TRACKING DECARBONIZATION IN THE SOUTHEAST

2019 GENERATION + CO_2 EMISSIONS REPORT

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INTRODUCTION

Power generation in the Southeast has changed: Carbon dioxide (CO_2) emissions are down, and solar is being deployed at increasing scale. Electricity demand is declining and the economics of clean energy continue to improve. Some utilities are setting long-term goals such as transitioning away from fossil fuels and lowering greenhouse gas emissions. While emission reduction opportunities exist in many sectors, this report will discuss decarbonizing emissions from utility generation in the electric power sector.

SACE has compiled historical data for 2010-2017 and forecasts of power generation for Southeast utilities. By examining the mix of fuels used to meet the region's power needs, we can describe how generation and demand relate to regional carbon emissions. Generation and emission figures given in this report are tied to the utility or state in which the power is ultimately consumed, not generated or emitted.

The purpose of this report is to review regional emissions and generation trends in the electric power sector in the Southeast. We will identify what current supply and demand forecasts tell us about the region's resource mix and future carbon emissions.

ABOUT SACE

The Southern Alliance for Clean Energy (SACE) is a nonprofit organization that promotes responsible energy choices to ensure clean, safe, and healthy communities throughout the Southeast. As a leading voice for energy policy in our region, SACE is focused on transforming the way we produce and consume energy in the Southeast.

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EXECUTIVE SUMMARY

Changes in power generation have driven carbon emissions from electric utilities in the Southeast down for over a decade. Despite the deployment of solar, these trends in emissions and generation flatten out under current utility plans. This flat trend falls far short of the trajectories recommended by scientists as needed to avoid the worst of the climate crisis.

UTILITIES ARE PREDICTING LOW DEMAND FOR ELECTRICITY

Utilities serve a growing number of customers, but that no longer translates into electric demand growth. Southeastern utilities are collectively forecasted to have relatively flat load in the 2020-2030 timeframe. This is a departure from historical trends, and means that new generation needs will be driven by plant retirements instead of customer demand.

CLEAN ENERGY DEPENDS ON PARTNERSHIP BETWEEN STATES & UTILITIES

While most of the country gets its power from competitive electricity markets, the Southeast relies on state regulated monopoly utilities. States and utilities each have a role in determining the mix of resources. To understand regional trends, it is necessary to look at things from the perspective of both state policy and utility leadership.

SOLAR COULD REPLACE GAS AS UTILITIES' GO-TO RESOURCE, BUT WILL IT?

