goals," which summarized over 1,000 climate scenarios from the IPCC and others. The study was updated in April 2022 with the publication of a new report "Review of 1.5°C and Other Newer Global Emissions Scenarios: Insights for Company and Financial Climate Low-Carbon Transition Risk Assessment and Greenhouse Gas Goal Setting." The EPRI studies offered a scientifically-based framework for considering uncertainty in climate-scenario analysis and provided insights that could be applied at the company level. The EPRI study also included other scenario data from sources reviewed by the IPCC, as well as some scenario data from sources not reviewed by the IPCC, such as the Natural Resources Defense Council and Bloomberg New Energy Finance.

### **Scenario Ranges and Analysis**

Much of EPRI's study builds on the scenario results released by the IPCC in its Fifth Assessment Report and on scenario data used by the IPCC in its "Special Report on 1.5°C." (IPCC Special Report). From the combined data sets of these IPCC reports, 78 scenarios were placed into one of three categories according to their probabilities of limiting increases in global average temperature to no more than  $1.5^{\circ}$ C. Each category includes a range of emissions pathways, which represent projected global annual  $CO_2$  emissions levels over a given period of time, along with a range of probabilities of staying below  $1.5^{\circ}$ C.

To provide proper context for a review of Ameren Missouri's most recent IRP, we calculated Ameren's pro rata share of emissions for the global electric sector scenarios from the EPRI analysis using Ameren's share of 2005 emissions. This allowed us to compare the emission reductions associated with our plan to the emissions pathways represented in the scenario analysis data used by EPRI.

Comparing the IRP against those scenarios that exhibit a high likelihood of achievement of a 1.5°C goal, as illustrated in Figure 1, we found that the projected  $\mathrm{CO_2}$  emissions under our current plan fall well within the range of the emissions defined by these scenarios. We expected these results because our current plan was tailored to be consistent with meeting a 1.5°C goal, as outlined in the Paris Agreement, and includes significant increases of clean energy resources, EE, accelerated coal-fired energy center retirements and increased electrification in comparison to our previous plan.

### **EPRI IS:**

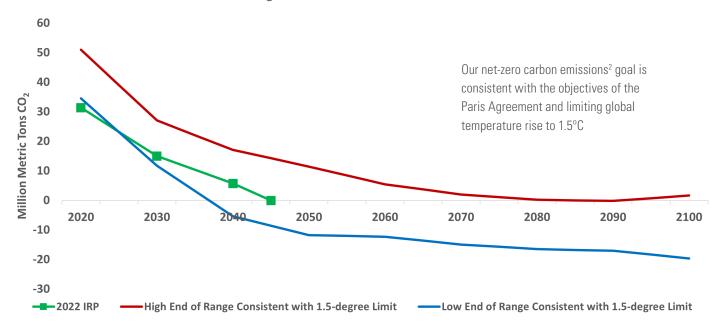
- An independent, nonprofit organization for public interest energy and environmental research focused on electricity generation, delivery and use in collaboration with the electricity sector and its stakeholders.
- A provider of thought leadership and technical expertise to help the electricity sector identify issues, technology gaps and broader needs that can be addressed through effective research and development programs.
- A more than 1,000 member organization, with members from around the world. While most members are electric utilities, other stakeholders include government agencies, regulators, NGOs and public or private entities engaged in some aspect of the generation, delivery or use of electricity.
- •Ameren has been a member company since 1973.





### AMEREN CARBON EMISSIONS PATHWAYS VS. GLOBAL NET CARBON PATHWAYS

Our Plan Is Consistent With Paris Agreement



- 1. Electric Power Research Institute's analysis of the Intergovernmental Panel on Climate Change scenarios provides a scientifically-based framework for assessing Ameren's plan.
- 2. Ameren's goals include both Scope 1 and Scope 2 emissions including the greenhouse gas emissions of methane, nitrous oxide and sulfur hexafluoride.

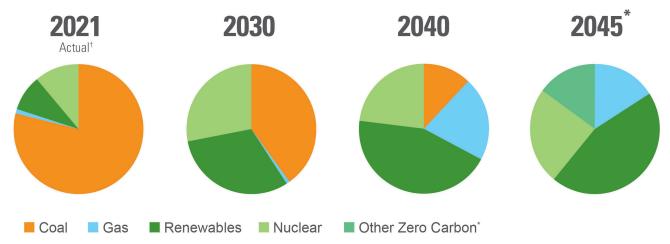
We will continue to monitor technology developments that may present economically feasible and cleaner solutions in our ongoing effort to reduce GHG emissions. As discussed elsewhere in this report, our current plan represents a balanced and cost-effective approach to meet the long-term energy needs of our customers and transition to a cleaner energy portfolio in a responsible fashion. However, changes in energy policies

and regulations could require adjustments to the plan in order to accelerate or increase carbon emission reductions. We will continue to work closely with regulators, policymakers and other key stakeholders to balance environmental stewardship with customer affordability and reliability during the clean energy transition.

FIGURE 2

### **TARGET TO ACHIEVE NET-ZERO CARBON EMISSIONS BY 2045**

Executing on transformation that will ultimately replace fossil fuels with clean sources of energy



<sup>†</sup> Nuclear percentage reflects extended Callaway outage in 2021.



<sup>\*</sup> Gas-fired generation in 2045 is expected to include some combination of hydrogen fuel use and carbon capture technology to mitigate associated carbon emissions.



# **METRICS AND TARGETS**

Ameren greenhouse gas emissions, as reflected in U.S. EPA reporting and our CDP Climate Change Questionnaire, are shown in Table 1. Each scope reported is summarized in the table. Since 2005, the company's overall direct emissions have decreased as Ameren transitions to cleaner, more diverse energy sources to reach net-zero emissions by 2045.

Ameren's 2022 IRP targets a 50% carbon emissions reduction by 2030, 85% carbon emissions reduction by 2040, and net-zero by 2045 of Scope 1 and Scope 2 emissions, based on 2005 levels. Executing on this plan is based on accelerating coal plant retirements, adding more wind and solar energy, extending the operational life of the Callaway Nuclear plant, as well as incorporating new carbon-free or low-carbon technologies as they emerge.

### **Scope 1 Emissions**

More than 99% of Ameren's Scope 1 or direct GHG emissions occur as a result of operations of fossil-fueled energy centers.

Ameren Missouri generation includes  $\mathrm{CO}_2$ ,  $\mathrm{CH}_4$ , and  $\mathrm{N}_2\mathrm{O}$  emissions from coal, natural gas, oil and landfill gas units. Ameren also generates carbon-free electricity from the Callaway Nuclear Energy Center. The yearly increase in emissions from 2019 to 2021 was primarily due to downtime at the nuclear energy center and additional sources included in the GHG inventory. Ameren continues to transition from coal to cleaner energy sources through its plans to add more renewable energy and extending the life of the nuclear energy center, resulting in an overall reduction in Scope 1 emissions.

### **Scope 2 Emissions**

Ameren's Scope 2 emissions include emissions from the electricity usage at Ameren Missouri and Ameren Illinois facilities. Scope 2 emissions included in Table 1 reflect limited boundaries in the evaluations of these emissions. Ameren's 2022 IRP net-zero by 2045 goal includes Scope 1 and Scope 2 emissions. Ameren will reduce Scope 2 emissions as coal plants retire and cleaner energy sources are added. Ameren's Scope 1 and Scope 2 emissions have been third-party verified for 2019, 2020 and 2021.

