

# Planning for a low-çarbon future

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# A letter from the CEO

The energy sector is rapidly evolving, driven by customer preferences, technology advancements, commodity prices, energy security and resiliency efforts, and environmental, social and governance initiatives. With evolution comes opportunity and Southern Company, with its customercentric business model, is poised to provide continued value to our customers and communities in this evolving energy landscape.



We have a long history of proactive, constructive engagement and dialogue with shareholders, customers and other stakeholders around the path forward in a lowcarbon future, and we understand the need for a broader focus on the financial, operational and regulatory risks that come with reducing carbon emissions over the long term. We are committed to keeping everyone informed as we move forward.

Throughout this report you will see how we are taking steps to increase disclosure of our preparations for a low-carbon future, as well as the risks and opportunities for our company with this important transition.

With this backdrop, we are establishing an intermediate goal of a 50 percent reduction in carbon emissions from 2007 levels by 2030 and a long-term goal of low- to nocarbon operations by 2050. These goals are a continuation of our trajectory of lower carbon emissions over the past 10 years, which have resulted in a 36 percent reduction since 2007. Similarly, our use of coal for power generation has declined by almost 60 percent; in 2017, coal represented only 28 percent of our energy mix as compared to 69 percent in 2007.

Over the long term, meeting our goals will require energy policies that support low natural gas prices and the development and deployment of more low- to nocarbon emitting energy resources. We will continue our commitments to research and development and to help shape responsible energy policies that promote optionality across the entire energy value chain and retain each state's ability to adequately plan and deploy resources that meet the needs of their citizens and communities.

Managing risks in our business is an integral component of the value proposition for our investors and our carbon emission reduction goals are no exception. Combined with our objective of delivering regular, predictable and sustainable earnings and dividend growth, our collective goal is to provide premier risk-adjusted returns to our shareholders.

I am confident that we are prepared and well-positioned to meet the needs of our customers well into the future and to succeed in this transition to a low-carbon future. We remain steadfastly committed to providing clean, safe, reliable and affordable energy to the customers we are privileged to serve.

#### **Thomas A. Fanning**

Chairman, President and Chief Executive Officer April 2018

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## Greenhouse gas emissions and references to carbon and carbon dioxide

Southern Company's greenhouse gas (GHG) emissions come primarily from fossil fuels used to generate electricity, which result in emissions of three GHGs: carbon dioxide ( $CO_2$ ), methane ( $CH_4$ ) and nitrous oxide ( $N_2O$ ). Southern Company subsidiaries Alabama Power, Georgia Power, Gulf Power, Mississippi Power, Southern Power, Southern Company Gas, Southern Electric Generating Company and PowerSecure all have operations that emit  $CO_2$ ,  $CH_4$  and  $N_2O$ . More than 99 percent of the system's electric generation GHG emissions are  $CO_2$ . Throughout this report, references to carbon or  $CO_2$  emissions should be interpreted as all GHGs.

Southern Company is a holding company that conducts its business through its subsidiaries; accordingly, throughout this report references to Southern Company's GHG emissions and related operations refer to the operations conducted through its subsidiaries.

Southern Company is transitioning to a 2007 baseline year that represents Southern Company's maximum emissions year, while continuing to rely on a baseline calculation methodology consistent with the Environmental Protection Agency's (EPA's) GHG Reporting Program (GHGRP) methodology. See "Details about emissions reporting" (page 22) for further information about this methodology.

## Task force on climate-related financial disclosures

The Financial Stability Board's Task Force on Climaterelated Financial Disclosures (TCFD) has developed voluntary, consistent, climate-related financial risk disclosures for use by companies in providing information to investors and other stakeholders. In 2017, the TCFD issued its final disclosure recommendations. This report includes disclosure responsive to the four core elements identified in the TCFD recommendations: metrics and targets; strategy; risk management; and governance.

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## Executive summary

Southern Company is committed to providing clean, safe, reliable and affordable energy, while transitioning to low- to no-carbon operations by 2050. We have already made significant progress with an "all of the above" approach to electric generation resource diversity. Since 2007, without any regulatory mandates, we have reduced CO<sub>2</sub> emissions by 36 percent.

**+36%** Reduction in greenhouse gas emissions since 2007





#### Setting emission reduction goals

We are, for the first time, setting emission reduction goals that are aligned with our long-term business strategy and our commitment to a leadership role in developing solutions that make technological and economic sense. These are enterprisewide goals that encompass our electric and natural gas operations.

#### Strategy to achieve the goals

Our strategy to achieve these goals includes the continued development and deployment of a diverse portfolio of energy resources to reliably and affordably serve our customers and communities with a focus on reducing CO<sub>2</sub> emissions. To do this, we are aggressively growing our investment in renewable energy,

modernizing the grid to optimize technology advancements, increasing the use of natural gas, building new nuclear generating units, continuing our industry-leading, robust research and development (R&D) efforts, and investing in energy efficiency for savings on both sides of the meter. Transitioning to a low-carbon future will require continued advancement in technology.

Existing opportunities to reduce our carbon emissions include completing construction on the new Vogtle 3 and 4 nuclear units, seeking useful life extensions for our existing 3,700 megawatt (MW) nuclear fleet, continuing to grow our sizable renewable energy resources, partnering with battery manufacturers and vendors on energy storage development and continuing to modernize the power grid for greater efficiencies. We also see potential to invest appropriately in new technologies that may emerge, mature and come to market through our PowerSecure subsidiary.

We are also engaging with policymakers, customers and other stakeholders to help shape an energy policy that enhances optionality across the entire energy value chain and supports the development and deployment of more carbon-free energy sources, while ensuring that each state that we serve retains the ability to adequately plan and deploy resources that meet the needs of its citizens and communities.

#### **Risks and opportunities** along the way

We aim to minimize our exposure to carbon risk across the energy value chain as we make, move and



2030 Goal: 50% Reduction in GHG Emissions

2050 Goal: LOW to NO GHG Emissions

sell energy to a wide customer base. Our business model relies heavily on state-regulated electric and natural gas investments as well as long-term contracted energy infrastructure, which differentiates Southern Company from other businesses. We believe that operating a customer-centric business model provides the opportunity to effectively respond to future carbon regulations and the potential to succeed in an accelerated transition to a low carbon business environment.

By continuing to make major energy decisions that are in the best interest of customers, appropriately consider fuel and carbon risks, and are approved by our state regulators, we expect to continue to receive fair regulatory treatment of our state-regulated investments. We believe that investment risk to these rate-regulated assets is limited.

