

REINHOLD ENVIRONMENTAL Ltd.



**2019 REINHOLD Round Table
Presentation**

June 24 & 25, 2019, in Birmingham, Alabama / Hosted by Southern Company

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Southern Company's Low- to No-Carbon Future

The “Green New Deal” has captivated the media, politicians and the public

- Non-binding resolution lays out progressive social agenda
- 100% renewables in 10 years (excluding nuclear)
- Guarantees jobs, healthcare and education for all Americans
- \$51-93 trillion price tag
- 5 Democratic presidential candidates have endorsed



There is a broad spectrum of positions on climate

“Even the Green New Deal is not enough.”

Rep. Ocasio-Cortez

“Investors can no longer ignore climate change.”

Institutional Investors

“There is an urgent need to act now on climate based on practicality, not ideology.”

The Green Real Deal

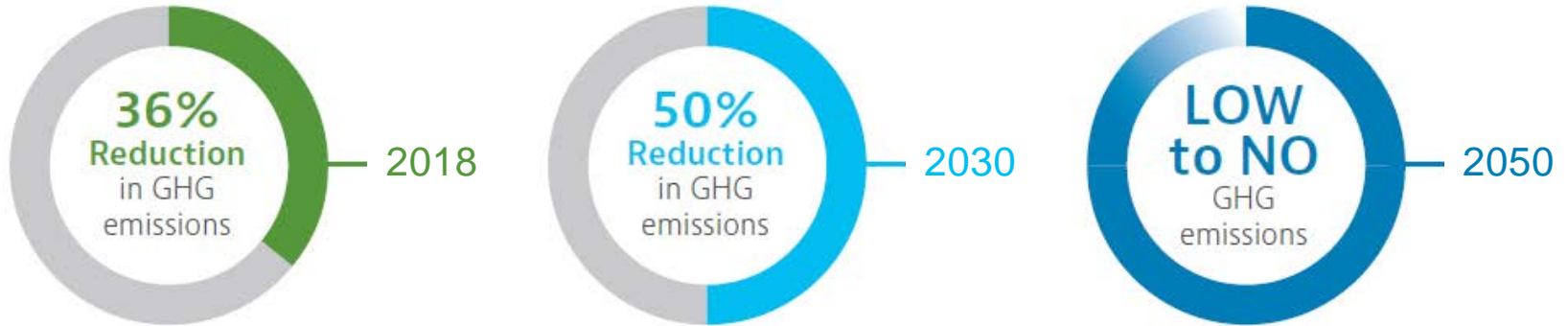
“Quite trying to solve a problem that doesn’t exist.”

President Trump

“Climate change is real, and we’re focused on solutions.”

Republicans on the House Energy and Commerce Committee

Southern Company's Low-Carbon Future



Achievement of these goals will be dependent on many factors, including natural gas prices and the pace and extent of improvements in energy technology.

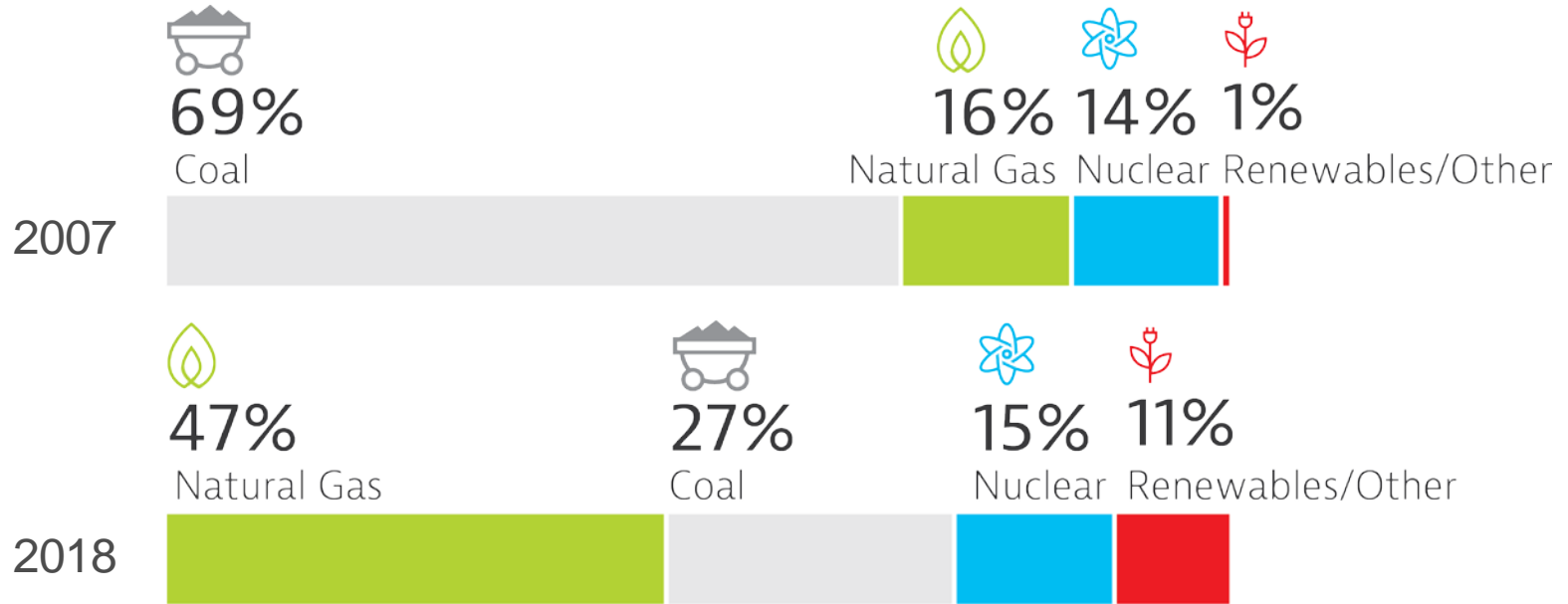
Southern's Business Strategy is Focused on Customers