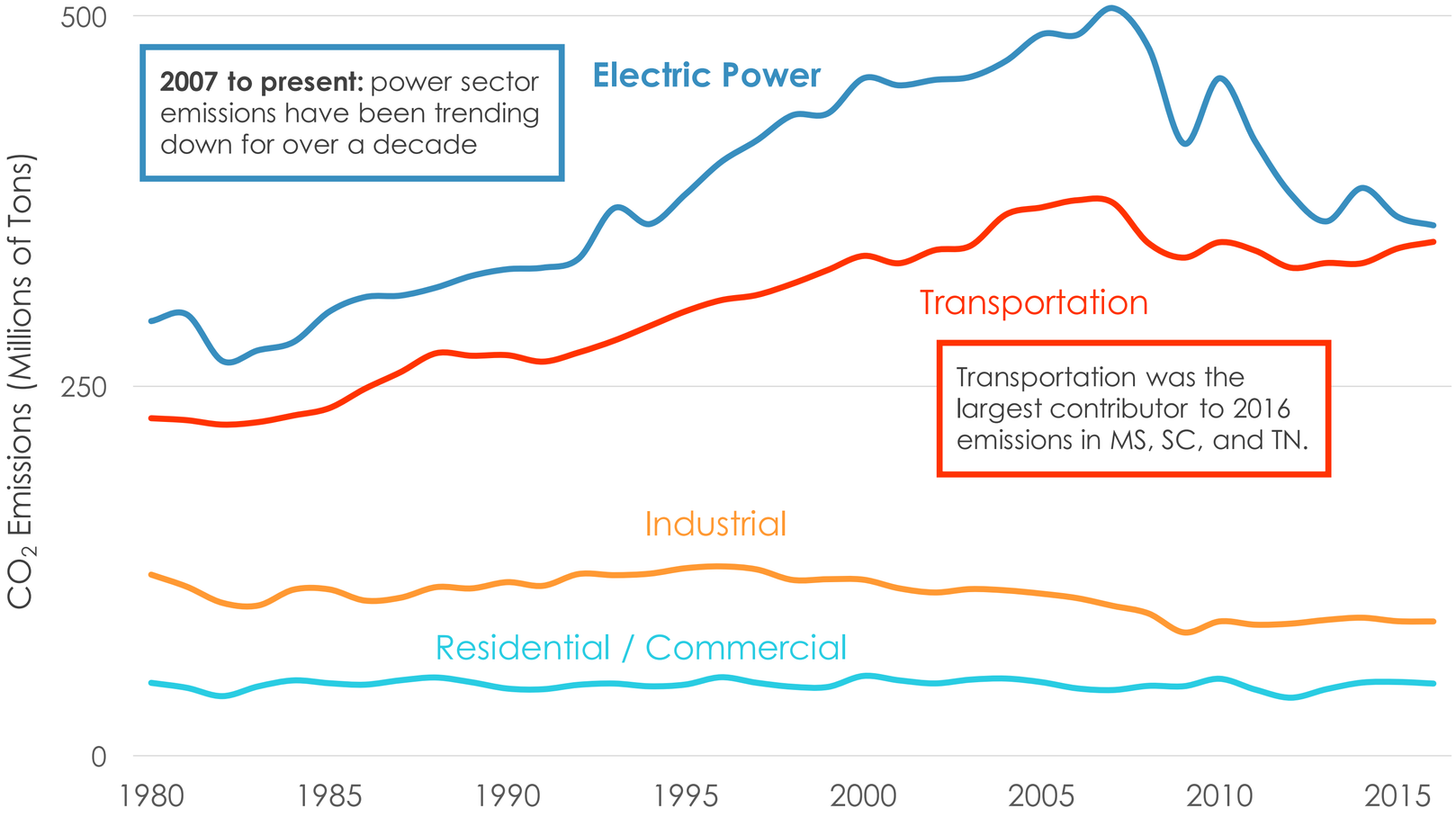
Flat demand means new gas capacity is replacing retiring coal capacity. Because gas generation has approximately half the emissions of coal generation, carbon emission reductions have been dramatic. Continued cost reductions and technology improvements have put zero-emission solar on par with new gas-fueled plants. However, under current utility plans, generation from new gas plants is forecast to exceed renewable generation growth.

PURCHASING POWER FROM OUT OF STATE PLANTS

Many utilities share ownership of some power plants and buy and sell power between utilities and independent power producers. Due to these interregional power purchases, in-state generation often does not fully explain how each state is supplied with electricity.