## Robust processes to get us there

As we plan for a cleaner energy future, we recognize that our current electric generation portfolio consists of high-capital, long-life assets. Efforts to further diversify our portfolio should be achieved through an orderly transition that accounts for the economic value of our existing assets. Our robust scenariobased integrated resource planning process occurs annually, and is a key component that we use to ensure that the right resources are deployed at the right time to maintain safety, reliability and affordability for customers. The planning process allows for updates to a number of assumptions, inputs, and alternatives, including potential CO<sub>2</sub> prices, fuel and other commodity prices, as well as economic or other policy indicators. The annual process allows each of our state-regulated

utilities to actively work within its regulatory framework to ensure that carbon reduction efforts are in customers' best interests over time.

## Governance to guide us through

Our Board of Directors recognizes the potential impacts on our business and the transitional risks and opportunities the utility industry faces in a low-carbon future. Our governance process combines regular assessments of our short- and long-term business strategy and a robust enterprise risk management program, both of which facilitate identification, communication and management of significant risks ultimately reporting to the Chief Executive Officer and the Board. The existing governance and enterprise risk management process ensures focus on the longterm sustainability of our business.

# Goals and actions for a low-carbon future

We are setting a long-term goal of low- to no-carbon operations by 2050 on an enterprise-wide basis. On our path to 2050, we have set a goal of 50 percent reduction from 2007 levels in  $CO_2$  emissions by 2030. Achievement of these goals will be dependent on many factors, including natural gas prices and the pace and extent of improvements in energy technology.

#### Metrics and goals – GHG emissions reductions



In addition, we aim to reduce fugitive methane emissions for our natural gas distribution operations to align with Our Nation's Energy (ONE) Future's 2025 goal. Southern Company Gas was a founding member in ONE Future. Today, our natural gas operations intensity is already 0.26 percent, which is below ONE Future's 2025 goal of 0.44 percent for local distribution companies.

We believe these goals are reasonable and achievable, while still supporting our commitment to serve customers with clean, safe, reliable, and affordable energy. Our path to 2050 will include the following actions:

- We do not intend to invest further in our existing thermal coal fleet, unless the investment ensures safety, affordability or reliability to serve customers or to comply with federal or state laws.
- In each of our state-regulated electric jurisdictions, we will continue to propose and seek approval of low-carbon and carbon-free resources that are in the best interest of our customers – such as natural gas, nuclear, renewables, and energy efficiency - as energy deployment options in the resource planning process. It's important to note that advanced efficient natural gas combined cycle facilities will be needed as a bridge to a low- to nocarbon future.
- We will work within the regulatory framework in each of our states to ensure that our carbon reduction efforts support customers' needs and preferences.
- We will continue our industry-leading research and development efforts seeking to drive technology advancements that lead to GHG reductions across the energy value chain.
- As a consumer and distributor of natural gas, we will continue our participation in the ONE Future program with a goal to achieve an average rate of methane emissions across the entire natural gas value chain that is one percent or less of total natural gas production.

# Our approach to reducing CO<sub>2</sub> emissions

We operate a complex business in a complicated environment. Our approach to reducing  $CO_2$  emissions is based on three key focus areas.



#### Diverse energy resource portfolio

Pursue a diverse portfolio to include low-carbon and carbonfree resources and energy efficiency resources

# Research &

#### **development** Continue our industry-leading R&D, as well as active participation in the Electric Power Research Institute (EPRI), with particular focus on

technologies that lower GHG

emissions



# Constructive engagement

Constructively engage with policymakers, regulators, investors and customers to support outcomes leading to a low-carbon future

## Diversifying the portfolio of energy resources

Today, we are one of the few energy companies pursuing an "all of the above" energy strategy. We believe developing and maintaining a diversified energy portfolio is essential to successfully reducing carbon emissions while maintaining reliability and affordability.

Southern Company's portfolio was initially founded on hydroelectric generation and has grown to include coal, natural gas, nuclear, biomass, landfill gas, solar, wind, energy efficiency programs, demand response, and distributed resources. Over the last decade, we have significantly transformed our electricity generation mix. Our environmental compliance strategy involves the continuous monitoring of policy developments, compliance options and other factors which may impact the

#### Electricity generation mix



long-term viability of our electric generating units. Over the past eight years, more than 50 percent of our coal units have been retired or converted to natural gas. Recent generation decisions and environmental compliance strategies have led to the following:

- Approximately 4,200 MW of coal- and oil-related retirements since 2010.
- Approximately 3,300 MW of natural gas fuel switches since 2015.

We invest in a diverse portfolio of low-carbon and carbon-free energy assets to serve customers and communities with a focus on maintaining reliability and affordability while reducing carbon emissions. Through our subsidiaries we have invested \$20 billion in developing low-carbon and carbonfree resources and more than 5,000 MW of renewable generating capacity has been added across the system since 2010. Our current portfolio of over 12,000 MW of carbon-free and carbon neutral resource capacity has established a foundation enabling us to continue our carbon reduction efforts<sup>1</sup>

- Along with our partners, we are building the first new nuclear units in the U.S. in more than 30 years. These units will add 1,000 MW to our existing 3,700 MW portfolio of carbon-free nuclear generation.
- We are among the largest solar owner-operators in the U.S. Solar represents a key component of our state-regulated utilities' and Southern Power's 8,500 MW renewable resource portfolio.
- Our state-regulated electric operating companies' renewable resource portfolio includes more than 900 MW of wind, 1,000 MW of solar, 3,000 MW of hydroelectric and nearly 200 MW of biomass.

 Our competitive generation subsidiary, Southern Power, owns approximately 1,800 MW of solar, 1,600 MW of wind and 100 MW of biomass.

Our future energy mix is expected to include more low- and no-carbon resources, particularly if natural gas prices remain low and technology costs associated with renewables and storage continue to decrease. The trends of coal unit retirements and additions of natural gas-fired and renewable generation are projected to continue. We expect to add an additional 3,000 MW of renewable generating capacity by 2022.

Nuclear energy is one of the cleanest, most reliable and costeffective fuel sources available today. It currently accounts for about 15 percent of our electricity generation mix, and its importance in our portfolio continues to grow. As we transition to a low-carbon energy future, we are preparing to bring Georgia Power's Vogtle Units 3 and 4 into operation in 2021 and 2022. We expect to own or otherwise control 16,000 MW of carbon-free and carbon neutral generating capacity by 2022.