### **Scope 3 Emissions**

Defining, measuring and setting targets for Scope 3 emissions is different for every company. In an effort to better understand this class of emissions, Ameren solicited the help of a technical consultant and pursued an independent third-party verification for Scope 3 emissions for 2021 greenhouse gas emissions. We reported on eight of the 15 Scope 3 categories, seven of which were not applicable. Ameren continues to collaborate with suppliers, implement waste minimization efforts and reduce emissions associated with upstream transportation and distribution to reduce Scope 3 emissions. Increases in Scope 3 category emissions are primarily due to enhancements of Ameren's greenhouse gas inventory (i.e., adding more sources and expanding category boundaries). A detailed depiction of Scope 3 emissions disclosed is included in Table 1.



Table 1: CO2e EMISSIONS (Metric Tons)\*

	2019	2020	2021	DESCRIPTION
Scope 1	24,413,651 <sup>1</sup>	25,967,235 <sup>1</sup>	28,229,889 <sup>1</sup>	Scope 1 emissions presented include: Ameren Missouri Generation, Ameren Missouri & Ameren Illinois Vehicle Fleet; Ameren Missouri equipment oil; propane usage, Ameren Illinois Natural Gas consumption for buildings; Ameren Illinois and Ameren Missouri electric distribution; and Ameren Illinois and Ameren Missouri natural gas supply systems (includes methane emissions).
Scope 2	62,836 <sup>1</sup>	58,106¹	74,9811	Scope 2 emissions presented include electricity usage only at Ameren Illinois buildings and Ameren headquarters. Scope 2 emissions are the same for location-based and market-based.
Scope 3	792,353	13,769,661	18,827,969 <sup>1</sup>	Scope 3 emissions from indirect sources outlined below

<sup>\*</sup>For additional information see Ameren CDP Climate Change Questionnaires for reporting years 2019, 2020 and 2021.

- Ameren Missouri Generation includes CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions from coal, natural gas, oil and landfill gas units.
- The Scope 2 and Scope 3 figures included in Table 1 reflect limited boundaries in the evaluations of these emissions.
- The yearly increase in emissions from 2019 to 2021 for all three scopes (1, 2, and 3) was due to a number of factors. Scope 1 emissions increased due to utilizing the coal-fired energy centers to offset the Callaway outage as well as adding additional sources. Scope 2 emissions increased due to adding more facilities and accounting for the electricity usage from these facilities. Scope 3 emissions increased due to adding more purchased goods and services, adding new categories and increased usage of coal at the energy centers due to the Callaway outage.

Applicabl	e Scope 3 Cat	egories		
Category Number	<b>2019</b> (MT CO <sub>2</sub> e)	<b>2020</b> (MT CO <sub>2</sub> e)	<b>2021</b> (MT CO <sub>2</sub> e)	Category Name and Description
1	64,293	69,320	1,575,053	Purchased goods and services
2			905,098	Capital Goods
3		6,063,090	8,478,655	Fuel and energy-related activities (not included in Scope 1 or Scope 2)
4	721,118	780,845	788,307	Upstream transportation and distribution
5			66,048	Waste generated in operations
6	6,942	4,434	4,127	Business travel
7			7,191	Employee commuting
11		6,851,973	7,003,489	Use of sold products
Total	792,353	13,369,661	18,827,969	

Non-App	licable Scope 3 Categories
8	Upstream leased assets
9	Downstream transportation and distribution
10	Processing of sold products
12	End-of-life treatment of sold products
13	Downstream leased assets
14	Franchises
15	Investments



<sup>1.</sup> Independent verification of GHG emissions provided by ERM CVS.

<sup>•</sup> Carbon dioxide equivalent or CO<sub>2e</sub> means the number of metric tons of CO<sub>2</sub> emissions with the same global warming potential as one metric ton of another greenhouse gas. (Source: https://www3.epa.gov/carbon-footprint-calculator/tool/definitions/co<sub>2e</sub>.html).



# **RISK MANAGEMENT AND GOVERNANCE**

### Protecting Customer and Shareholder Interests

We believe that prudent compliance measures undertaken in accordance with applicable regulatory frameworks, coupled with our robust risk management systems that support the identification, evaluation and mitigation of risk, effectively enable us to mitigate the policy and legal, physical, reputational, technology, market and financial risks associated with climate-related issues.

Reflecting our balanced approach to sustainability, we integrate environmental protection considerations, including climate policy and legal risk, into our broader Enterprise Risk Management (ERM) and strategic planning initiatives. Our ERM program is a comprehensive, consistently applied management framework that captures climate-related policy and legal, physical, reputational, technology, market and financial risks. Ameren embeds risk management into its business processes and key decision-making at all levels of the company. Risk owners within the company are accountable for the quantification and mitigation of individual risks. The ERM program assists management in identifying, assessing and managing risks.

The ERM team supports management in risk-based decision making and enabling achievement of company objectives in a manner consistent with Ameren's overall risk tolerances.

Ameren's ERM team periodically engages a cross-company team to review current risks, identify emerging risks, review risk response plans, and ensure cross-segment adherence to Ameren's ERM framework. In addition to Ameren's internal risk identification process, the ERM team and management review and identify risks utilizing a variety of external sources such as engaging with key industry groups, engaging with groups external to the utility industry, and researching and reviewing external publications. Some of the climate-related risks we consider and prepare for include:

- Policy and Legal. How we comply with existing laws and regulations, assessing how changing climate policy, laws and regulations could potentially affect our business going forward and how we advocate for sound energy policies for the benefit of our customers and communities we serve.
- Physical. How changes in the climate, like extreme weather, affect our physical infrastructure and system reliability.
- Reputational. How our response to climate-related changes impacts our reputation among key stakeholders.
- Technology. How climate changes will impact our technology decisions and require new innovations to serve our customers' energy needs.
- Market. How climate-related changes impact our engagement with customers, our suppliers, the prices we pay for commodities, products and services, and the capital investments we make.



• **Financial.** How climate change may affect our business as well as our customers and shareholders. We believe that being thoughtful about our impact on the environment, while also preparing for climate-related risks, is not only the right thing to do — it's also a smart business decision.

For additional information regarding certain risks discussed in this report, please refer to Ameren's Annual Report on Form 10-K for the year ended December 31, 2021 and subsequent filings with the Securities and Exchange Commission.

### **Enterprise Risk Management**

The Audit and Risk Committee (ARC) of Ameren's board of directors is responsible for monitoring and oversight of all significant enterprise risks. Oversight includes the ERM process encompassing the identification, assessment, mitigation and monitoring of risks on a companywide basis. The ARC meets on a regular basis to review ERM processes, at which time applicable members of senior management, including the Executive Leadership Team, provide reports and updates to the committee.

The ARC coordinates with other committees of the board that have primary oversight responsibility for specific risks. Each of the Board's standing committees receives regular reports from management concerning its assessment of company risks within the purview of such committee. The risks not specifically assigned to a Board committee are considered by the full Board and by the ARC through its oversight of the Company's ERM process. Ameren's Risk Management Steering Committee (RMSC) provides management-level oversight of risk management for the ERM program. The RMSC is chaired by

the Chief Financial Officer (CFO) and is comprised of 10 senior officers, and meets monthly throughout the year. The RMSC has issued Ameren's Risk Management Policy to govern risk management across the corporation.

# Governance, Oversight and Engagement Board of Directors

Ameren's board of directors, currently comprised of 12 independent board members, Ameren's executive chairman, and its president and CEO, oversees environmental policy matters and strategies, including those related to planning for the potential implications of climate-related issues. Ameren's board has a diverse range of skills that make it well-positioned to address the risks and opportunities associated with climate change. These include extensive energy industry, strategic planning, financial, legal, cyber, nuclear, sustainability and regulatory experience, diversity and inclusion, as well as environmental expertise. In addition to the board's direct oversight, standing committees of the board have the following responsibilities:

• Nuclear, Operations and Environmental Sustainability Committee: Oversees and reviews the Company's operations, including safety, performance, sustainability and compliance issues, and risks, policies and performance related to environmental sustainability matters, including those related to climate change and water resource management. Senior management updates the Nuclear, Operations and Environmental Sustainability Committee on the Company's operations throughout the year, including long-term generation planning, compliance with environmental regulations, and environmental sustainability matters.





