Southern Company

September 2024

Electric Operations:
Energy Portfolio Transition & Scenario Planning

Electric Operations

Southern Company[1] is a leading energy company known for excellent customer service, high reliability and affordability. As a holding company, we conduct our business through our subsidiaries. Our electric operations are composed of the following:

Alabama Power, Georgia Power and Mississippi Power: Electric operating companies that provide service to both retail and wholesale customers in the Southeast.

Southern Power: A leading wholesale energy provider that develops, constructs, acquires, owns and operates power generation assets, including large renewable and energy storage portfolios, to provide wholesale energy in 15 states.

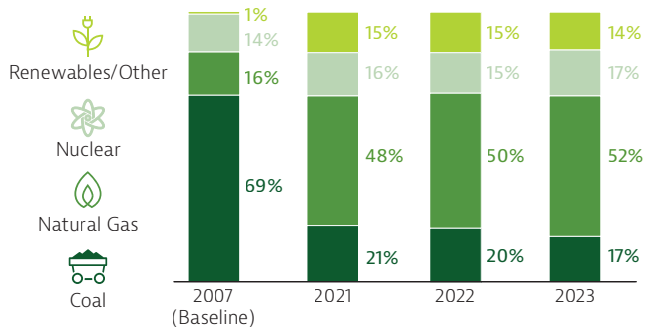
Southern Nuclear: An operator and service provider to the Southern Company system's nuclear power plants.

PowerSecure: The nation's leading distributed energy innovation company that installs, manages and services advanced microgrids and implements energy efficiency upgrades.

Energy Portfolio Transition

As we transition to a clean energy future, we are building a diverse energy portfolio to maintain reliability, resilience and affordability, while also reducing emissions. In 2023, nearly one-third of the electricity generated or purchased by Southern Company subsidiaries came from clean energy resources, including nuclear, solar, wind, and hydropower as shown in the chart below.

Annual Energy Mix



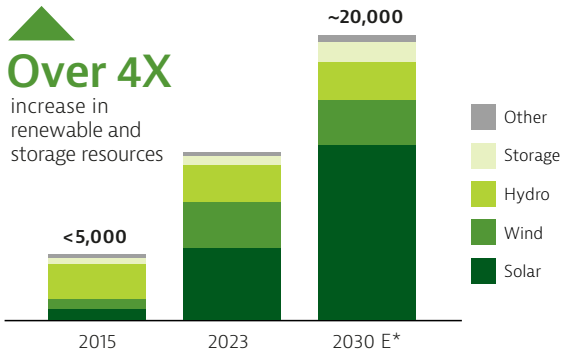
- Annual energy mix represents all of the energy the Southern Company system uses to serve its retail and wholesale customers during the year. It is not meant to represent delivered energy mix to any particular retail customer or class of customers. Annual energy mix percentages include non-affiliate power purchase agreements.
- Renewables/Other category includes solar, wind, hydropower, biomass, and landfill gas.
- With respect to renewable generation and associated renewable energy credits (RECs), to the extent an affiliate of Southern Company has the right to the RECs associated with renewable energy it generates or purchases, it retains the right to sell the energy and RECs, either bundled or separately, to retail customers and third parties.

Growing Our Renewable and Storage Resources

We are expanding the clean energy resources in our electric generation portfolio, as well as preparing for future generation to meet growing demand. By 2030, we expect to have over 20,000 megawatts (MW) of renewable and storage resources in our portfolio, a four-fold increase from 2015.

- Includes owned and contracted resources including 100% capacity for jointly owned projects.
- With respect to renewable generation and associated renewable energy credits (RECs), to the extent an affiliate of Southern Company has the right to the RECs associated with renewable energy it generates or purchases, it retains the right to sell the energy and RECs, either bundled or separately, to retail customers or third parties.
- Other includes biomass and landfill gas.

Strong trajectory of renewables and storage growth



*Future estimates include owned and contracted capacity that have received regulatory approval. Additional renewable resources could be added prior to 2030 at Southern Power or at our operating companies, should they be proposed and approved through regulatory processes.