## Investing in technologies that support our goals

Southern Company has actively engaged in robust, proprietary R&D that grows the value of energy services to customers since the 1960s. Nearly all of our current R&D spend is focused on lower carbon-emitting technologies.

We are also an active participant and a significant funder of EPRI. EPRI is an independent, nonprofit organization for public interest energy and environmental research. The members of EPRI include utilities throughout the world. EPRI seeks to pool resources and ideas from all members to advance the development and deployment of technologies impacting the electricity sector. Southern Company was instrumental in forming EPRI as the primary



#### Growing portfolio of carbon-free and carbon neutral energy sources

Generally, with respect to renewable energy generated or purchased by the state-regulated electric operating companies, the state-regulated electric operating companies retain the right to use the renewable energy to serve customers or to sell the energy and associated renewable energy credits, together or separately, to third parties for the benefit of customers. research organization for more than 90 percent of the electricity generated and delivered in the U.S.

A low-carbon future will require developing new and more cost-effective energy conversion, delivery and use technologies. Our R&D strategy seeks at least six revolutionary technological successes:

- Beneficial electrification with newly developed and broadly deployed technologies including those for transportation, buildings, industrial processes and food production;
- Solar, wind, energy storage and other carbon-free energy resources – supported by advancements in cost and efficiency through R&D developed and operated in centralized and microgrid configurations, as well as behind the meter as the lowest-cost energy sources;
- Resilient, fully integrated energy delivery grids allowing increased use of low- to no-GHG emissions energy;
- Cost-effective carbon capture, use and storage (CCUS) technologies developed and operating on an efficient, reliable natural gas-fired generation fleet;
- New utility business models created from hydrogen production, delivery and end-use technologies; and
- Advanced nuclear power generation developed with superior safety benefits and polygeneration (simultaneous production of electricity and useful chemicals) business opportunities that is cost-

competitive with natural gas-fired generation.

#### National Carbon Capture Center

The National Carbon Capture Center (NCCC) is a focal point of the U.S. Department of Energy's (DOE) efforts to develop advanced technologies to reduce emissions from natural gas- and coal-based power generation. Since 2009, we have managed and operated this world-class test facility and worked with scientists and technology developers to help overcome the challenges of developing carbon capture technologies. The NCCC has already surpassed 100,000 hours of technology testing. The Center also cofounded the International Test Center Network, a global coalition of facilities working to accelerate the research and development of CCUS technologies.

#### PowerSecure and Bloom Energy

Beyond providing clean, safe, reliable and affordable energy to our customers, we are ensuring that our customers can efficiently use our product. In May 2016, we acquired PowerSecure, a proprietary distributed infrastructure, energy efficiency and utility infrastructure solutions company. With over 1.5 gigawatts (GW) of distributed energy resources under management, PowerSecure has a national footprint and continues to grow.

In October 2016, PowerSecure and Bloom Energy formed a strategic venture where Bloom servers (fuel cells) are paired with PowerSecure's energy storage solution for a portfolio of customers including Home Depot and Kaiser Permanente. In June 2017, PowerSecure and Advanced Microgrid Solutions announced a strategic alliance with the goal of accelerating the costeffective deployment of distributed energy resources. We believe this alliance positions us to serve a nationwide base of customers on both sides of the meter more reliably and efficiently.

## Leading the way for advanced nuclear

As a leader in pursuing innovative solutions for a clean energy future, we are investing in several advanced nuclear research and development projects while working closely with federal regulators playing a vital role in moving the nuclear energy industry forward.

In recognition of the difficulties associated with deploying new nuclear, we are forming strategic partnerships with companies worldwide. We continue to leverage the experience and expertise at Southern Nuclear and Southern Company's R&D division to fully explore all potential opportunities within the current fleet and with advanced technologies including Generation III+, AP1000, small modular reactors and advanced Generation IV reactors.

#### **Energy Impact Partners**

Southern Company is a primary partner in Energy Impact Partners (EIP). EIP is a private equity firm that strategically invests in innovative technologies, services and products throughout the electricity supply chain from generation to consumption. Through close collaboration with its investor base, EIP seeks to bring the best companies, buying power and vision in the industry to bear on the emerging energy landscape. Information about investments by EIP can be found at https://www.energyimpactpartners. com/investments/.



**Renewable resources** 

We have more than 20 research and development projects underway across our system to determine the potential of different renewable resources and technologies. Research areas include solar photovoltaic (PV) deployment, operation and maintenance, solar resource forecasting, wind generation, biomassfueled power generation and bulkpower system integration of variable generation sources.



#### Nuclear

We are committed to nuclear energy as an integral component of the full portfolio strategy for low- to nocarbon operations. Georgia Power, with its co-owners, is constructing two new nuclear units at the Plant Vogtle site in Burke County, Georgia. Upon completion, Plant Vogtle Units 3 and 4 will provide a total of 2,200 MW (approximately 1,000 MW for Georgia Power). Once completed, Plant Vogtle units 3 and 4 will be part of a 4,700 MW carbon-free nuclear generation fleet. We have also been awarded up to \$40 million from the DOE to explore, develop and demonstrate advanced nuclear reactor technologies.



#### Grid modernization

Over the past ten years, we have made major investments in smart grid technologies including deploying approximately 4.6 million smart meters, or advanced metering infrastructure, helping customers better manage their energy use and save money. We are also conducting collaborative, industrywide research with EPRI, for the ongoing development of transmission system monitoring, diagnostics and visualization tools that will facilitate decisions and mitigation measures to enhance system performance, efficiency and reliability.





#### **Energy efficiency**

We are a leader in offering innovative electric and natural gas energy efficiency programs that help our customers use energy more wisely. Across our state-regulated electric utilities, since 2000, energy efficiency and demand response programs have helped reduce peak demand for electricity by more than 5,300 MW (which equates to 17 percent of our 2017 peak load) and avoid more than 3 billion kWh of energy use. Additionally, over the past 16 years, Southern Company Gas' energy efficiency programs have helped reduce demand by more than 90 million therms and reducing customers' emissions. Looking forward, we are on a path to finding more ways for our customers to save money while also reducing GHG emissions by investing more than \$1 billion in energy efficiency for electric customers by 2020 and more than \$160 million in energy efficiency for natural gas customers by 2021. Energy efficiency programs and associated customer savings will remain a focus of the Company.