EMISSIONS: HISTORICAL TRENDS BY SECTOR

SOUTHEAST ANNUAL CO_2 EMISSIONS BY SECTOR



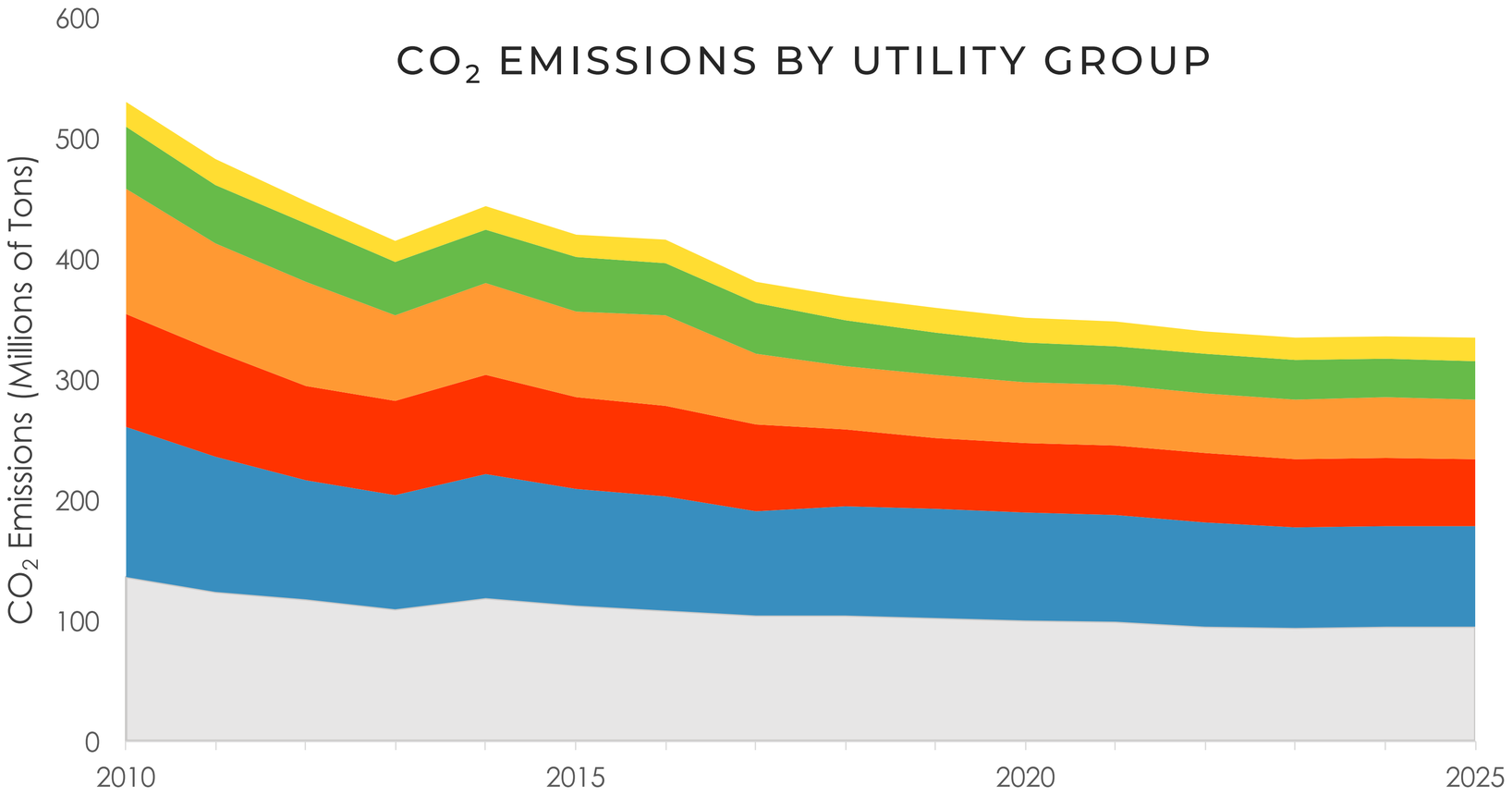
Source: U.S. Energy Information Administration (EIA) – State Carbon Dioxide Emissions for AL, FL, GA, MS, NC, SC, TN (1980-2016).

CO_2 emissions are reported by sector to measure how consumption of fossil fuels contributes to greenhouse gas emissions.

Globally, emissions are on the rise. But on both a national and regional level, reported annual CO_2 emissions are beginning to drop. The primary driver for this drop in sharp emissions reductions is observed in the ***electric power sector***, which is the focus of this report. This report does not investigate or forecast other sources of greenhouse gas emissions, but instead reviews regional emissions and generation trends.

Another notable result of falling emissions in the power sector is that the transportation sector is on track to overtake electric power as the largest regional source of CO_2. The most recent inventory released by EPA shows that nationally, transportation emissions surpassed those from electric power sector in 2017.

EMISSIONS: FORECAST FOR UTILITIES



Utility	2017	2025
Oglethorpe Power	17	19
Florida Power & Light	42	32
Tennessee Valley Authority (TVA)	58	55
Duke Energy	72	55
Southern Company	87	83
Other Utilities	104	95
All Utilities	**380**	**334**

Based on publicly-available utility plans, total CO_2 emissions from utilities in Southeastern balancing areas are expected to fall 12% from current levels by 2025. Following significant reductions in the near-term, the decade-long trend in emissions reductions will gradually taper off in the 2020-2025 timeframe. There are few state or utility policies that are likely to drive a new wave of emission reductions beyond what is already forecasted.

EMISSIONS: ELECTRIC UTILITY CARBON GOALS

DECARBONIZATION FACES MANY CHALLENGES

Under current utility plans, the next decade of power sector decarbonization slows from rates seen in this decade. High costs and the need to further develop technologies are often falsely cited as the primary barriers to decarbonization. Even where goals have been set, there are structural challenges to realizing these goals and decarbonizing at rates needed to address the climate crisis.

Inconsistency between goals and plans: Public facing goals may not have an impact if they are not also adopted internally. For example, Southern Company's low-to-no carbon goal is the most forward-looking posture by a major Southeastern utility. However, its Georgia subsidiary recently told regulators that it did not take this goal into account in its power supply plan, even though faster solar deployment would cut overall costs.