Southern Power's Expanding Solar Portfolio

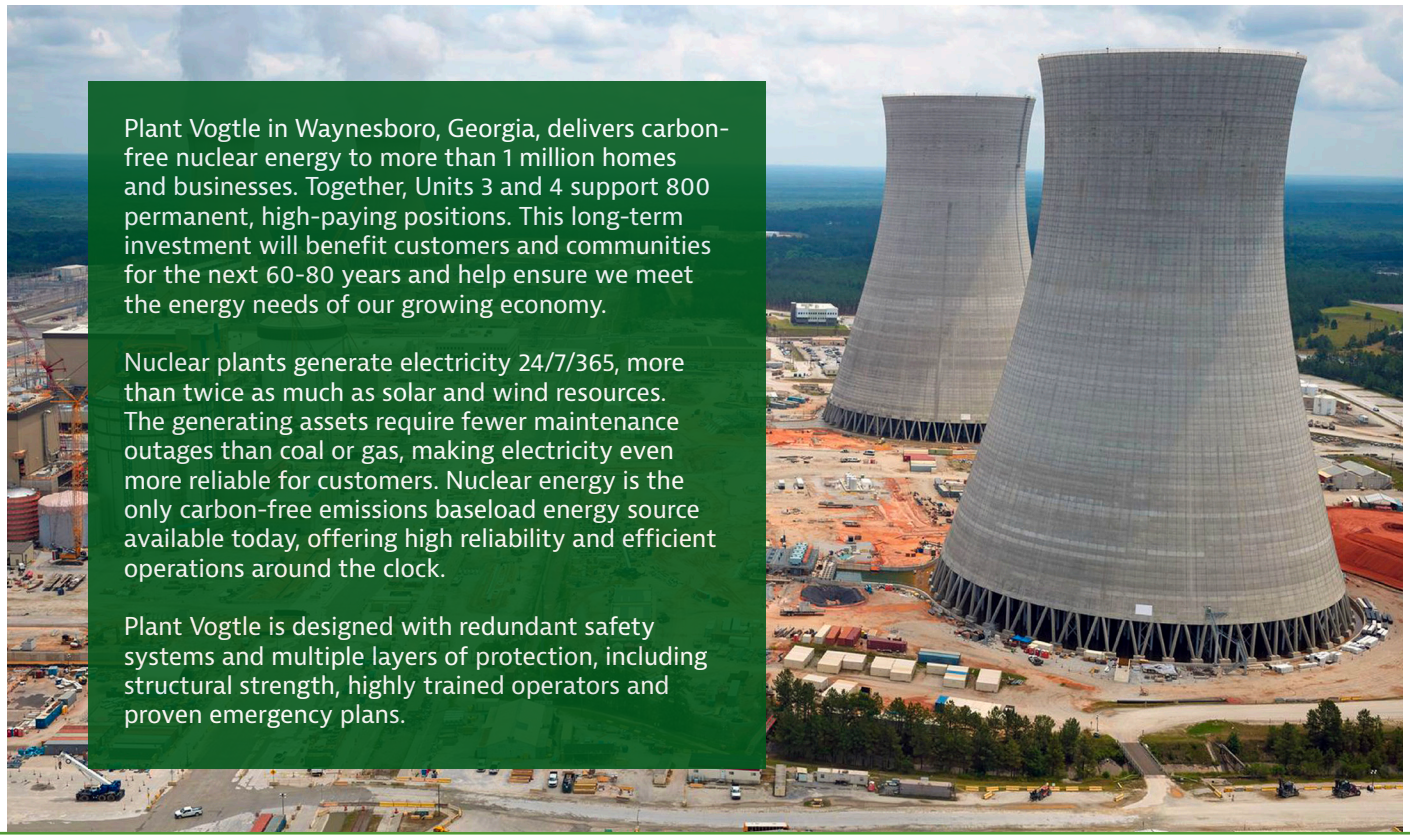
In April 2024, Southern Power Company announced its 30th solar site, the South Cheyenne Solar Facility, entered commercial operation, becoming its first site in Wyoming and expanding the total operational footprint to 15 states.

Southern Power also announced the expansion of the Millers Branch Solar project by an additional 180 MW, from the Phase I 200 MW facility that is nearing the start of construction. Southern Power will lead the continued development and construction of both phases of Millers Branch.

With the addition of South Cheyenne and the expansion at Millers Branch, Southern Power's solar generating portfolio will total more than 2,920 MW. Southern Power's solar facilities are a part of the company's 5,450 MW renewable fleet, which consists of 30 solar and 15 wind facilities operating, planned or under construction. These projects align with Southern Power's overall business strategy of strengthening its wholesale business by acquiring and developing generating assets that are covered by long-term contracts with counterparties with strong credit support.