Continuing development and deployment of a diverse portfolio of low-carbon energy resources

Continuing robust R&D efforts to develop and deploy low-to-no carbon technologies

Shaping a national energy policy that benefits customers and ensures states' ability to plan and deploy a diverse set of low-carbon resources

Southern's Energy Mix



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

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Southern's Focus on Future Breakthroughs

- Renewables and energy storage
- Resilient, fully integrated energy delivery grids
- Cost-effective carbon capture, use and storage (CCUS) technologies
- New utility business models created from hydrogen production, delivery and end-use technologies
- Advanced nuclear power generation

Southern's Business Strategy is Focused on Customers

Continuing development and deployment of a diverse portfolio of low-carbon energy resources

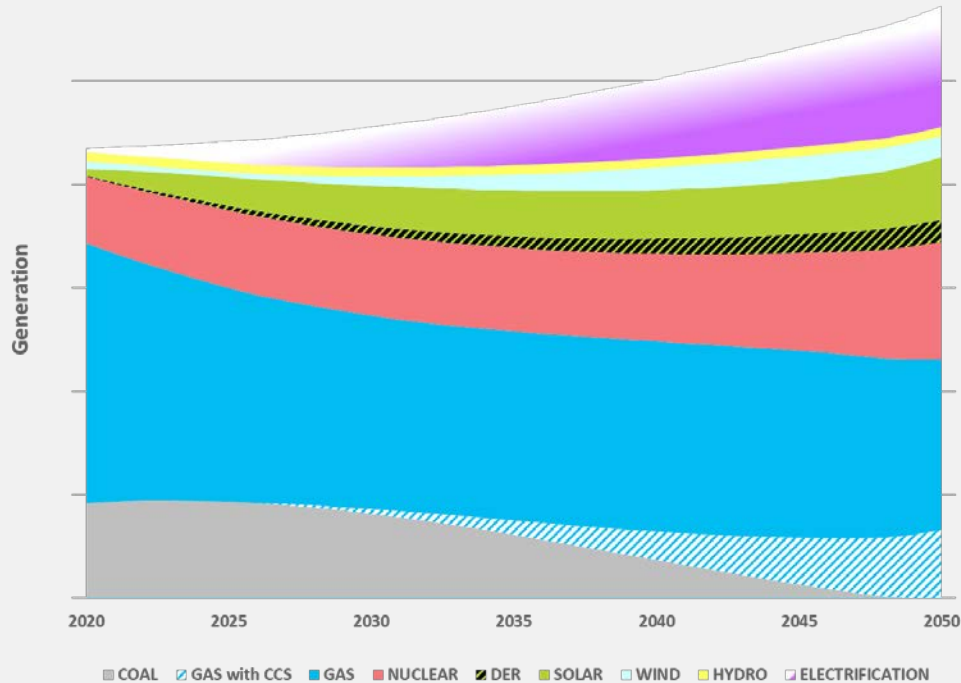
Continuing robust R&D efforts to develop and deploy low-to-no carbon technologies