Power contracts: Many utilities have goals to reduce CO_2 emissions from utility-owned power plants. They also may take credit for solar power they purchase from third parties. Goals that exclude emissions from purchased power or goals based on emission intensity may overstate emissions reductions.

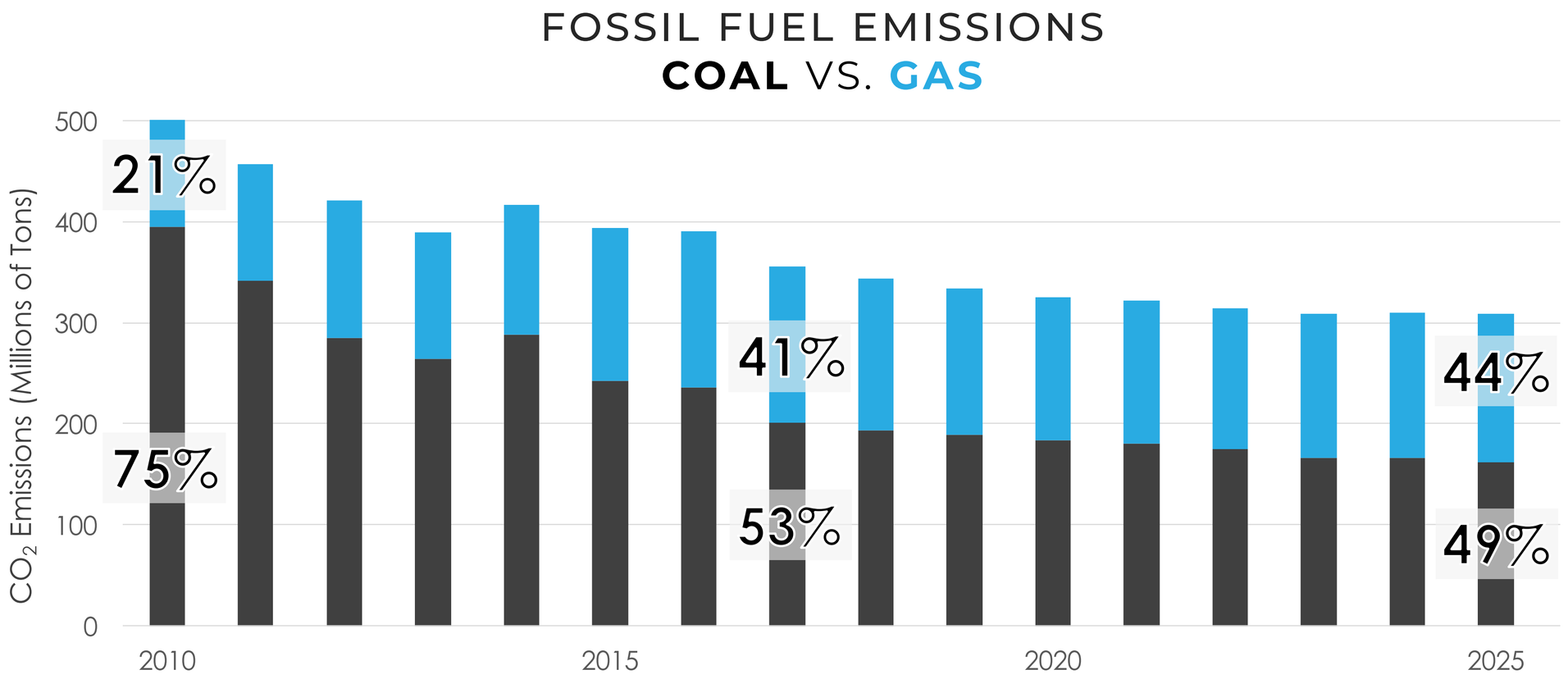
Implementation of city goals: Many cities have overcome the political hurdle of passing decarbonization or 100% renewable goals. However, the structure of utility service and franchise agreements make it difficult for cities that depend on large, monopoly utilities to make decisions about their power supply.

Taking customer choice into account: Many customers want power from low-to-no carbon sources. Public participation in resource planning processes is one way of listening to customer choices. Even in circumstances where utilities are owned by their customers (such as electric membership co-ops), it can be difficult for customers to participate.