#### **Distributed resources**

Our long and successful history of incorporating distributed generation into our energy mix began in the late 1970s and continues today. In April 2017, PowerSecure extended its distributed infrastructure offering by acquiring Power Pro-Tech Services, a distributed power system service provider that specializes in distributed power systems including fuel cells, solar inverters and controls that can be used to create microgrids for use by customers. In addition, Gulf Power is operating a 1 MWh Tesla lithium-ion battery energy storage system in a research demonstration with Southern Company R&D and EPRI. The integration of cost effective energy storage with intermittent renewable generation is one of the key options that can help lower carbon emissions.

#### Engaged in shaping energy policy at local, state and federal levels

Engagement at all levels of energy policy development is essential to executing our customer-centric business model. We engage with policymakers to help shape an energy policy that supports developing and deploying more lowand carbon-free energy resources while ensuring that each state that we serve retains the ability to adequately plan and deploy resources that meet the needs of its citizens and communities.

We believe the following principles are fundamental to shaping energy policy.

- Constructive regulation: Regulations should provide constructive solutions to problems affecting people, the environment and the economy. Requirements should be supported by sound data and analysis, while considering other statutes and regulations, both federal and state.
- Regulatory certainty: For many regulated industries, including the utility industry, regulatory certainty is essential to inform the long-term business planning and substantial capital investments required to effectively operate and plan for the future. We value clear, predictable requirements and consistent application of the law.
- Cooperative federalism: Regulation is most effective when the federal government works in partnership with the states rather than imposing onesize-fits-all federal regulations.
- Realistic assessments of costs and benefits: Analyses of proposed or existing regulation



must properly weigh the relevant costs and benefits imposed by those regulations.

 Realistic technology-based standards: Standards should be based on supported conclusions or on proven and reliable commercially available technologies.

Federal: As of the publication of this report, there is no comprehensive federal regulatory framework for limiting CO<sub>2</sub> emissions from existing power plants in the U.S., absent major modifications at those plants. We recognize that domestic policies may emerge in the future that assist in transitioning the U.S. to a lower GHG-emitting economy. As the EPA considers repealing and replacing the Clean Power Plan (CPP) and as the courts consider its legal standing, we support regulating GHG emissions and, in the case of repeal, instating a durable and constructive GHG regulation policy solution that works within the cooperative federalism goals of the Clean Air Act and other federal laws

and regulation. To date, Southern Company's percent reduction in GHG emissions is equivalent to EPA's stated nationwide electric sector reductions associated with the CPP of approximately 32 percent by 2030 from 2005 levels.

State and local: Our electric operating companies and our natural gas local distribution 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 supplyside and demand-side resources and related cost recovery rates, while environmental agencies are charged with the enforcement of each state's environmental policies.

At varying frequencies and under a variety of circumstances, the electric operating companies file with their respective PSCs economic analyses of recommendations or decisions using the scenario planning process. Accordingly, decisions made by an electric operating company regarding its assets, including those requiring specific PSC approval, must be made in the best interest of its customers, taking into consideration a wide variety of factors, and based on the best information available at the time the decisions are made.

Our state-regulated electric operating companies are committed to proposing and seeking approval of energy deployment options in each state jurisdiction's resource planning process that coincide with a transition to a low- to nocarbon future. These resources, for example, may include: advanced natural gas generating units, nuclear, renewables, energy efficiency, and demand response. Each state-regulated electric operating company will work within its state's regulatory framework to ensure that carbon reduction efforts are supportive of customers' needs and preferences.

To date, none of the four states where we operate electric utilities has enacted legislation or regulations to specifically regulate CO<sub>2</sub> emissions or mandates for certain levels of renewable resources. But we understand our customers' needs and preferences for clean, safe, reliable and affordable energy, as well as a continuing desire of many of our stakeholders to reduce our carbon emissions. We will work within each state's regulatory framework - with support from customers, PSCs, and environmental agencies – to ensure that our carbon reduction efforts are supportive of customers' needs and preferences.



Partnering with the US military on renewable energy. We are the only energy company in the nation to partner with the Army, Navy, Marine Corps and Air Force to develop innovative renewable energy generation projects on 19 military bases. Through March 2018, Southern Company and its subsidiaries Alabama Power, Georgia Power, Gulf Power and Mississippi Power have military solar projects online or under contract totaling 365 MW. This partnership with the Department of Defense helps meet the military's goals to support the development of new renewable generation resources nationwide.



Bringing wind to the Southeast. Alabama Power, Georgia Power and Gulf Power have purchased more than 900 MW of wind generation from Oklahoma and Kansas. The companies receive all the renewable energy credits from these projects, which they may use to serve customers with wind energy or sell to third parties for the benefit of customers.



Meeting customer demand for renewable energy. Our state-regulated electric utilities utilize over 5,000 MW of existing renewable resources. We expect that number to grow through programs like Georgia Power's Renewable Energy Development Initiative (REDI). REDI was approved by the Georgia PSC as part of its 2016 Integrated Resource Plan and includes approval for Georgia Power to add an additional 1,200 MW of renewable resources. REDI included the beginning of a Commercial and Industrial (C&I) customer renewable program that allows Georgia Power to procure up to 200 MW of additional renewable generation that C&I customers can use to support their sustainability initiatives. Through our planning process and customer partnerships, Southern Company and its subsidiaries will continue to evaluate and develop similar program designs to meet customers' renewable energy needs.

# Risks and opportunities in a low-carbon future

For the energy industry, high-capital, long-life assets require long-term planning. The current transition in the energy industry along with the potential for a low-carbon future is placing new and different pressures on the traditional energy production and delivery model, creating uncertainty and presenting challenges. The investor community recognizes this as potential risk.

#### **Revenue** mix



Operating Revenues = \$23B

\* Certain non-regulated sales of products and services by Alabama Power and Georgia Power were reclassified as other revenues for consistency of presentation on a consolidated basis following the PowerSecure acquisition.

\*\* Natural Gas Distribution includes Southern Company Gas' state-regulated local distribution companies, midstream pipeline operations and gas marketing services.

We are engaged across the energy value chain as we make, move and sell energy to a wide customer base. We are seeking to minimize potential risk by diversifying our business through electric generation optionality, as well as through the addition of regulated natural gas infrastructure with our acquisition of Southern Company Gas in 2016. Also in 2016, recognizing that more energy solutions will reside on the customer's side of the meter, we acquired PowerSecure, which specializes in customer energy solutions.

As we seek out opportunities to expand our business, we continue to focus on our customer-centric business model, combining state-regulated assets and other energy assets that were developed pursuant to long-term contracts with creditworthy counterparties. This mix of asset types is designed to produce stable, predictable revenue streams with lower carbon risks.