Shaping a national energy policy that benefits customers and ensures states' ability to plan and deploy a diverse set of low-carbon resources

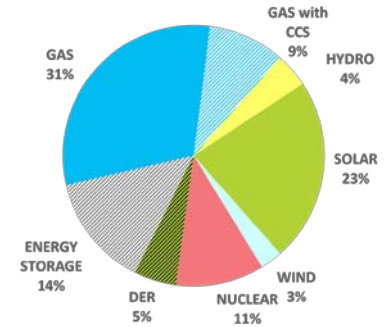
Energy Policy Objectives that would Benefit Customers and Enable Reduction in GHG emissions

- Sustain low natural gas prices
- Efficient energy use through electrification and natural gas utilization
- R&D to advance low and no carbon technologies
 - Renewables and energy storage
 - Carbon capture, utilization and storage technology
 - Advanced nuclear
- Solutions to used nuclear fuel and water consumption

Illustrative technology pathway to 80% greenhouse gas reduction by 2050

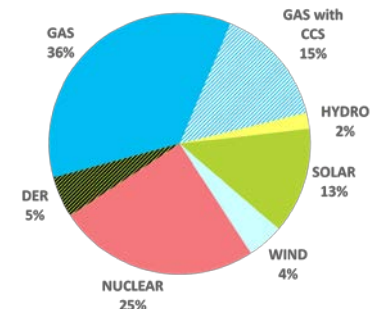


2050 Capacity Mix



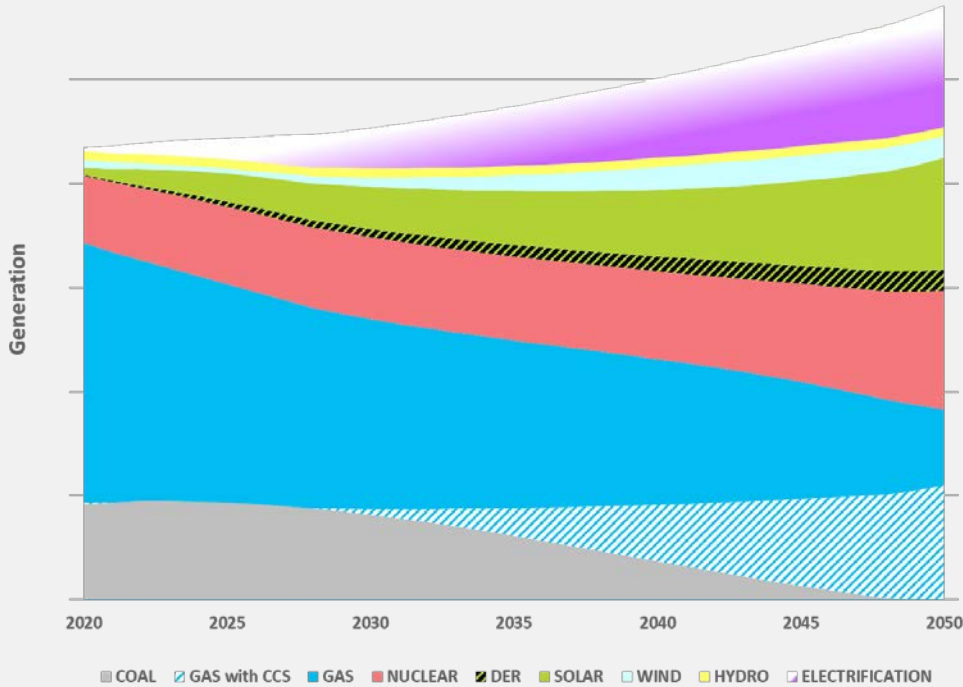
Type	Coal	Gas/Oil	Nuclear	Hydro	Renew/Other	Storage
MW	0	30,132	7,905	2,892	22,181	10,125

2050 Energy Mix

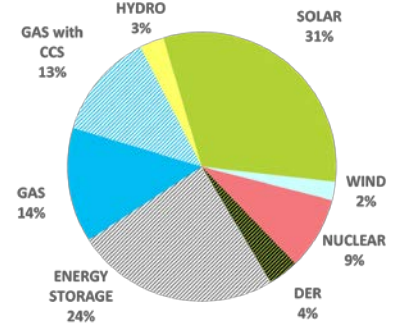


Assumes technology cost reductions and cost competitiveness between gas with CCS, solar with energy storage, wind, and fourth generation nuclear to achieve 80% carbon reductions from 2007 levels by 2050.