HIGHLIGHT: MAJOR SOUTHEASTERN CARBON COMMITMENTS

- Southern Company = low-to-no carbon by 2050
- Duke Energy = 40% of 2005 CO_2 levels by 2030
- Orlando = 90% of 2006 CO_2 levels by 2040
- Tallahassee = 100% renewable energy by 2050

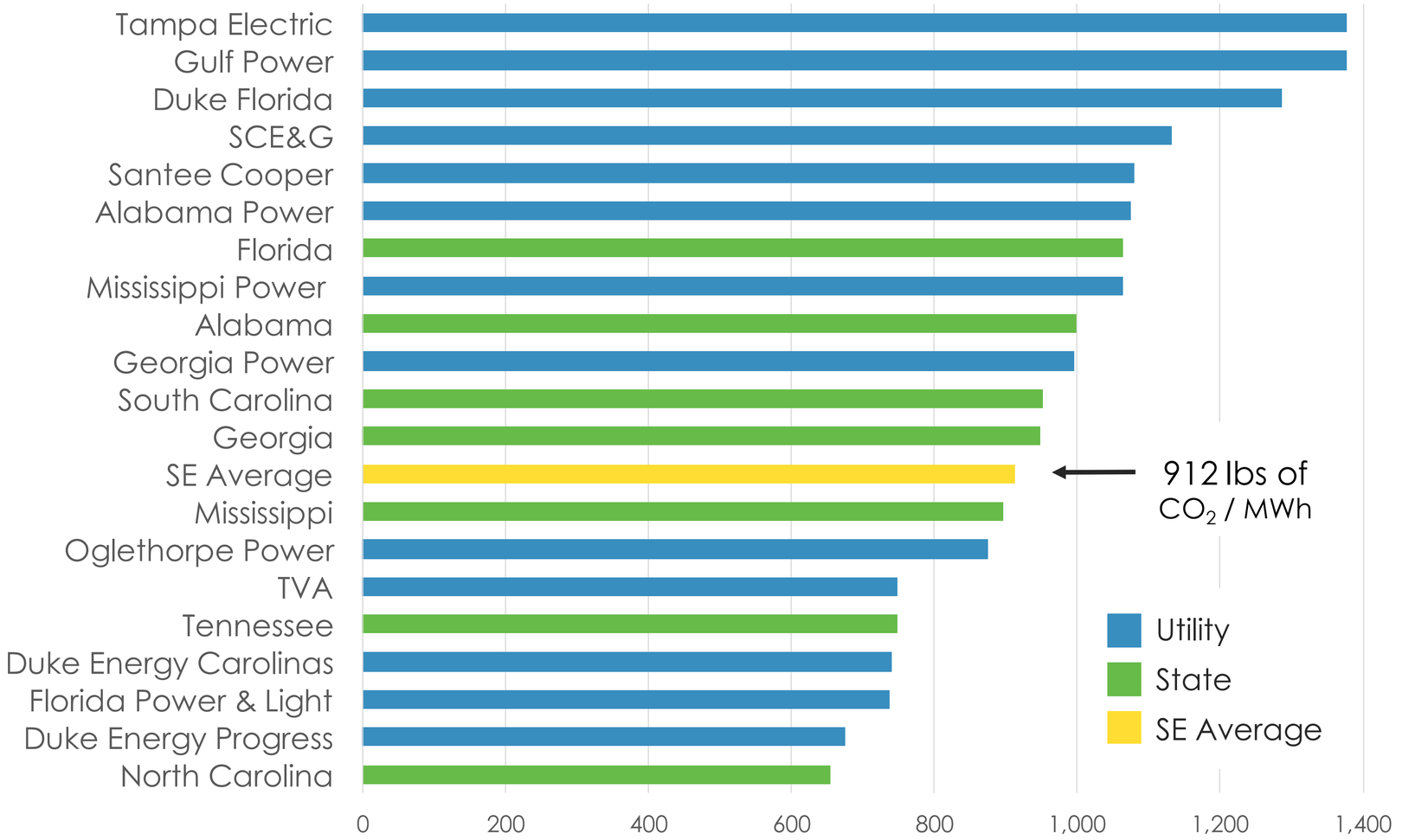
EMISSIONS: FOSSIL FUEL TRENDS



Fossil fuels (gas + coal) made up 94% of all Southeast utility CO_2 emissions in 2017. Coal retirements continue to drive regional CO_2 emissions downwards, but rising gas consumption may hinder further progress towards carbon goals. However, the process of drilling for and delivering gas to the region causes extremely high methane emissions, primarily due to leaks in the gas transmission system. This leakage is referred to as "fugitive emissions" of methane, and many utility systems are beginning to track them due to aging gas pipelines and infrastructure.