- Audit and Risk Committee: Oversees Ameren's ERM
   program, which includes strategic and operational risks, as
   well as the processes, guidelines and policies for identifying,
   assessing, monitoring and mitigating such risks, which, as
   noted above, include climate-related risks.
- Nominating and Corporate Governance Committee:
   Oversees Ameren's corporate governance policies and
   practices. This oversight includes review of Ameren's
   proxy statements, shareholder proposals, the Company's
   responses to shareholder proposals, and reports the
   Company issues in response to shareholder proposals.
- Human Resources Committee: Oversees executive
  compensation practices and policies, including the integration
  of environmental, social and governance measures, and
  human capital management practices and policies, including
  those related to diversity, equity and inclusion.

### **Management Teams**

Management-level oversight of environmental, social and governance matters, including climate matters, is provided by our ELT, as well as our Sustainability Executive Steering Committee, which is led by the Chief Sustainability, Diversity and Philanthropy Officer. In addition, a variety of management teams throughout our organization plan and execute our risk strategy, as well as coordinate with internal and external subject matter experts to inform the Board and company leadership of specific issues. These teams include:

- Environmental: Monitor state and federal regulatory developments and participate with industry groups on climate-related issues, as well as develop compliance plans that address regulatory requirements and support safe operations that are protective of the environment.
- Innovation: Study and plan for the integration of technologies, such as those related to renewable resources, carbon capture utilization and storage (CCUS), hydrogen resourc advanced es, advanced nuclear, EE, DERs and electric vehicles (EVs), that can be leveraged to enhance Ameren's business.
- Legislative and Regulatory Affairs: Develop and support Ameren's position on proposed legislation and regulation addressing emissions and climate risk.
- Corporate Analysis: Evaluate and recommend capital allocation plans to optimize our investments for the benefit of our customers, employees, shareholders and the environment.

- Engineering: Carefully design and implement all energy center and electric transmission and gas pipeline construction projects.
- Legal: Advise on environmental, social and governance matters, including those related to climate change.
- Electric generation, transmission, distribution and natural gas operations: Manage operational risks
   24 hours a day, seven days a week.

Working together, these teams are anticipating, monitoring and adjusting to prepare for risks and identifying opportunities to protect and benefit stakeholders and the future of Ameren.

### **Policy and Legal Risk Mitigation**

Current and future policies at the federal, state or local level could have a significant impact on the electric power industry, our business, our customers, the communities we serve and our shareholders. In addition to complying with existing laws and regulations, Ameren actively engages with key stakeholders, and monitors and reviews applicable policies for potential impacts to our current and future operational analysis and decision making. The changing nature of international efforts and domestic rules and regulations, such as those outlined below, highlights the uncertainties we face around energy policy, particularly climate energy policies.

Changes in energy policies and regulations could require adjustments to our generation transition plan to accelerate or increase carbon emission reductions. Under our regulatory frameworks, prudent actions taken to comply with laws and regulations are recoverable in customer rates. In addition, while our current generation transition plan has flexibility to comply with new laws and regulations, changes to environmental laws and regulations could increase costs to customers, impact reliability, and in some instances, negatively impact our revenues or ability to fully recover our costs and earn fair returns on our investments. We will continue to advocate for responsible energy policies and regulations (including environmental policies and regulations) that effectively balance environmental stewardship with customer costs and reliability. For additional information and further discussion, refer to Ameren's 10-K Report and its subsequent filings with the Securities and Exchange Commission. Missouri and Illinois laws require electric utilities to include renewable energy resources in their portfolios. Ameren Missouri satisfies the non-solar renewable requirements with High Prairie, Atchison, Keokuk and Maryland Heights renewable





energy centers. Ameren Missouri is meeting the solar energy requirement by purchasing solar-generated renewable energy credits from customer-installed systems and by generating solar energy at its O'Fallon, Lambert, and BJC energy centers and its headquarters building.

Ameren Illinois has entered into renewable credit contracts with 20-year terms ending in 2032 and will execute additional contracts in 2022. Illinois law also requires Ameren Illinois to enter into contracts for zero emissions credits. Ameren Illinois has entered into agreements to acquire zero emissions credits through 2026 to fulfill this requirement.

### **The Paris Agreement**

The central goal of the Paris Agreement is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2°C from preindustrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C.

The Paris Agreement also establishes Nationally Determined Contributions (NDC), which reflect each member nation's emissions targets. As part of the 2015 Paris Agreement, the U.S. submitted an NDC which provides for an economy-wide 26%-28% reduction below 2005 levels by 2025. Ameren, along with the utility industry, has already achieved these reductions.

Under the Paris Agreement, countries are required to submit updated NDCs every five years, including targets for 2030 to be submitted by the end of 2022. In January 2021, President Biden issued an executive order, Tackling the Climate Crisis at Home and

Abroad, that committed the U.S. to rejoining the Paris Agreement following withdrawal under the previous administration. It also initiated several actions for the U.S. to address climate change, including the development of the 2030 NDCs.

On April 22, 2021, the U.S. hosted the Leaders Summit on Climate Change and announced an NDC to reduce greenhouse gas emissions 50% to 52% by 2030 compared to 2005 levels. The U.S. submitted its NDC to the United Nations Framework Convention on Climate Change (UNFCCC) secretariat for the Paris Agreement. The United Kingdom hosted the 26th UNFCCC Conference of the Parties (COP26) in November 2021 in Glasgow. Participants reached an agreement known as the Glasgow Pact which recognized that accelerated action was needed to bridge the gap to meet climate goals. COP27 will be held November 2022 in Sharm El Sheikh, Egypt.

### **EPA's Regulation of CO**, from Power Plants

In June 2022, the United States Supreme Court issued its decision in West Virginia v. EPA. The decision clarifies that there are limits on how the EPA may regulate greenhouse gases absent further direction from the United States Congress. The court concluded that emission caps that would cause generation shifting from fossil fuel-fired power plants to renewable energy facilities would require specific congressional authorization and that such authorization had not been given under the Clean Air Act. The court's decision may affect the EPA's development of any new regulations to address  $\mathrm{CO}_2$  emissions from coal- and natural gas-fired power plants; however, at this time, the timing and impact of any such regulations is uncertain.





### **Recent Climate-Related Policies**

As Ameren transitions to a cleaner and more diverse generation portfolio, climate policies such as the The Inflation Reduction Act (IRA) and the Infrastructure Investment and Jobs Act (IIJA) will aid in this transition and benefit customers long term. Ameren Missouri expects more than \$1 billion in net benefits by 2032, saving our Ameren Missouri customers an average of more than 4% per year over that period of time as compared to what they would have paid. These clean energy tax credits will significantly reduce the costs of clean energy while accelerating investments to address climate change. Ameren also expects Production Tax Credits (PTCs) to increase annually as renewable resources come online, resulting in additional customer savings. Other policy benefits include tax credits for new zero-emissions developments, existing nuclear power plants and new renewable additions.

### **Physical Risk Mitigation**

Certain climate assumptions indicate present and continuing patterns of increased variability and severity of weather-related events. Electric transmission and distribution systems can be particularly affected by regional flooding and other extreme weather, some of which cannot be predicted with accuracy.

Ameren's primary means of mitigating the physical risks associated with extreme weather events is to make certain asset enhancements and improvements, commonly known as "system hardening," to avoid potential impacts and damages that may otherwise occur. At the same time, we deploy a multifaceted strategy to ensure the reliability and stability of the grid, from

the energy center to the customer. This strategy includes system hardening and three distinct and complementary levels of planning and execution — emergency planning, situational awareness and emergency response — all in support of asset protection, system reliability and resiliency. We believe the combination of these measures can address the most severe potential impacts posed by changes in near-term weather patterns and longer-term climate trends.