Growing Our Nuclear Energy Capacity

Southern Nuclear Company and Georgia Power Company initiated commercial operation of Nuclear Plant Vogtle Unit 3 in July 2023, followed by Unit 4 in April 2024. The units are the first new nuclear units to be constructed in the United States in more than 30 years. Taken together with Units 1 and 2, the Plant Vogtle site is now the largest generator of clean energy in the country.



Plant Vogtle in Waynesboro, Georgia, delivers carbon-free nuclear energy to more than 1 million homes and businesses. Together, Units 3 and 4 support 800 permanent, high-paying positions. This long-term investment will benefit customers and communities for the next 60-80 years and help ensure we meet the energy needs of our growing economy.

Nuclear plants generate electricity 24/7/365, more than twice as much as solar and wind resources. The generating assets require fewer maintenance outages than coal or gas, making electricity even more reliable for customers. Nuclear energy is the only carbon-free emissions baseload energy source available today, offering high reliability and efficient operations around the clock.

Plant Vogtle is designed with redundant safety systems and multiple layers of protection, including structural strength, highly trained operators and proven emergency plans.

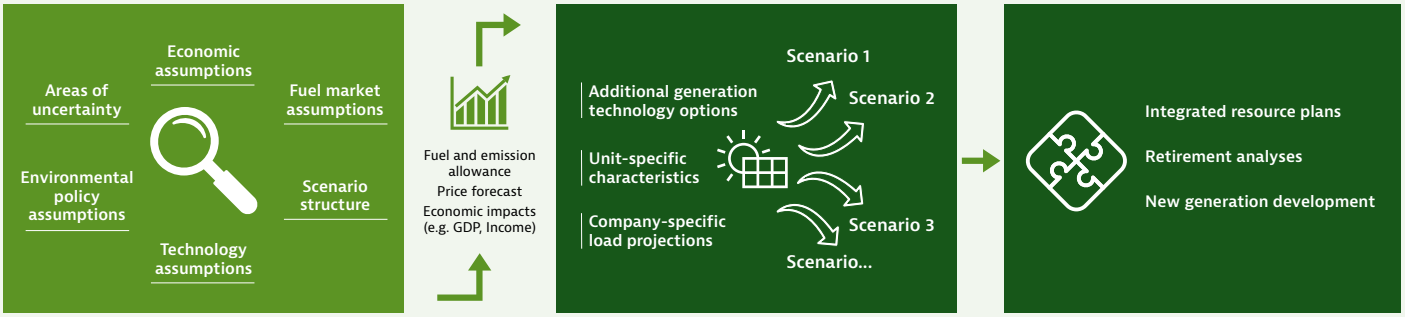
Scenario Planning

Southern Company's state-regulated electric operating companies use a robust integrated resource planning process to quantitatively evaluate resource needs over a 30-year horizon. This process uses detailed resource expansion modeling, incorporating fuel price projections from EIA's Annual Energy Outlook, as well as recent commodity and economic indicators and policy trends, including pressure on carbon dioxide (CO_2) emissions. Inputs and assumptions for this modeling are evaluated on an annual basis and are adjusted, as needed, to reflect updated trends and outlooks for relevant economic, technology and policy factors.

Southern Company develops multiple scenarios that consider views of the future that vary with respect to pressure on greenhouse gas emissions (GHG), cost and performance of generating technologies, load growth and fuel prices. Southern Company currently considers four views of future pressure on CO_2 emissions, including a view with relatively low pressure in the future, and a view with higher pressure consisting of a $50 per ton fee that rises at a rate above inflation. This range of potential pressures is informed by, and aligned with, the national climate policy discussion, including U.S. EPA regulation.

Below is an illustration of the scenario planning process demonstrating how the assumptions included in the energy economy modeling, additional inputs such as fuel and emissions allowance and generation characteristics inform the scenarios that ultimately lead to the integrated resource plans, new generation development and retirement analyses.

Scenario Planning Process



Energy Economy Modeling

Integrated Resource Planning

The scenarios shown below are indicative of the current scenarios that we utilize in our system planning:

Planning Scenarios

Scenario	GHG Pressure View	Technology View	Load View	Fuel View	Label
1	Lower	Tech Portfolio*	Standard^	Lower	LG0
2	Lower	Tech Portfolio*	Standard^	Moderate	MG0
3	Lower	Tech Portfolio*	Standard^ + HG0 delta	Higher	HG0
4	Moderate	IRA 2045	Alt 1	Moderate	MG20
5	Higher	IRA 2035	Alt 2	Moderate	MG50
6	Emissions Limit	IRA 2035	Alt 2	Moderate	EL

*Technology Portfolio consisting of the resource options currently used in resource plans.