Over the past 10 years, we have diversified our revenue streams while continuing to grow revenue.

To further compare and contrast our business model with other business models that experience greater carbon risk, it is helpful to consider the three primary energy asset business models in use across the U.S. energy industry.

#### State-regulated asset

Owned and operated by regulated utilities, with state utility commissions setting rates to cover the cost of the asset

#### Long-term contracted asset

Owned and operated pursuant to long-term contracts with creditworthy counterparties that are designed to cover the cost of the asset

#### Merchant asset

Owned and operated based on market speculation with plans to sell power into the competitive spot or term markets with little or no certainty of fixed revenue streams Our key asset categories are state-regulated assets and long-term contracted assets. Our carbon risk is lower than many other businesses due to reliance on these two business models, a customer-centric focus and state regulatory approval processes that are informed by a scenario planning process described later in this report. The following table provides greater details on our asset categories and denotes the business model associated with each.

#### Asset outlook of Southern Company's portfolio in GHG-constrained futures

Portfolio	Pros	Cons		
Natural Gas	<ul><li>Abundant supply</li><li>Flexible operations</li><li>Balances renewables</li><li>Lower GHG emissions</li></ul>	<ul><li>No onsite gas storage</li><li>Requires pipeline infrastructure</li><li>GHG emissions</li></ul>		
Coal	<ul><li>Stable price</li><li>Abundant supply</li><li>Onsite fuel storage</li></ul>	<ul><li>Environmental footprint</li><li>Higher GHG emissions</li></ul>		
Nuclear	<ul><li>Low and stable fuel costs</li><li>GHG emissions free</li><li>Abundant supply of fuel</li></ul>	<ul><li>High capital cost</li><li>Waste disposal</li><li>Long construction period</li></ul>		
Renewables	<ul><li>Abundant supply</li><li>GHG free or neutral</li><li>Declining capital cost for solar</li></ul>	<ul> <li>Intermittent generation for solar and wind</li> <li>Siting and permitting constraints for new infrastructure</li> </ul>		
Energy Storage	<ul><li>Enables effective utilization of intermittent generation</li><li>Declining capital costs</li></ul>	<ul><li>High capital cost</li><li>Limited storage capacity</li></ul>		
Electric Transmission & Distribution	<ul> <li>Increases power transmission capabilities</li> </ul>	<ul> <li>Siting and permitting constraints for new infrastructure</li> </ul>		
Local Natural Gas Distribution	<ul><li>Abundant supply</li><li>Existing infrastructure</li></ul>	Needs additional infrastructure		
Midstream Natural Gas Transmission	<ul><li>Abundant supply</li><li>Opportunity to provide pipeline expansion</li></ul>	• Siting and permitting constraints for new infrastructure		
Distributed Energy Infrastructure	<ul> <li>Facilitates electricity peak shaving and demand management</li> <li>Potential transmission and distribution benefits</li> </ul>	<ul> <li>Requires rate adjustments for regulated electric subsidiaries</li> </ul>		

			GHG-Constrained Futures		
Rate Regulated	Long-Term Contract	Merchant <sup>2</sup>	Facilitates GHG Reductions	Demand Outlook	Potential Opportunities to Address Emission Reductions Pressure and Demand Outlook <sup>3</sup>
<	<		0	Z	<ul> <li>Increase existing natural gas unit efficiency</li> <li>Deploy new high efficiency natural gas units</li> <li>Retrofit existing and deploy new natural gas assets with CCUS where economic</li> </ul>
<			0	M	<ul> <li>Increase coal unit efficiency</li> <li>Retrofit existing coal assets with CCUS where economic</li> <li>Replace with lower emission resources</li> </ul>
ø			0	\$	<ul> <li>Maximize life of existing nuclear units</li> <li>Invest in nuclear uprates at existing nuclear units</li> <li>Develop new generation nuclear technology</li> </ul>
ø	V		0		<ul> <li>Invest in renewable energy capacity and transmission infrastructure</li> <li>Improve efficiency of renewable technologies</li> </ul>
ø	V		0		<ul> <li>Invest in energy storage projects and R&amp;D</li> <li>Develop strategic partnerships with battery companies</li> </ul>
V			0	Z	• Invest in grid modernization, such as smart grid, advanced metering infrastructure
<			0	<b>\</b>	<ul> <li>Replace aging pipeline infrastructure</li> <li>Minimize methane emissions</li> <li>Invest in renewable natural gas</li> </ul>
V	V		0	Z	<ul> <li>Replace aging pipeline infrastructure</li> <li>Minimize methane emissions</li> <li>Expand to support generation growth, replacements and conversions</li> </ul>
V	V		0	Z	<ul> <li>Increase market penetration</li> <li>Utilize energy and product monitoring to mitigate future distribution system impacts</li> </ul>

<sup>2</sup> Southern Company's business model does not rely on merchant assets that could create unpredictable fuel price or GHG risk.

<sup>3</sup> Potential opportunities are hypothetical in nature, do not necessarily represent a component of the Southern Company system's future plans and may or may not actually be pursued in the future.



## Potential stranded assets, investments and costs

For rate-regulated assets, we have an obligation to continually make decisions that are in the best interest of customers. Our state-regulated electric operating companies seek approval of major decisions regarding rate-regulated assets from their respective state PSCs. Information provided to the state PSCs by the electric operating companies includes economic results from the Company's scenario planning process, thereby allowing the PSCs to render a decision is in the best interest of customers under a variety of fuel and CO<sub>2</sub> scenarios.

We expect that if our companies continue to make major energy decisions that are in the best interest of customers, that appropriately consider fuel and carbon risks, and that are approved by the state regulators, each company will receive fair regulatory treatment regarding its rate-regulated assets. We believe that carbon investment risk to these rate-regulated assets is low.

For our portfolio of non-rate regulated assets, we rely on long-term contracts with creditworthy counterparties that help mitigate carbon risk associated with these assets. Our business model does not rely on merchant assets that could create unpredictable investment risk.

Our energy infrastructure portfolio of primarily rate-regulated assets and assets under long-term contracts is designed to produce regular, predictable and sustainable earnings. Our significant investment over the past decade in low- and no-carbon resources is expected to further reduce future risk related to carbon emissions.

# Conclusion

Our strategy is to maximize long-term value to shareholders through a customer, community and stakeholder-focused business model that produces sustainable levels of return on energy infrastructure.