### **System Hardening or Making the Grid More Resilient**

Ameren designs and incorporates physically robust and digitally intelligent features into the electric grid in anticipation of weather-related or other disruptive events. We plan and develop our transmission and distribution systems based on performance requirements associated with the most current standards governing these assets. Ameren's work to incorporate the system hardening measures described below has resulted in discernably improved customer reliability over the past decade.

As a means of making the physical grid more resilient, we bury distribution lines that we believe are most susceptible to weather-related damage, including those in heavily forested areas, crossing over interstates and to the extent possible, use steel and composite material poles and cross-arms, line post insulators, 360-degree pole guying, high-performance conductors and mechanical line dampers. For underground line assets, we make use of modern insulation technologies, ruggedized cable protection, and installation in conduit as opposed to direct burial. We believe all measures are designed to be effective in reducing the destructive effects of wind, ice, moisture and extreme temperatures.





Ameren has a regular inspection process to ensure transmission and distribution facilities are in good condition. Drone technology is used to enhance inspection quality by providing airborne access to otherwise unnavigable areas and capturing close-up images of components that cannot easily be seen from the ground.

The incorporation of "smart technology" into the transmission and distribution systems is another effective way Ameren creates resiliency against the adverse effects of extreme weather. Smart technology adds a layer of wireless communication and control atop the physical grid and allows for the automatic detection, location and isolation of grid disturbances. The subsequent rerouting of power to alternate supplies can reduce outage times to a matter of seconds for affected customers.

Ameren has been successful in advocating for legislation that provides for more rapid and widespread infrastructure investment, resulting in the Modernization Action Plan for Ameren Illinois and the Smart Energy Plan for Ameren Missouri. In the past few years, these programs have led to hundreds of millions of dollars in accelerated transmission and distribution investments directed specifically at enhancing reliability, hardening our system and expanding our grid intelligence. We have a vigilant surveillance and monitoring program for local river stages following extreme rainfall or drought conditions. We have also constructed flood walls, upgraded berms, implemented storm water capture and control measures, and relocated equipment within substation sites susceptible to flooding.

In addition, to mitigate the risk of high wind, extreme weather, or other climatic conditions, a site suitability assessment was conducted for the Atchison and High Prairie renewable energy

centers, which confirmed the wind turbines are suitable for use during such extreme conditions. These energy centers are also capable of operating at temperatures lower than the standard envelope for wind turbines of the same type because Ameren Missouri added a low-temperature operating package (down to -30 degrees Celsius) to mitigate the risk of shutdown during colder temperatures.

We also engaged an independent engineering firm to produce a Water Resilience Assessment Report to assess current and future availability of water resources in our region, as well as the Powder River Basin area of Wyoming, a key location in Ameren's supply chain. Based on the report's findings, we do not expect material impacts on our operations through 2030 due to water resource availability. A more complete discussion of the weather-and climate-related risks associated with key water resources can be found in Ameren's Water Resilience Assessment Report at Ameren.com/Sustainability.

### **Emergency Planning**

Ameren builds a risk management regimen into its policies and procedures to mitigate the effects of adverse weather events such as tornadoes, flooding and thunderstorms. Risk mitigation measures that address Ameren substation-related emergencies include our storing of spare power transformers, spare switchgear units and other substation-related equipment at strategic locations across our service territory.

At the transmission system level, Ameren participates in multiple industry transformer-sharing agreements for catastrophic events that require more equipment than what is stored in



Ameren warehouses. In addition, as a member of MISO – the Midcontinent Independent System Operator – Ameren participates in its transmission planning process, which considers multiple scenarios involving various contingency events, load growth rates, generator retirements, renewable energy levels and carbon policies. Ameren also actively participates in the Midwest Mutual Assistance Group (MMAG), a consortium of regional electric utilities created to provide members with the means to both receive and provide emergency support in response to large-scale outage events due to extreme weather. MMAG is one of seven regional mutual assistance groups with whom a national response to catastrophic events can be coordinated.

Additionally, Ameren maintains a fleet of fully-outfitted emergency storm trailers and mobile command centers that are available around the clock in order to rapidly move service restoration materials and personnel to prearranged staging areas near communities with concentrated damage.

### **Situational Awareness**

Ameren monitors, forecasts and prepares for disruptive events. A Crisis Management group oversees situational awareness, planning and preparation. This includes the formation of a Watch Center that monitors events on national, regional, state and local levels, including large weather-related service interruptions.

Ameren's Crisis Management Plan includes a strategic framework for training and exercise programs. Readiness and response capabilities are validated through the implementation of a progressive approach to exercise activities, including orientations, workshops, tabletop exercises, drills, functional exercises, and full-scale exercises. The exercise continuum is conducted throughout the company at all levels to include the area command team, incident response team, the executive lead team, and the board of directors.

Ameren receives real-time weather prediction information from independent providers like Earth Network and also partners with offices of the National Weather Service in St. Louis, Kansas City and Paducah, Kentucky. To enhance our weather preparedness, Ameren also makes use of a large network of weather-monitoring stations that provide more localized indications of potential severe weather in advance of its arrival. These monitoring stations are located within Ameren substation properties and record local meteorological data that includes temperature, humidity, wind speed and wind direction.

### **Emergency Response**

Ameren activates operational protocols in immediate response to a disruptive event by utilizing the Incident Command System (ICS) of emergency management to address large-scale infrastructure or customer service interruptions. ICS enables a coordinated emergency response under established command and control protocols that Ameren puts in place for the duration of any disruptive event. It also allows for immediate activation and integration within a common organizational structure and establishes standard processes and procedures for the management of a myriad of resources involved. ICS is part of the larger National Incident Management System, a nationally recognized framework originally established within the Department of Homeland Security.

As a result of the collective efforts described above, we strongly believe we can mitigate physical risks associated with climate change and weather-related events.

### **Reputational Risk Mitigation**

We manage our business in a sustainable fashion, balancing the needs of the customers and communities we serve, our co-workers, the environment and our shareholders.

Being mindful of potentially differing priorities among our stakeholders, we invest significant effort in analyzing strategic and operational options. We consider variables such as energy and environmental regulations, laws and policies, cost of the development, construction and operation of generation resources, cost of energy, demand for power, adoption of innovations such as EVs, and impact of EE programs. We take appropriate measures and actions to comply with existing rules and regulations to protect the environment and the communities we serve. We manage our business with a commitment to sustainability, exercising disciplined cost management to meet our customers' expectations for affordability and reliability. We proactively communicate with all of our stakeholders on our compliance strategies, including through community meetings and events, robust reports, shareholder engagement and regulatory filings. Ameren takes advantage of multiple opportunities to engage its key stakeholders. One example is the engagement with stakeholders as part of Ameren Missouri's IRP process, which resulted in the establishment of both a net-zero carbon emissions goal and a plan for the transformational addition of new wind and solar generation. Other engagements that create opportunities for information sharing includes the annual Community Voices Workshops, which allows for two-way dialogue between Ameren and community leaders.



Our strong governance framework demonstrates our commitment to oversight and accountability. Through implementing our strategy to significantly reduce GHG emissions, we strongly believe that we are effectively mitigating reputational risks associated with climate change.

Ameren continues to play a significant role in expanding procurement opportunities in our communities by aiding in the growth and development of diverse suppliers. We make sure that qualified diverse suppliers are encouraged and given the opportunity to do business with us.

Ameren is committed to serving the diverse needs of our communities and aims to successfully integrate our commitment into the corporation's business strategy. For example, in 2022, Ameren's spend with diverse suppliers grew to ~\$900 million, increasing 24% over the same spending in 2019. In our communities, Ameren committed \$10 million to nonprofits focused on DE&I between 2021 and 2025. We actively work with communities, including our underserved communities, to address Environmental Justice (EJ) considerations during projects and expansions and the evolving needs of those we service. Ameren has been ranked by DiversityInc as one of the top 5 utilities for diversity since 2009 and within the top 25 companies for ESG in 2022.