^Standard load forecasts produced by each operating company that serve as the reference forecasts.

^^Alternative 1 (Alt 1) is a view of future load growth consistent with a moderate amount of future CO2 pressure. It reflects the net of a moderate amount of upward pressure on load due to increased electrification (especially of transportation) and a moderate amount of downward pressure on load due to increased end-use efficiency improvements.

^^^Alternative 2 (Alt 2) is a view of future load growth consistent with a larger amount of future CO2 pressure. It reflects the net of a larger amount of upward pressure on load due to increased electrification (especially of transportation) and a larger amount of downward pressure on load due to increased end-use efficiency improvements.

While the planning process looks 20+ years into the future, our operating companies engage with their regulators for resource determinations that must be made over a shorter-term horizon (roughly 3-5 years) to appropriately invest in and operate a reliable and economical electric system. Our electric operating companies are subject to the jurisdiction of their respective state Public Service Commissions (PSCs) and state environmental agencies. PSCs have broad regulatory authority over the companies, including approval of new supply-side and demand-side resources and related cost recovery rates, while environmental agencies are charged with the enforcement of each state's environmental policies. Accordingly, our fleet transition will be subject to regulatory oversight in the jurisdictions where we operate.

As shown in the graphic above, integrated resource planning at the Southern Company level informs our state-level integrated resource plans, new generation development and retirement analyses.

▸ Integrated Resource Plans

For example, Southern Company's largest electric utility, Georgia Power, submits an Integrated Resource Plan (IRP) to the Georgia PSC every three years. In 2022, Georgia Power filed an IRP with an estimated load growth of 400 MW over the 2024-2031 timeframe. However, due to a significant increase in expected future load growth of approximately 6,600 MW across a variety of industries over the 2024-2031 timeframe, Georgia Power filed an IRP update in October 2023. Georgia Power will file its next triennial IRP in January 2025.

▸ New Generation Development

Leveraging our integrated scenario planning processes, Georgia Power actively engaged with stakeholders and state regulatory commissioners for the approval of new generating resources in the 2022 IRP and 2023 IRP Update as shown below.

- ➔ 2,300 MW renewable resources, as well as up to 140 MW of biomass resources, to support the economic transition to clean resources
- ➔ 1,765 MW battery energy storage systems (BESS)
- ➔ Approximately 1,300 MW from three new advanced-class natural gas combustion turbines
- ➔ Over 3,100 MW of power purchases agreements from existing resources
- ➔ Addition of new and expanded distributed energy resources and demand response programs for residential, commercial and industrial customers
- ➔ Transmission projects necessary to accommodate the loads and resource portfolio approved in the IRPs

The Georgia PSC's approval of renewable generation, BESS and natural gas includes a combination of company-owned resources and resources procured through power purchase agreements with third parties. Some of the approved resources will be identified through ongoing and upcoming procurements by Georgia Power. With respect to renewable generation and associated renewable energy credits (RECs), to the extent an affiliate of Southern Company has the right to the RECs associated with renewable energy it generates or purchases, it retains the right to sell the energy and RECs, either bundled or separately, to retail customers or third parties.

▸ Retirement Analyses

We consider the potential for retirement of generating units as a part of our overall resource strategy. For example, if an electric generating unit is not able to achieve required emissions reductions in a cost-effective manner, we evaluate other options, such as switching fuels, finding alternate methods to comply or retiring the unit and replacing it with another resource if needed. If environmental controls are required for a unit to remain in compliance, then the economic value of the unit, including future operating costs, must be considered to determine whether it is in the best interest of customers to install the required control technology or to retire the unit and, if necessary, replace it with another resource. Typically, an environmental strategy is also compiled on a unit level and reviewed annually based on the most current information. Along with a quantitative economic review, we also consider other qualitative factors such as fuel diversity, impacts to local communities and operational flexibility when making major generation decisions.

Visit our subsidiaries to learn more:

Alabama Power Company | Georgia Power Company | Mississippi Power Company

Federal Regulatory Compliance

Over the past five years, energy industry fundamentals have changed meaningfully, including fuel price volatility, rapid projected demand growth in our southeastern service territories, supply chain dynamics and legislative incentives, among others. In April 2024, the Securities and Exchange Commission, the Environmental Protection Agency (EPA) and the Federal Energy Regulatory Commission issued new reporting requirements and regulations that we expect will impact the electric utility industry. Southern Company and our operating companies have engaged in constructive dialogue with each agency during the rulemaking processes through company meetings, industry meetings and formal comment processes. Our advocacy has centered on ensuring an orderly transition to net zero that also prioritizes reliability and affordability for our customers. Subject matter experts across our company continue to evaluate the rules, including the opportunities and challenges to our mission of providing clean, safe, reliable and affordable energy. In the coming months, we expect our planning, regulatory and compliance teams to refine scenarios that incorporate potential impacts of the new rules and other factors, such as increasing customer demand. Our leadership, with oversight by the Board of Directors, will review and make determinations around infrastructure investment, retirement and conversion options that we can propose to our state regulatory commissions through established resource planning processes.