We believe we can successfully sustain and evolve our business as we transition to a low- to no-carbon future. We anticipate that we are well-positioned for the transition and the risks and opportunities that are part of that transition.

We continue to manage our carbon risk using effective scenario planning for major electric generation decisions through the execution of a customer-centric business model that focuses on state-regulated or long-term contracted assets while adhering to a robust governance process. Our carbon reduction goals of 50 percent by 2030 and low- to no-carbon operations by 2050 are a critical step forward for us and our business units. As we work to achieve those goals, we remain committed to our core principles of providing clean, safe, reliable and affordable energy for our customers.



# Further discussion

# Achieving climate goals through resource diversity and clean energy investment

#### A global perspective

In 2015, negotiations at the United Nations Framework Convention on Climate Change resulted in a new international climate deal, the Paris Agreement. A central goal of the Paris Agreement is to hold the increase in global average temperature to well below 2° Celsius above pre-industrial levels.

The International Energy Agency (IEA) developed a global 2° Celsius scenario (2DS) that provides an example of a global energy system pathway and a  $CO_2$  emissions trajectory consistent with at least a 50 percent chance of limiting the average global temperature increase to 2°C by 2100. The 2DS emission trajectory represents a 70 percent reduction in global annual energy sector  $CO_2$  emissions

Million Metric Tons CO<sub>2</sub>

from 2014 levels by 2060 (Figure 1), with carbon neutrality in the global energy system being achieved in 2100.

While this global energy sector analysis shows a large reduction in the use of fossil fuels over the next several decades, it also demonstrates that global energy demand will require a full portfolio of energy solutions in a carbon-constrained future (Figure 2). IEA states: "sustainable transformation of the energy sector can be achieved only with accelerated investment in a portfolio of clean energy technologies and energy efficiency."4 Energy efficiency, electrification of end-use sectors, low emitting electricity generation such as renewable energy, fossil-fueled generation with carbon capture and storage, nuclear and sustainably sourced bioenergy are specifically identified by IEA as key drivers within the 2DS.

#### A national perspective

Southern Company's recent scenario planning analysis of the overall U.S. economy shows a potential 39 percent reduction in  $CO_{2}$ emissions from 2007 levels by 2050 (Figure 3). Most of these reductions are achieved by the electric sector, with a reduction of approximately 70 percent in one of the scenarios (Figure 4). It should be noted that this reduction of approximately 70 percent in carbon emissions is close to the U.S. electric sector reductions modeled in IEA's 2DS. However, our recent analysis does not achieve these reductions until 2050.

#### Figure 1: Global Direct CO<sub>2</sub> Emissions in IEA's 2DS<sup>4,5</sup>



**Figure 2: Global Primary Energy Demand in IEA's 2DS**<sup>4,5</sup> EJ (EJ - exajoule - 10<sup>18</sup> joules)



<sup>4</sup> © OECD/IEA 2017, Energy Technology Perspectives 2017, IEA Publishing. License: www.iea.org/t&c

<sup>5</sup> Based on IEA data from the Energy Technology Perspectives 2017, ETP 2017 scenarios summary © OECD/IEA 2017, www.iea.org. License: www.iea.org/t&c; as modified by Bridget Brown.

Our goal of low- to no-carbon emissions by 2050 aligns with the modeled trajectories associated with the 2DS emissions trajectories.

The transportation sector accounted for 36 percent of the total U.S. energy-related  $CO_2$  emissions in 2016. Transitioning this sector from the heavy use of fossil fuels presents the largest opportunity in realizing a carbon-free future. With overall carbon reductions as the objective, emissions reductions in the electricity sector can provide important motivation for further electrification of the remaining end-use sectors.

We are exploring opportunities for carbon reductions from the transportation sector through our electric vehicle (EV) and hydrogen research efforts.

#### Electric transportation

We are actively engaged in advancing the electrification of transportation, which will reduce transportation costs for customers while reducing carbon emissions. This includes:

- Promoting customer education and awareness.
- Working with vehicle manufacturers and EPRI to bring viable on-road EV technologies to market.
- Helping develop charging infrastructure and improve vehicle/grid integration plans for efficient distribution.
- Offering lower electricity rates and programs for off-peak usage, which helps commercial and industrial customers reduce their operating costs and environmental impact.



 Accelerating the growth of the U.S. EV infrastructure as a member of the Alliance for Transportation Electrification.

Moreover, we monitor technology advancements that will be vital in a low-carbon future. New

### Figure 4: U.S. Energy-Related CO<sub>2</sub> Emissions<sup>7</sup>

(Range Across Scenarios) Change in  $CO_2$  Emissions from 2007



<sup>6</sup> U.S. sector-related CO<sub>2</sub> emissions determined by Charles River Associates through the Company's annual resource planning process. End-use sector-related emissions reductions include those associated with electricity.

<sup>7</sup> U.S. energy-related CO<sub>2</sub> emissions determined by Charles River Associates through the Company's annual resource planning process. Based on U.S. Energy Information Administration 2007 U.S. energy-related CO<sub>2</sub> emissions of 6,021 MMTCO<sub>2</sub>.

### Figure 3: U.S. Sector-Related CO<sub>2</sub> Emissions<sup>6</sup>

(Range Across Scenarios) Projected  $CO_2$  Reductions (2007 - 2050)



technologies are incorporated into the annual scenario planning process when appropriate, thereby influencing major generation decisions.

#### Scenario planning

Our integrated resource planning process occurs annually – allowing updates to the scenarios and associated  $CO_2$  prices, as well as incorporation of the most recent commodity, economic or policy indicators.

We use a robust scenario planning process that has two primary components: energy economy modeling and integrated resource planning.

#### Energy economy modeling, in collaboration with external

industry experts, analyzes the implications of diverse futures on multiple sectors of the nation's economy. The two central uncertainties analyzed at a macro, national-level are fuel (e.g., natural gas prices) and  $CO_2$  (e.g., represented as a cost to emit  $CO_2$ ). Understanding the impacts to individual sectors of the economy and the interaction between sectors at the macro-economy level provides significant insight to informing and identifying broad industry risks and potential business strategies. This scenario format also serves as a basis for

integrated resource planning at the state-regulated electric operating companies – and ultimately informs major generation retirement and capital investment decisions.

Integrated resource planning provides an orderly and reasoned framework where generation supply and demand-side options are analyzed across the state-regulated electric operating companies with the objective of providing reliable and affordable energy that meets customers' needs over the planning horizon.