### **Technology Risk Mitigation**

The design, implementation and management of several programs associated with the reduction of climate-related risk (e.g., generation, energy efficiency programs and smart grid

programs) create technology risks, particularly if technologies will not perform as expected and fail to deliver results as expected.

In addition, new technologies that may emerge as a result of increased focus on GHG reduction technologies could change the use of natural gas and electricity. Improvements in technologies, such as plug-in electric vehicles and fuel cells, may increase demand for some of these products and result in additional stress on Ameren's delivery system. These demands could require enhancements to existing transmission and distribution systems or development of additional systems.

These and other technologies could also affect natural gas and electric sales. Ameren addresses these risks by designing programs that contain a mix of initiatives to avoid over-reliance on any one approach, technology or market. This mix includes different services, delivery mechanisms, and incentive types/levels. In 2010, Ameren created the Technology Point of View Team to assess technology expected to have a significant future impact on our business. This team offered a framework for evaluating and monitoring potential "game-changing" technologies.

In 2015, Ameren's Innovative Technologies initiative was established to advance innovative technologies and related impacts on customer loyalty, regulatory/policy frameworks, and economic opportunities with a view 15 years into the future. As part of our ongoing planning process, we monitor costs and technological advancements in various types of generation resources. The teams assess various technologies





and recommend action plans to create successful change. The initiative's efforts complement other innovation activities occurring across Ameren.

Lastly, as Ameren works to enhance and expand the digital intelligence and automation capability of its distribution grid, we observe that the technology products available to the utility industry today are more complex, broader in scope and developing at a faster rate than ever before. Ameren Illinois' Technology Application Center in Champaign is an Amerenowned asset dedicated to the comprehensive testing, validation, and support of grid-based technologies.

Having isolated testing environments like these at our disposal enables Ameren to deploy new grid products and automation technologies at a more rapid pace and with increased confidence in their success. Mitigating the risk of new technology challenges and new product immaturity in this fashion ultimately translates to broader benefits for customers in shorter periods of time.

### **Market Risk Mitigation**

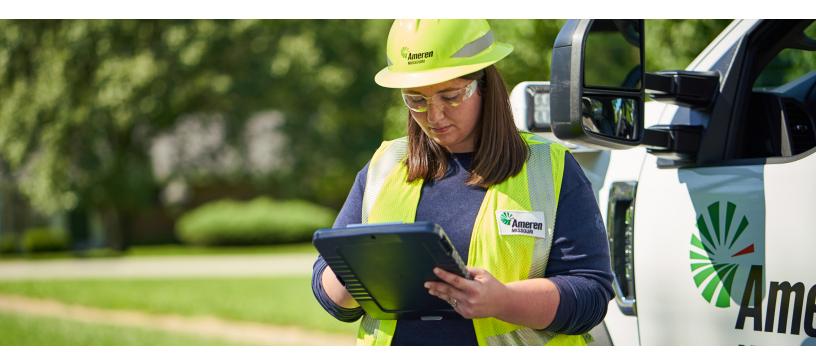
Our businesses are dependent on our ability to access the capital markets successfully. Timely access to reasonable terms is crucial. We rely on the issuance of short-term and long-term debt and equity as significant sources of liquidity and funding for capital requirements not satisfied by our operating cash flow, as well as to refinance existing long-term debt. The inability to raise debt or equity capital on reasonable terms, or at all, could negatively affect our ability to maintain and expand our businesses.

Events beyond our control, such as depressed economic conditions or extreme volatility in the debt, equity or credit markets, might create uncertainty that could increase our cost of capital or impair or eliminate our ability to access the debt, equity or credit markets, including our ability to draw on bank credit facilities. Any adverse change in our credit ratings could reduce access to capital and trigger collateral postings and prepayments. Such changes could also increase the cost of borrowing which could adversely affect our results of operations, financial position and liquidity.

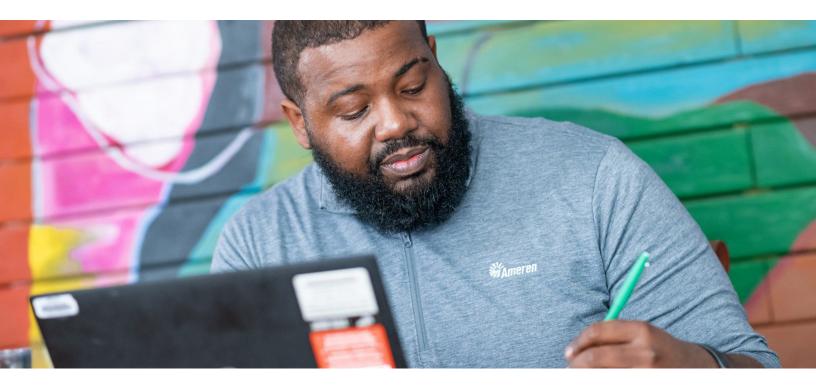
Ameren continues to monitor and actively participate in local, state and federal policy discussions that will affect changes in market operations and the markets successful transition to cleaner energy. The market risks associated with the availability and costs of materials and supplies, and the significant need for new transmission infrastructure in our service territory and across the nation can all have an impact on Ameren's decisions and approach to providing safe, reliable and affordable energy for our customers.

### **Financial Risk Mitigation**

The electric rates that Ameren Missouri charges its customers are determined by the MoPSC and reflect the prudently incurred costs of the energy centers, including those related to compliance with environmental laws and regulations. Full and timely recovery of our costs, including operating costs associated with any climate-related activities, and the ability to earn a fair return on our investments are critical to our shareholders. A key







aspect of recovering all of our capital and operating costs for environmental matters through electric rates approved by the MoPSC is complying with existing laws and regulations in a prudent fashion.

Another key consideration is ensuring that our compliance plans effectively take into consideration cost-effective options to keep our customers' rates affordable and predictable and the system reliable. We intend to comply with all climate-related laws and regulations if and when they are enacted.

While we continue to evaluate alternatives, we believe the actions outlined in Ameren Missouri's 2022 IRP represent a cost-effective plan for our customers. Our compliance plan included in the IRP is prudent and complies with all existing laws and regulations and as a result, we expect that costs associated with this plan will be recoverable through customer rates, subject to final approval by the MoPSC. Accordingly, we strongly believe we are effectively mitigating the financial risks associated with climate change through the execution of our IRP.

Changes in energy policies and regulations could require adjustments to our generation transition plan to accelerate or increase carbon emission reductions. Under our regulatory frameworks, prudent actions taken to comply with laws and regulations are recoverable in customer rates. In addition, while our current generation transition plan has flexibility to comply with new laws and regulations, changes to environmental laws and regulations could increase costs to customers, impact reliability, and in some instances, negatively impact our revenues or ability to recover our costs and earn fair returns on our investments.

We will continue to advocate for responsible energy policies and regulations (including environmental policies and regulations) that effectively balance environmental stewardship with customer costs and reliability. For additional information and further discussion, refer to Ameren's 10-K Report and its subsequent filings with the Securities and Exchange Commission.



# FINANCIAL IMPACTS AND OPPORTUNITIES

### **Investing in Cleaner Energy Sources**

Looking ahead, Ameren remains focused on delivering distinctive long-term value to our customers while leading the way to a sustainable future. In furtherance of its commitment, Ameren Missouri acquired the 400 MW High Prairie Renewable Energy Center in 2020 as well as the 300 MW Atchison Renewable Energy Center in 2021, which represented a \$1 billion investment. Looking ahead, Ameren's IRP reflects the addition of an additional 2,800 MW of renewable generation by 2030, representing a \$4.3 billion investment opportunity, and a total of 5,400 MW of renewable generation by 2040, representing a total investment opportunity of approximately \$7.5 billion. The IRP also reflects the addition of a 1,200 MW combined cycle natural gas facility by 2031, representing an investment opportunity of \$1.7 billion, and the addition of 800 MW of battery storage by 2040, representing an investment opportunity of \$650 million.