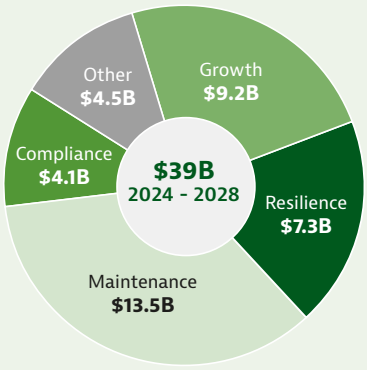
Facilitating the Transition

Capital Allocation Alignment with Net Zero

For our state-regulated electric subsidiaries, we expect a 6% increase in rate base over the next five years, with capital growth driven by continued economic development, a focus on grid resilience and a transition to and maintenance of cleaner energy resources. To meet customers' future energy needs, our electric subsidiaries plan to invest nearly $39 billion over the next five years (2024-2028) on grid improvement projects that include capital maintenance and infrastructure replacement, storm hardening, cyber and physical security and undergrounding, as well as new generation and compliance investments.

Our electric generating mix is projected to shift toward cleaner energy resources through new, company-owned generation and power purchase agreements (non-company owned assets). Growth acquired through power purchase agreements will not be reflected in our capital expenditures, and therefore capital expenditure totals may underestimate our investment in our clean energy transition. For more information, please review our 2023 Fourth Quarter Earnings Presentation.

Projected Capital Investment in the State-Regulated Electric Subsidiaries, 2024-2028



Constructive Stakeholder Engagement

As a leading energy company, we believe effective communication with our customers, employees, communities, policymakers and other stakeholders is imperative to our business success and to meeting our decarbonization goals.

In particular, the development of constructive energy policy and regulation at both the state and federal levels is essential to executing our customer-centric business model. We engage with policymakers to help shape durable energy and climate policies that support developing and deploying more clean energy resources while ensuring that each state we serve retains the ability to adequately plan and deploy resources that meet the needs of its citizens and communities. In the United States, we need support from policymakers and regulators to develop policies that will support an efficient, reliable and affordable transition to a net zero future.

Gathering input from stakeholders is also an important part of developing Southern Company's strategy. We hold regular stakeholder forums, webinars, calls and meetings covering a range of topics, including our efforts to reduce GHG emissions, regulatory and policy issues, Just Transition, research and development efforts, system risk and planning related to renewables and energy efficiency, and climate-related lobbying efforts. External participants in these events include investors, environmental advocates, social justice advocates, community representatives and many others. Internal participants include members of our senior management, including Southern Company's CEO, as well as subject matter experts. Independent members of our board of directors also participate in certain engagements.

For more information about Southern Company's robust stakeholder outreach initiatives as well as our policy engagement and advocacy activities please review our Proxy Statement and disclosures dedicated to Policy Engagement and Advocacy.