Illustrative technology pathway to 90% greenhouse gas reduction by 2050

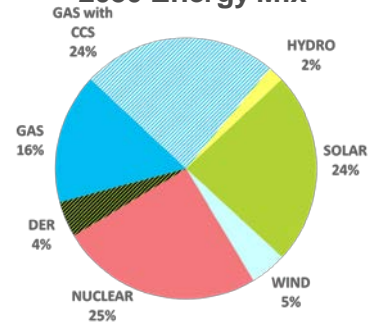


2050 Capacity Mix



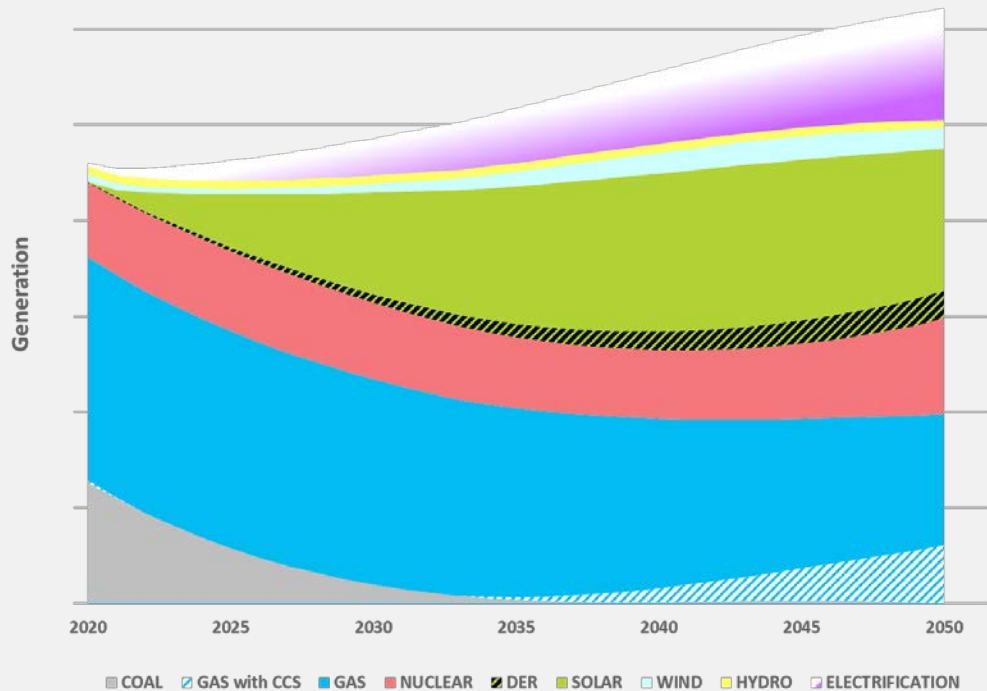
Type	Coal	Gas/Oil	Nuclear	Hydro	Renew/Other	Storage
MW	0	25,189	7,905	2,892	33,325	22,031

2050 Energy Mix

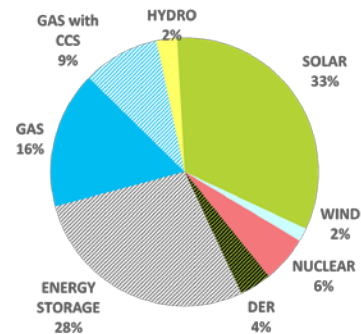


Assumes technology cost reductions and cost competitiveness between gas with CCS, solar with energy storage, wind, and fourth generation nuclear to achieve **90% carbon reductions from 2007 levels by 2050.**

Illustrative \$50 carbon pathway for greenhouse gas reduction by 2050

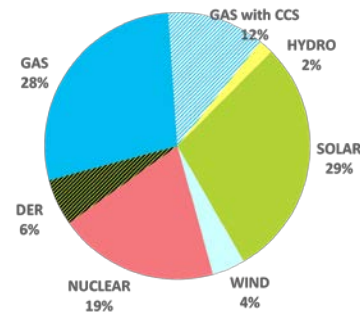


2050 Capacity Mix



Type	Coal	Gas/Oil	Nuclear	Hydro	Renew/Other	Storage
MW	7,788	32,715	6,692	2,892	45,312	34,570

2050 Energy Mix



2050 carbon reductions = 82% from 2007 levels

Summary

Our carbon emissions strategy aligns with our focus on our customers, reduces carbon emissions and creates investment opportunity

Our future will build on our significant progress to-date:

- ✓ Diversified Portfolio
- ✓ Robust Proprietary R&D
- ✓ Shaping National Energy Policy