In addition, the ongoing, efficient operation of our existing clean energy sources such as the Callaway Energy Center and the hydroelectric energy centers are key to Ameren's goal of achieving net-zero carbon emissions by 2045 while maintaining customer affordability and reliability.

### **Improving System Reliability**

The importance of the transmission grid will continue to grow as Ameren and the rest of the U.S. power industry continues to transition to cleaner sources of energy. Large-scale expansion of the grid will be necessary to integrate more and more wind and solar generation resources, grid-scale storage, and other resources that will enable the deep decarbonization of the U.S. economy. Regional Transmission Organizations (RTOs) like MISO are already planning for the infrastructure that will be needed to facilitate this transition. This includes assessing the overall need for resources, the expected resource mix, and the systems and processes that will be needed to operate the grid safely and reliably. Ameren will play a vital role in helping to shape the development and construction of this critical infrastructure, not only in its capacity as a member of MISO but also as a leading voice in the development of energy policies at the federal and state levels, which will be important in ensuring that the transition results in a grid are both reliable and affordable for customers. Most recently, in July 2022, MISO approved the first tranche of transmission projects under its Long-Range Transmission Plan, which included projects assigned to Ameren Illinois and Ameren Missouri, that would represent a \$1.8 billion investment opportunity, in addition to competitive projects in Missouri representing a \$700 million investment opportunity, in each case based on MISO cost estimates.

Ameren Transmission Company of Illinois has also completed several transmission projects which serve to strengthen grid reliability and provide greater access to renewable energy resources. These projects include:

 The Mark Twain Transmission project, representing an investment of \$265 million, included a 96-mile, 345 kV







transmission line and substation placed into service in December 2019 in northeast Missouri. This project has helped enable wind projects under development in Missouri that will provide lower-cost energy to the grid, allowing benefits of this project to far exceed the project costs.

- The Spoon River Transmission Line project, representing an investment of \$130 million, included a 44-mile 345 kV transmission line between Galesburg and Peoria, Illinois. This project is directly aligned with Ameren's strategic goals of providing customers with reliable, efficient and environmentally responsible energy.
- The Illinois Rivers project, a 375-mile, 345 kV transmission line from Palmyra, Missouri to Sugar Creek, Indiana, was completed in December 2022 and represented Ameren's largest transmission line project to date. This \$1.4 billion investment provides local and regional benefits, including increased transmission capacity, improved grid reliability and access to lower-cost energy and electricity from renewable resources for Midwestern families and businesses.

### **Customer Focused**

As Ameren continues to invest in a cleaner energy profile, we will continue to focus on customer affordability and reliability. We have a history of successfully investing in clean energy focused projects while maintaining customer rates well below the Midwest and national averages. Ameren Missouri's Smart Energy Plan and Ameren Illinois' Grid Modernization Action Plan are examples of well thought out plans executed over a number of years. These plans each help support Ameren's responsible transition to cleaner energy, as well as create thousands of job opportunities for local communities.

The Smart Energy Plan includes investments to make sure the places our customers live and work have clean, reliable energy. This plan consists of over 2,000 projects that include new power lines, stronger poles, upgrading substations and adding smart technology to take outages from hours to minutes. In 2021, 57% of the suppliers we worked with on Smart Energy Plan projects were Missouri-based.

The Ameren Illinois Grid Modernization Action Plan (MAP) has created over 450 jobs and led to the investment of approximately \$640 million over a 10-year period to improve the reliability and performance of its electric delivery infrastructure. Under the MAP, Ameren Illinois has installed advanced meters, strengthened poles, replaced cables and deployed new technology such as intelligent switches and sensors that can detect and isolate outages for faster service restoration.





# **CONCLUSION**

Ameren recognizes that climate change is an important issue for our customers, our communities, our nation and our planet, and we are committed to doing our part to protect and preserve the environment.

We developed a robust and thoughtful plan that we believe is consistent with and contributes to reductions in  ${\rm CO_2}$  emissions contemplated under the Paris Agreement. It benefits all stakeholders, is responsible, executable and will deliver results.

This plan is expected to achieve significant reductions in GHG emissions consistent with a range of climate scenarios, while improving reliability and keeping customer rates affordable.

The technological and policy decisions made in response to climate change present both risks and opportunities for our business. We will continue to employ our robust risk management, governance and strategic planning processes to identify these risks and opportunities, and execute our plans to address them in the best interests of all our stakeholders.

As we have discussed throughout this report, our plan targets specific actions directly aimed at reducing GHG emissions, including:

- The largest-ever expansion of clean solar and wind generation in our company's history while maintaining the reliability and affordability that customers have come to expect.
- Promoting energy efficiency and demand response programs that save our customers money on their energy bill.
- Promoting efficient electrification to further reduce air pollution and carbon emissions economy-wide while lowering costs for customers.

- Modernizing our grid to allow for more customer control and to accommodate more energy from renewable and/or intermittent resources
- Addressing the impact of climate change by fostering innovation to keep up with evolving customer needs and hardening our system to be more resilient to climate change and weather-related events.

Ameren continues to look for ways to share our approach to contributing to a more sustainable region and culture. We participate in and post various surveys and disclosures that support this effort. Annually, since 2011, Ameren has published a sustainability report. The 2022 Sustainability Report was released in May in concert with Ameren's annual shareholder meeting.

Participation in the CDP Climate Change questionnaire and CDP Water questionnaire has continued, starting in 2008 and 2018, respectively. Additionally, our participation in the EEI-AGA ESG/ Sustainability Template helps further inform stakeholders; Ameren has supported this effort as one of the first since 2018. This Climate Risk Report represents Ameren's continuing effort to communicate our approach to identifying, assessing and managing climate-related risks. As Ameren continues to assess its climate risks and evaluate options for mitigation, we will continue to employ a framework that accounts for the kind of uncertainty inherent in this complex issue and strive for solutions that provide options that benefit our customers, the communities we serve, the environment and our investors.



# FORWARD-LOOKING STATEMENTS

Statements in this report not based on historical facts are considered "forward-looking" and, accordingly, involve risks and uncertainties that could cause actual results to differ materially from those discussed. Although such forward-looking statements have been made in good faith and are based on reasonable assumptions, there is no assurance that the expected results will be achieved. These statements include (without limitation) statements as to future expectations, beliefs, plans, projections, strategies, targets, estimates, objectives, events, conditions, and financial performance. In connection with the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, we are providing this cautionary statement to identify important factors that could cause actual results to differ materially from those anticipated. The following factors, in addition to those discussed within Risk Factors in our Annual Report on Form 10-K for the year ended December 31, 2021, and elsewhere in this report and in our other filings with the Securities and Exchange Commission, could cause actual results to differ materially from management expectations suggested in such forward-looking statements:

- regulatory, judicial, or legislative actions, and any changes in regulatory policies and ratemaking determinations, that may change regulatory recovery mechanisms, such as those that may result from the impact of a final ruling to be issued by the United States Court for the Eastern District of Missouri regarding its September 2019 remedy order for the Rush Island Energy Center, the MoPSC staff review of the planned Rush Island Energy Center retirement, Ameren Missouri's electric service regulatory rate review filed in August 2022 with the MoPSC, the August 2022 United States Court of Appeals for the District of Columbia Circuit ruling that vacated the FERC's MISO return-on-equity (ROE)-determining orders and remanded the proceedings to the FERC, the July 2020 appeal filed by Ameren Missouri, Ameren Illinois, and ATXI challenging the FERC's rehearing denials in the transmission formula rate revision cases, Ameren Illinois' electric distribution service rate reconciliation request filed with the ICC in April 2022, and Ameren Illinois' annual electric energy-efficiency formula rate update filed with the ICC in June 2022;
- the length and severity of the COVID-19 pandemic, and its impacts on our business continuity plans and our results of operations, financial position, and liquidity, including but not limited to changes in customer demand resulting in changes to sales volumes; customers' payment for our services; the health, welfare, and availability of our workforce and contractors; supplier disruptions; delays in the completion of construction projects, which could impact our expected capital expenditures and rate base growth; changes in how we operate our business; and our ability to access the capital markets on reasonable terms and when needed;
- the effect of Ameren Illinois' use of the performance-based formula ratemaking framework for its electric distribution service under the Illinois Energy Infrastructure Modernization Act, which will establish and allow for a reconciliation of electric distribution service rates through 2023, its participation in electric energy-efficiency programs, and the related impact of the direct relationship between Ameren Illinois' ROE and the 30-year United States Treasury bond yields;
- the effect and duration of Ameren Illinois' election to either utilize traditional regulatory rate reviews or multi-year rate plan for electric distribution service ratemaking effective for rates beginning in 2024;
- the effect on Ameren Missouri of any customer rate caps or limitations to increases to the electric service revenue requirement pursuant to Ameren Missouri's election to use the plant-in-service accounting regulatory mechanism;
- the effects of changes in federal, state, or local laws and other governmental actions, including monetary, fiscal, foreign trade, and energy policies;
- the effects of changes in federal, state, or local tax laws or rates, including as a result of the Inflation Reduction Act (IRA) as well as additional regulations, interpretations, amendments, or technical corrections to or in connection with the IRA, and challenges to the tax positions taken by the Ameren companies, if any, as well as resulting effects on customer rates;
- the effects on energy prices and demand for our services resulting from technological advances, including advances in customer energy efficiency, electric vehicles, electrification of various industries, energy storage, and private generation sources, which generate electricity at the site of consumption and are becoming more cost-competitive;
- the effectiveness of Ameren Missouri's customer energy-efficiency programs and the related revenues and performance incentives earned under its Missouri Energy Efficiency Investment Act programs;
- Ameren Illinois' ability to achieve the performance standards applicable to its electric distribution business and electric customer energy-efficiency goals and the resulting impact on its allowed ROE;
- our ability to control costs and make substantial investments in our businesses, including our ability to recover costs and investments, and to earn our allowed ROEs, within frameworks established by our regulators, while maintaining affordability of our services for our customers;
- the cost and availability of fuel, such as low-sulfur coal, natural gas, and enriched uranium used to produce electricity; the cost and availability of natural gas for distribution and purchased power, including capacity, zero emission credits, renewable energy credits, emission allowances; and the level and volatility of future market prices for such commodities and credits;



# FORWARD-LOOKING STATEMENTS (continued)

- disruptions in the delivery of fuel, failure of our fuel suppliers to provide adequate quantities or quality of fuel, or lack of adequate inventories of fuel, including nuclear fuel assemblies from the one Nuclear Regulatory Commission (NRC)-licensed supplier of such assemblies for Ameren Missouri's Callaway Energy Center;
- the cost and availability of transmission capacity for the energy generated by Ameren Missouri's energy centers or required to satisfy Ameren Missouri's energy sales;
- the effectiveness of our risk management strategies and our use of financial and derivative instruments;
- the ability to obtain sufficient insurance, or in the absence of insurance, the ability to timely recover uninsured losses from our customers;
- the impact of cyberattacks and data security risks on us or our suppliers, which could, among other things, result in the loss of operational control of energy centers and electric and natural gas transmission and distribution systems and/or the loss of data, such as customer, employee, financial, and operating system information;
- business, economic, and capital market conditions, including the impact of such conditions on interest rates, inflation, and investments;
- disruptions of the capital markets, deterioration in credit metrics of the Ameren companies, or other events that may have an adverse effect on the cost or availability of capital, including short-term credit and liquidity;
- the actions of credit rating agencies and the effects of such actions;
- the inability of our counterparties to meet their obligations with respect to contracts, credit agreements, and financial instruments, including as they relate to the construction and acquisition of electric and natural gas utility infrastructure and the ability of counterparties to complete projects, which is dependent upon the availability of necessary materials and equipment, including those obligations that are affected by supply chain disruptions;
- the impact of weather conditions and other natural phenomena on us and our customers, including the impact of system outages and the level of wind and solar resources;
- the construction, installation, performance, and cost recovery of generation, transmission, and distribution assets;
- the effects of failures of electric generation, electric and natural gas transmission or distribution, or natural gas storage facilities systems and equipment, which could result in unanticipated liabilities or unplanned outages;
- the operation of Ameren Missouri's Callaway Energy Center, including planned and unplanned outages, as well as the ability to recover costs associated with such outages and the impact of such outages on off-system sales and purchased power, among other things;
- Ameren Missouri's ability to recover the remaining investment and decommissioning costs associated with the retirement of an energy center, as well as the ability to earn a return on that remaining investment and those decommissioning costs;
- the impact of current environmental laws and new, more stringent, or changing requirements, including those related to the New Source Review provisions of the Clean Air Act and CO2, other emissions and discharges, Illinois emission standards, cooling water intake structures, coal combustion residuals, energy efficiency, and wildlife protection, that could limit or terminate the operation of certain of Ameren Missouri's energy centers, increase our operating costs or investment requirements, result in an impairment of our assets, cause us to sell our assets, reduce our customers' demand for electricity or natural gas, or otherwise have a negative financial effect;
- the impact of complying with renewable energy standards in Missouri and Illinois and with the zero emission standard in Illinois;
- Ameren Missouri's ability to construct and/or acquire wind, solar, and other renewable energy generation facilities and battery storage, as well as natural gas-fired combined cycle energy centers, retire energy centers, and implement new or existing customer energy-efficiency programs, including any such construction, acquisition, retirement, or implementation in connection with its Smart Energy Plan, integrated resource plan, or emissions reduction goals, and to recover its cost of investment, related return, and, in the case of customer energy-efficiency programs, any lost margins in a timely manner, which is affected by the ability to obtain all necessary regulatory and project approvals, including certificates of convenience and necessity from the MoPSC or any other required approvals for the addition of renewable resources;
- Ameren Missouri's ability to use or transfer federal production and investment tax credits related to renewable energy projects; the cost of wind, solar, and other renewable generation and storage technologies; and our ability to obtain timely interconnection agreements with the MISO or other RTOs at an acceptable cost for each facility;
- advancements in energy technologies, including carbon capture, utilization, and sequestration, hydrogen fuel for electric production and energy storage, next generation nuclear, and large-scale long-cycle battery energy storage, and the impact of constructive federal and state energy and economic policies with respect to those technologies;



# FORWARD-LOOKING STATEMENTS (continued)

- labor disputes, work force reductions, changes in future wage and employee benefits costs, including those resulting from changes in discount rates, mortality tables, returns on benefit plan assets, and other assumptions;
- the impact of negative opinions of us or our utility services that our customers, investors, legislators, regulators, or other stakeholders may have or develop, which could result from a variety of factors, including failures in system reliability, failure to implement our investment plans or to protect sensitive customer information, increases in rates, negative media coverage, or concerns about ESG practices;
- the impact of adopting new accounting guidance;
- the effects of strategic initiatives, including mergers, acquisitions, and divestitures;
- legal and administrative proceedings;
- the impacts of the Russian invasion of Ukraine, related sanctions imposed by the U.S. and other governments, and any broadening of the conflict, including potential impacts on the cost and availability of fuel, natural gas, enriched uranium, and other commodities, materials, and services, the inability of our counterparties to perform their obligations, disruptions in the capital and credit markets, and other impacts on business, economic, and geopolitical conditions, including inflation; and
- acts of sabotage, war, terrorism, or other intentionally disruptive acts.