#### Energy economy modeling

Our most recent national-level scenario planning process encompasses a range of scenarios with varying views for natural gas prices and  $CO_2$  prices. The  $CO_2$  price is represented as a range of economy-wide dollar per-metric ton prices of emissions. For this recent analysis, the starting price of  $CO_2$  emissions spans \$0 to \$20 per metric ton and increases annually above inflation.

Multiple scenarios are generated using a range of fuel price and CO<sub>2</sub> price inputs.

#### Applying the scenario planning process at the state-regulated electric companies

Our electric operating companies are subject to the jurisdiction of their respective state PSCs. These regulatory agencies have broad authority over the companies, including approval of new supply-side and demand-side resources and related cost recovery rates.

At varying frequencies and under a variety of circumstances, the electric operating companies file with their respective PSCs economic analyses of recommendations or decisions using the scenario planning process. Accordingly, decisions made by an electric operating company regarding its assets, including those requiring specific PSC approval, are in the best interest of its customers, taking into account a wide variety of factors, and based on the best information available at the time the decisions are made.



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.

Our state-regulated electric operating companies are committed to proposing and seeking approval of energy deployment options in each state jurisdiction's resource planning process that coincide with a transition to a low- to nocarbon future. These resources, for example, may include: advanced natural gas generating units, nuclear, renewables, energy efficiency, and demand response. Each state-regulated electric operating company will work within its state's regulatory framework to ensure that carbon reduction efforts are supportive of customers' desires for clean, safe, reliable and affordable energy.

#### Details about emissions reporting

Our estimated 2017 GHG emissions (CO<sub>2</sub> equivalent) were approximately 97 million metric tons. This represents a carbon emissions reduction of 36 percent as compared to 2007 levels.

To better represent GHG emission reductions, we are transitioning to a 2007 baseline year that represents Southern Company's maximum emissions year, and we are continuing to use a calculation methodology consistent with EPA's GHGRP methodology. Our actions and diverse generation portfolio have resulted in a GHG emission reduction of 36 percent from 2007 through 2017. Based on ownership, or financial control of facilities, the GHG emissions are calculated using methods required by GHGRP, including the GHGRP's global warming potentials and emission factors.8

The majority of our GHG emissions result from the use of fossil fuels to generate electricity, which results in emissions of three GHGs:  $CO_2$ ,  $CH_4$  and  $N_2O$ . More than 99 percent of the system's electric generation GHG emissions are  $CO_2$ . Alabama Power, Georgia Power, Gulf Power, Mississippi Power, Southern Power, Southern Company Gas, Southern Electric Generating Company and PowerSecure all emit  $CO_2$ ,  $CH_4$ and  $N_2O$ .



We have reported natural gas CH<sub>4</sub> emissions through EPA's Natural Gas STAR voluntary reporting program for nearly two decades, and through GHGRP since 2011. In 2016, Southern Company Gas' fugitive methane emissions intensity rate was 0.25 percent, where the total methane emissions were 1,900 million standard cubic feet (MMscf) and methane throughput was approximately 767,000 MMscf. Southern Company Gas continues to work diligently with state PSCs to remove aging pipe from its system, which helps reduce leakage-related GHG emissions. All seven local distribution companies continue to achieve methane emissions reductions through system modernization. An overview of the Southern Company Gas pipeline replacement program can be viewed on our website.

The emissions reported under the GHGRP are verified by EPA and based on units for which the system has operational control. The majority of the system's electricity generation GHG emissions are measured with continuous emissions monitoring systems (CEMS) according to EPA's Title 40 of the U.S. Code of Federal Regulations Part 75 specifications. Emissions not monitored by CEMS are calculated based on GHGRP methodology.

#### Governance

#### Board oversight of risk

The Board of Directors is responsible for oversight of strategy and risk, including risks related to carbon emissions and related matters. The Board recognizes the potential impacts on our business and the transitional risks and opportunities the utility industry faces in a low carbon future. The Board regularly assesses the Company's short- and long-term business strategy, including the long-term sustainability of its business, in light of carbon-related risks and opportunities. Issues that are the subject of active discussions at Board and Board committee meetings include carbon-related risk, regulatory compliance, energy efficiency, renewable energy and emerging technology.

#### Board and management engagement in enterprise risk management program

All Board members are actively involved in our risk oversight function. The Board reviews our risk profile and ensures that oversight of each risk is properly designated to an appropriate Board committee or the full Board. Each Board committee provides ongoing oversight for the risks designated to it, reports to the Board on their oversight activities and elevates review of risk issues to the Board as appropriate. Independent Directors chair each Board committee, and each committee has a designated member of executive management as the primary responsible officer for providing information and updates to the Board committee related to significant risks. There is regular, open communication between management and the Board on these topics throughout the year.

We have a robust enterprise risk management program that facilitates identification, communication and management of the most significant risks in a formal process. Within this framework, risk governance and oversight are largely embedded in existing organizational and control structures. As a part of the governance structure, the Chief Risk Officer is accountable to the Chief Executive Officer and the Board for ensuring that enterprise risk oversight and management processes are established and operating effectively. Officers and senior managers are responsible for working across the business

to manage enterprise-level risk, monitor the performance of risk mitigation strategies and identify emerging risks. They meet routinely and engage regularly with the Board and its committees throughout the year.

#### **Board committees**

The Operations, Environmental and Safety (OE&S) Committee of the Board oversees and reports to the full Board on significant environmental and safety policy and planning issues, including:

- Policies and operating matters before environmental regulatory agencies; compliance with environmental, health, and safety laws and regulations; transmission reliability and pipeline safety standards.
- Programs, policies and procedures to protect the environment and provide a healthy and safe environment for employees, customers, contractors and the public.
- Significant technology initiatives.
- Risks and associated risk management activities related to significant system operation.

The OE&S Committee receives regular reports on operating units' safety and environmental activities. The Committee also engages in robust discussions about carbon emissions and carbon risks, strategic planning and scenario planning and analysis.

The Nominating, Governance and Corporate Responsibility (NG&CR) Committee of the Board oversees and reports to the full Board on the composition and competencies of the Board and its committees and corporate governance policies, including:

- Evaluating the composition and size of the Board to assess the skills and expertise that are represented on the Board and in individual directors, as well as the skills and experience that the Board may find valuable in the future.
- Reviewing and making recommendations to the Board regarding the Company's practices and positions to advance its corporate citizenship, including environmental, sustainability and corporate social responsibility initiatives.



- Reviewing and making recommendations to the Board regarding proposed responses to shareholder proposals.
- Overseeing the Company's shareholder engagement program, and making recommendations to the Board regarding its involvement in shareholder engagement.