EMISSIONS CO_2 INTENSITY OF POWER SUPPLY

EMISSIONS INTENSITY (lbs of CO_2/MWh) IN 2017



REGIONAL TRENDS

In 2010, regional emissions intensity was 1,120 lbs of CO_2 per megawatt-hour (MWh) of electricity. This has dropped sharply nearly every year, but is forecast to slow down in 2020-2025 timeframe with an intensity of 767 lbs of CO_2 per MWh expected in 2025.

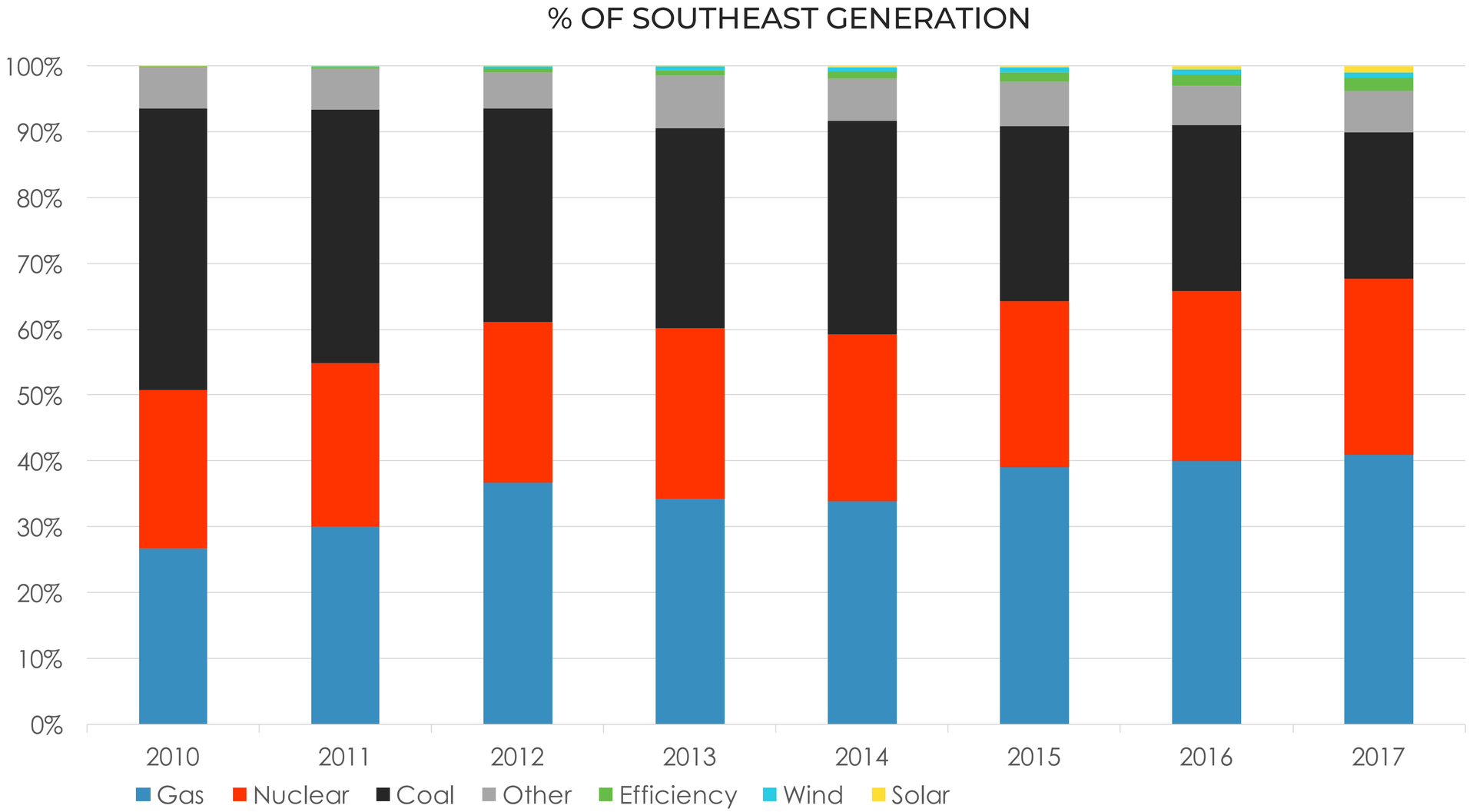
STATE INSIGHTS

Florida has the highest emission intensity due to high gas consumption and falling intensity rates for states such as Alabama, which was highest from 2013-2016.