New factors emerge from time to time, and it is not possible for management to predict all of such factors, nor can it assess the impact of each such factor on the business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained or implied in any forward-looking statement. Given these uncertainties, undue reliance should not be placed on these forward-looking statements. Except to the extent required by the federal securities laws, we undertake no obligation to update or revise publicly any forward-looking statements to reflect new information or future events.



# **FURTHER READING**

## Information Available at Ameren.com/Sustainability

### **Integrated Resource Plan**

Ameren Missouri's 2022 Integrated Resource Plan A 20-year plan that supports cleaner energy in Missouri, including transformative expansions of solar and wind power. The IRP, filed every three years, describes Ameren Missouri's preferred approach to meeting electric customers' projected long-term energy needs in a cost-effective fashion that maintains system reliability as we move to cleaner and more diverse sources of energy generation.

### **EEI-AGA ESG/Sustainability Report**

Ameren is a pilot participant in the Edison Electric Institute (EEI) and the American Gas Association (AGA) environmental, social, governance, and sustainability (ESG/sustainability) reporting template. It was created with the goal of helping electric and gas companies provide the financial sector with more uniform and consistent ESG/sustainability data and information.

### **Sustainability Report**

Ameren's annual Sustainability Report focuses on the ways we are taking action in three key areas: environmental stewardship, social impact and corporate governance.

### **Third-Party Report**

### **EPRI Climate Study**

EPRI summarized over 1,000 climate scenarios from the IPCC and others. The resulting study report, entitled "Grounding Decisions: A Scientific Foundation for Companies Considering Global Climate Scenarios and Greenhouse Gas Goals," presents a scientifically-based framework for considering uncertainty in climate-scenario analysis and provides insights that can be applied by an individual company or organization.<sup>1</sup>

### CDP (formerly known as the Carbon Disclosure Project)

Ameren has participated in this voluntary disclosure report for many years. Learn more about Ameren's environmental and riskmanagement initiatives through our CDP Questionnaires.

- 2022 CDP Climate Questionnaire
- 2022 CDP Water Questionnaire

### **Water Resilience Assessment Report**

This voluntary report assesses current and future availability of water resources in Ameren's region and also in the Powder River Basin area of Wyoming, a key component of our supply chain. The report summarizes water resource availability trends under various climate assumptions.



<sup>1.</sup> We make no representations regarding the accuracy or reliability of this third-party information.

# **APPENDIX A:**

# Ameren Corporation: Task Force on Climate-Related Financial Disclosures (TCFD) Mapping

		Voluntary								Regulatory			
SECTION	Recommended Disclosures	2022 Ameren Corporation Sustainability Report	Committed to Clean: Trans- formational Changes To- ward Net-Zero (2021 Climate Report)	Ameren 2022 CDP Climate Change Response	Ameren 2022 CDP Water Response	2022 Ameren EEI/AGA Sustainability Template	Ameren Investor ESG Presentation - Leading the Way to a Sustainable Energy Future	Sustainability Accounting Standards Board Report	Ameren Water Resilience Assessment	Ameren Missouri Integrated Resource Plan	Ameren Corporation 2021 Annual Report / Form 10-K	Ameren Corporation 2022 Proxy	
GOVERNANCE													
Disclose the organization's governance around climate-related risks and opportunities	a) Describe the board's oversight of climate-related risks and opportunities.	<b>✓</b>	<b>✓</b>	<b>√</b>		<b>✓</b>	<b>✓</b>	<b>✓</b>		<b>✓</b>		<b>✓</b>	
	b) Describe management's role in assessing and managing climate-related risks and opportunities.	<b>√</b>	<b>√</b>	<b>√</b>		<b>√</b>	<b>√</b>	<b>√</b>		<b>√</b>		<b>✓</b>	
STRATEGY													
Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's business, strategy, and financial planning where such information is material.	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.		<b>✓</b>	<b>✓</b>				<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>✓</b>		
	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.		<b>√</b>	<b>√</b>		<b>√</b>		<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>		
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	<b>√</b>					<b>✓</b>			<b>✓</b>			

<sup>√ –</sup> Includes TCFD elements

This matrix shows alignment with the TCFD framework. The voluntary and regulatory disclosures aligned with the TCFD framework are noted with a moderate to strong link.



# **APPENDIX A:**

# Ameren Corporation: Task Force on Climate-Related Financial Disclosures (TCFD) Mapping

(continued)

		Voluntary								Regulatory			
SECTION	Recommended Disclosures	2022 Ameren Corporation Sustainability Report	Committed to Clean: Trans- formational Changes To- ward Net-Zero (2021 Climate Report)	Ameren 2022 CDP Climate Change Response	Ameren 2022 CDP Water Response	2022 Ameren EEI/AGA Sustainability Template	Ameren Investor ESG Presentation - Leading the Way to a Sustainable Energy Future	Sustainability Accounting Standards Board Report	Ameren Water Resilience Assessment	Ameren Missouri Integrated Resource Plan	Ameren Corporation 2021 Annual Report / Form 10-K	Ameren Corporation 2022 Proxy	
RISK MANAGEMEN	IT												
	a) Describe the organization's processes for identifying and assessing climate-related risks.		<b>√</b>	<b>√</b>	<b>√</b>		<b>√</b>	<b>√</b>		<b>√</b>			
Disclose how the organization identifies, assesses	b) Describe the organization's processes for managing climate-related risks.		<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>✓</b>		<b>✓</b>			
and manages climate-related risks.	c) Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organization's overall risk management.		<b>√</b>	<b>✓</b>	<b>✓</b>		<b>✓</b>	<b>✓</b>					
METRICS AND TAR	GETS		'										
Disclose the metrics and target used to assess and manage relevant climate-related risks and opportunities where such information is material.	a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.		<b>√</b>	<b>√</b>	<b>√</b>			<b>√</b>		<b>√</b>			
	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks (includes EPA GHG Mandatory Reporting Rule).	<b>✓</b>	<b>√</b>	<b>✓</b>	<b>✓</b>			<b>✓</b>					
	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.		<b>✓</b>	<b>✓</b>	<b>✓</b>			<b>√</b>			<b>✓</b>		

<sup>√-</sup>Includes TCFD elements



# **APPENDIX B:**

### **Environmental Stewardship**

In late 2020, the culmination of several multiyear large capital projects centered around water conservation were completed at Ameren Missouri's Energy Centers. With the final completion of these projects, we have eliminated the annual use of approximately 11 billion gallons of water. State-of-the-art dry ash handling facilities have now been installed at the Labadie, Rush Island, and Sioux energy centers which enabled this transformation. In addition, since 2005, Ameren has reduced emissions of  $CO_2$  by 32%, emissions of  $CO_2$  by 67% and emissions of mercury by 91%.



CARBON DIOXIDE
EMISSIONS
REDUCTION
(generation)

**32%** below 2005 level<sup>1</sup>



NITROGEN OXIDE EMISSIONS REDUCTION

(generation)

**55%** below 2005 level<sup>1</sup>

**77%** below EPA standard



SULFUR DIOXIDE EMISSIONS REDUCTION

(generation)

**67%** below 2005 level<sup>1</sup>

**77%** below Missouri standard



MERCURY **EMISSIONS** 

**REDUCTION** (generation)

**91%** below 2005 level<sup>1</sup>



WATER SAVINGS

in 2021<sup>2</sup>

~125 Billion Gallons

from coal plant and ash basin closures

<sup>1.</sup> Emissions reduction reported from 2005 to three-year average (2019-2021). 2005 data includes Meredosia and Hutsonville Energy Centers, which have been retired.

<sup>2.</sup> From 2012 levels