Cautionary Statement Regarding Forward-Looking Information

Certain information contained in this communication is forward-looking information based on current expectations and plans that involve risks and uncertainties. Forward-looking information includes, among other things, projected capital expenditures and future generating mix. Southern Company cautions that there are certain factors that can cause actual results to differ materially from the forward-looking information that has been provided. The reader is cautioned not to put undue reliance on this forward-looking information, which is not a guarantee of future performance and is subject to a number of uncertainties and other factors, many of which are outside the control of Southern Company; accordingly, there can be no assurance that such suggested results will be realized. The following factors, in addition to those discussed in Southern Company's Annual Report on Form 10-K for the year ended December 31, 2023, could cause actual results to differ materially from management expectations as suggested by such forward-looking information: the impact of recent and future federal and state regulatory changes, including tax, environmental and other laws and regulations to which Southern Company and its subsidiaries are subject, as well as changes in application of existing laws and regulations; the extent and timing of costs and legal requirements related to coal combustion residuals; current and future litigation or regulatory investigations, proceedings, or inquiries, including litigation and other disputes related to the Kemper County energy facility and Plant Vogtle Units 3 and 4; the effects, extent, and timing of the entry of additional competition in the markets in which Southern Company's subsidiaries operate, including from the development and deployment of alternative energy sources; variations in demand for electricity and natural gas; available sources and costs of natural gas and other fuels and commodities; the ability to complete necessary or desirable pipeline expansion or infrastructure projects, limits on pipeline capacity, public and policymaker support for such projects, and operational interruptions to natural gas distribution and transmission activities; transmission constraints; the ability to control costs and avoid cost and schedule overruns during the development, construction, and operation of facilities or other projects due to challenges which include, but are not limited to, changes in labor costs, availability, and productivity, challenges with the management of contractors or vendors, subcontractor performance, adverse weather conditions, shortages, delays, increased costs, or inconsistent quality of equipment, materials, and labor, contractor or supplier delay, the impacts of inflation, delays due to judicial or regulatory action, nonperformance under construction, operating, or other agreements, operational readiness, including specialized operator training and required site safety programs, engineering or design problems or any remediation related thereto, design and other licensing-based compliance matters, challenges with start-up activities, including major equipment failure or system integration, and/or operational performance, challenges related to pandemic health events, continued public and policymaker support for projects, environmental and geological conditions, delays or increased costs to interconnect facilities to transmission grids, and increased financing costs as a result of changes in interest rates or as a result of project delays; legal proceedings and regulatory approvals and actions related to past, ongoing and proposed construction projects, including Public Service Commission approvals and Federal Energy Regulatory Commission and U.S. Nuclear Regulatory Commission actions; the ability to construct facilities in accordance with the requirements of permits and licenses, to satisfy any environmental performance standards and the requirements of tax credits and other incentives, and to integrate facilities into the Southern Company system upon completion of construction; investment performance of the employee and retiree benefit plans and nuclear decommissioning trust funds; advances in technology, including the pace and extent of development of low- to no-carbon energy and battery energy storage technologies and negative carbon concepts; performance of counterparties under ongoing renewable energy partnerships and development agreements; state and federal rate regulations and the impact of pending and future rate cases and negotiations, including rate actions relating to return on equity, equity ratios, additional generating capacity, and fuel and other cost recovery mechanisms; the ability to successfully operate the electric utilities' generation, transmission, and distribution facilities, Southern Power Company's generation facilities and Southern Company Gas' natural gas distribution and storage facilities and the successful performance of necessary corporate functions; the inherent risks involved in operating nuclear generating facilities; the inherent risks involved in generation, transmission and distribution of electricity and transportation and storage of natural gas, including accidents, explosions, fires, mechanical problems, discharges or releases of toxic or hazardous substances or gases and other environmental risks; the performance of projects undertaken by the non-utility businesses and the success of efforts to invest in and develop new opportunities; internal restructuring or other restructuring options that may be pursued; potential business strategies, including acquisitions or dispositions of assets or businesses, which cannot be assured to be completed or beneficial to Southern Company; the ability of counterparties of Southern Company and its subsidiaries to make payments as and when due and to perform as required; the ability to obtain new short- and long-term contracts with wholesale customers; the direct or indirect effect on the Southern Company system's business resulting from cyber intrusion or physical attack and the threat of cyber and physical attacks; global and U.S. economic conditions, including impacts from geopolitical conflicts, recession, inflation, tariffs, interest rate fluctuations and financial market conditions, and the results of financing efforts; access to capital markets and other financing sources; changes in Southern Company's and any of its subsidiaries' credit ratings; the ability of Southern Company's electric utilities to obtain additional generating capacity (or sell excess generating capacity) at competitive prices; catastrophic events such as fires, earthquakes, explosions, floods, tornadoes, hurricanes and other storms, droughts, pandemic health events, political unrest, wars or other similar occurrences; the direct or indirect effects on the Southern Company system's business resulting from incidents affecting the U.S. electric grid, natural gas pipeline infrastructure, or operation of generating or storage resources; impairments of goodwill or long-lived assets; and the effect of accounting pronouncements issued periodically by standard-setting bodies. Southern Company expressly disclaims any obligation to update any forward-looking information.

Footnotes

[1] In this fact sheet, the terms "we", "us" and "our" all refer to Southern Company. Southern Company is a holding company that conducts its business through its subsidiaries. Accordingly, unless the context otherwise requires, references in this document to Southern Company's operations, such as generating activities, greenhouse gas emissions and employment practices, refer to those operations conducted through its subsidiaries.