The NG&CR Committee receives updates about our ongoing shareholder engagement program and feedback received from shareholders on environmental, social and governance (ESG) topics, including climate-related risks and disclosures.

#### Engagement, transparency and further information

## Engagement with stakeholders

We place great importance on consistent dialogue with all our stakeholders, including customers, employees, and investors. We regularly engage in discussions with, and provide comprehensive information for, constituents interested in our citizenship, stewardship and environmental compliance. We are receptive to stakeholder concerns, and we are committed to transparency and proactive interactions with our investors. We regularly communicate with our shareholders to better understand their viewpoints, gather input on our business strategy and execution and obtain feedback regarding other matters of investor interest.

- Our management team participates in numerous investor meetings each year to discuss our business, our strategy and our financial results. These meetings include in-person, telephone, and webcast conferences.
- Since 2011, we have held regular environmental stakeholder forums, webinars, calls and meetings covering a range of topics, including regulatory and policy issues, system risk and planning related to renewables, energy efficiency and greenhouse gas matters. Members of senior management participate in these events.
- We began a more systematic approach to shareholder outreach with respect to ESG topics in 2014 that involved members of our senior management. The shareholder outreach team expanded in 2016

to include independent Directors. The NG&CR Committee currently oversees the shareholder engagement program on behalf of the Board.

## Shareholder outreach over the last year

In 2017 and early 2018, we reached out to our 100 largest shareholders representing more than 35 percent of our outstanding shares and to our shareholders that are not among our 100 largest but expressed an interest in engaging with us. We requested meetings to discuss ESG topics, as well as any other topics of interest to shareholders. We received positive responses from, and had meetings by telephone or in person with, shareholders representing more than 31 percent of our outstanding shares, including index funds, union and public pension funds, activelymanaged funds and sociallyresponsible investment funds.

Participants in calls and meetings with our largest shareholders included one or more independent Directors, the Chief Executive Officer, the Chief Financial Officer, the General Counsel, the Chief Human Resources Officer and the Vice President for Environmental and System Planning. Shareholder feedback is reported to our Board committees throughout the year.

#### Response to 2017 shareholder proposal

At the 2017 annual meeting of shareholders, a proposal from the Sisters of St. Dominic of Caldwell, New Jersey and certain colleagues at the Interfaith Center on Corporate Responsibility requesting a report on our strategy related to the IEA 2DS received 46 percent support. Although the proposal did not pass, we began working with the proponents on disclosures responsive to the proposal. Over the past year, we have had a number of collaborative and constructive in-person meetings and telephone conferences with the proponents to discuss the proposal and this report.

#### Transparency on ESG data

We are focused on increasing transparency and accessibility to information about our carbon emissions. We have worked with the Edison Electric Institute (EEI) and its member companies, our investors and other stakeholders to develop an ESG/Sustainability template that is consistent across the electric sector. The goals of this initiative include:

- Provide consistent information to investors;
- Allow integration of ESG/Sustainability data and performance;
- Provide clarity of risks (e.g., stranded assets, regulatory issues, etc.) and opportunities (e.g., investments in renewables, etc.) and how they are being managed;
- Provide insight into growth strategy, assumptions and future trajectory;
- Provide both qualitative and quantitative information; and
- Serve as a primary reporting channel for consolidated ESG/ Sustainability information relevant to investors and other stakeholders.

#### Where you can find more information





2018 Proxy Statement



**Corporate Responsibility Reports** 

Our EEI/ESG Sustainability Report can be viewed on the Corporate Responsibility section of our website.

#### Cautionary note regarding forward-looking statements

Certain information contained in this report is forward-looking information based on current expectations and plans that involve risks and uncertainties. Forward-looking information includes, among other things, statements concerning GHG reduction strategies, demand outlooks, expected future cost and benefit analyses, other items related to Southern Company's future business plans, and expected in-service dates for Plant Vogtle Units 3 and 4. Southern Company cautions that there are certain factors that can cause actual results to differ materially from the forwardlooking information that has been provided. The reader is cautioned not to put undue reliance on this forwardlooking 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 and its subsidiaries; 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 and its subsidiaries' Annual Reports on Form 10-K for the year ended December 31, 2017, and subsequent securities filings, 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 environmental laws and regulations governing air, water, land, and protection of other natural resources, as well as changes in application of existing laws and regulations; current and future litigation or regulatory investigations, proceedings, or inquiries; the effects, extent, and timing of the entry of additional competition in the markets in which Southern Company's subsidiaries operate; variations in demand for electricity and natural gas, including those relating to weather, the general economy, population and business growth (and declines), the effects of energy conservation and efficiency measures, including from the development and deployment of alternative energy sources such as self-generation and distributed generation technologies; available sources and costs of natural gas and other fuels; limits on pipeline capacity; transmission constraints; the ability to control costs and avoid cost overruns during the development, construction, and operation of facilities, which include the development and construction of generating facilities with designs that have not been previously constructed, including changes in labor costs and productivity, adverse weather conditions, shortages and inconsistent quality of equipment, materials, and labor, contractor or supplier delay, non-performance under construction, operating, or other agreements, operational readiness, including specialized operator training and required site safety programs, unforeseen engineering or design problems, start-up

activities (including major equipment failure and system integration), and/or operational performance; the ability to construct facilities in accordance with the requirements of permits and licenses (including satisfaction of Nuclear Regulatory Commission requirements), 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; advances in technology; 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 fuel and other cost recovery mechanisms; 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 such as influenzas, or other similar occurrences; and 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. Southern Company and its subsidiaries expressly disclaim any obligation to update any forward-looking information.

# Southern Company system footprint





#### Service territories

Electric

#### Gas

NOTE: On October 16, 2017, Southern Company Gas announced the pending disposition of its Elizabethtown Gas and Elkton Gas businesses.

#### Gas pipelines

- Southern Natural Gas
- Southern Company Gas
- Pipeline projects

#### Southern Power

Facilities in operation or under development as of March 20, 2018

- Combined cycle facility
- Peaking facility
- Biomass facility
- Solar facility
- Wind facility

#### PowerSecure

 Owned and managed sites per state

#### Southern Company Gas

- LNG facilities
- PH Pivotal Home Solutions
  - NOTE: On April 11, 2018, Southern Company Gas announced the pending disposition of Pivotal Home Solutions.
- SE Sequent Energy Management
- ss SouthStar
- Natural gas storage





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