UTILITY TRENDS

Utility averages may differ significantly from the state(s) in which they operate. Tampa Electric and Gulf Power have the highest emissions intensity, over 300 lbs of CO_2 per MWh higher than the FL average.

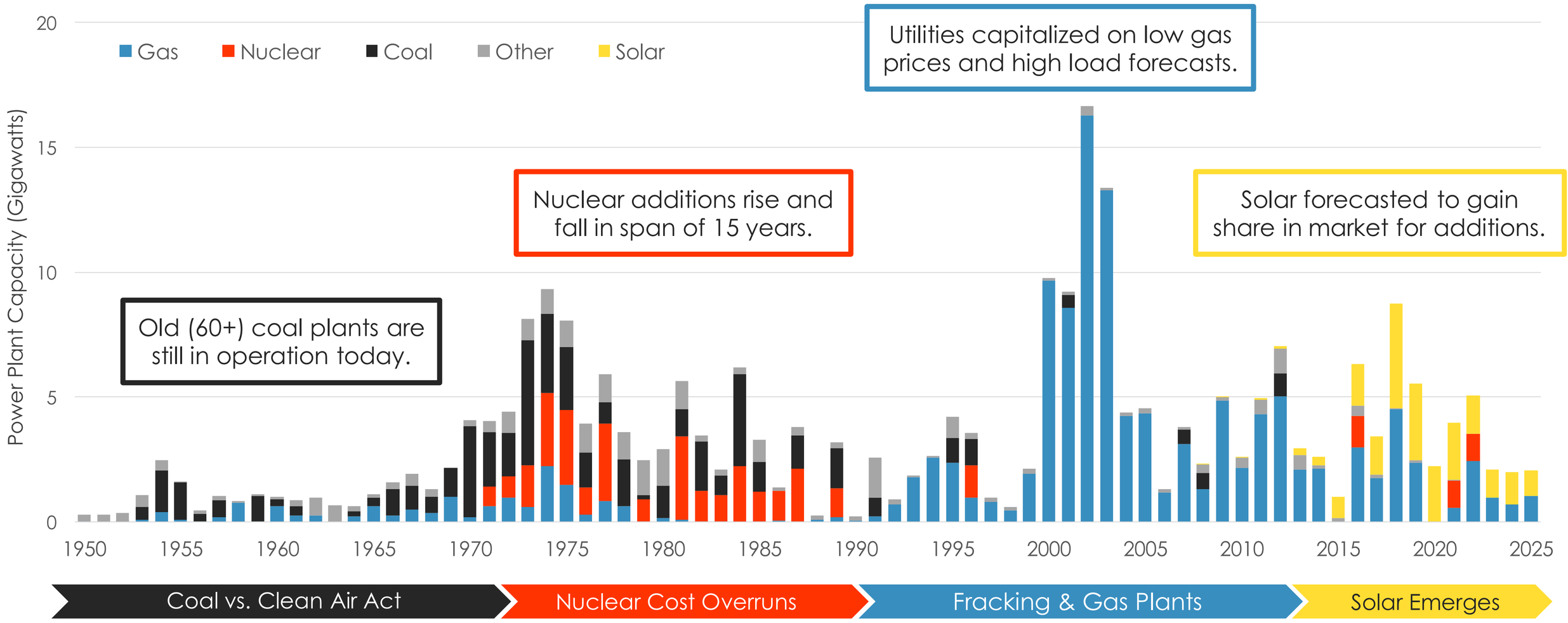
GENERATION: HISTORICAL RESOURCE MIX



Resource mix, or the combination of resources that provide power, varies from state to state, but at a regional level, 90-95% of generation has historically come from gas, coal, and nuclear.

Recently, the top fuel for power generation has shifted from coal to natural gas. While the *current* resource mix is majority fossil fuels, solar has doubled its contribution to the resource mix every year for the past 3 years.

OPERATING & PLANNED CAPACITY BY YEAR BUILT



Continuing to build new generation that emits carbon, such as gas plants, through 2025 will make it difficult for utilities to meet current emission goals, let alone to decarbonize the power sector to the degree needed to address the climate crisis.

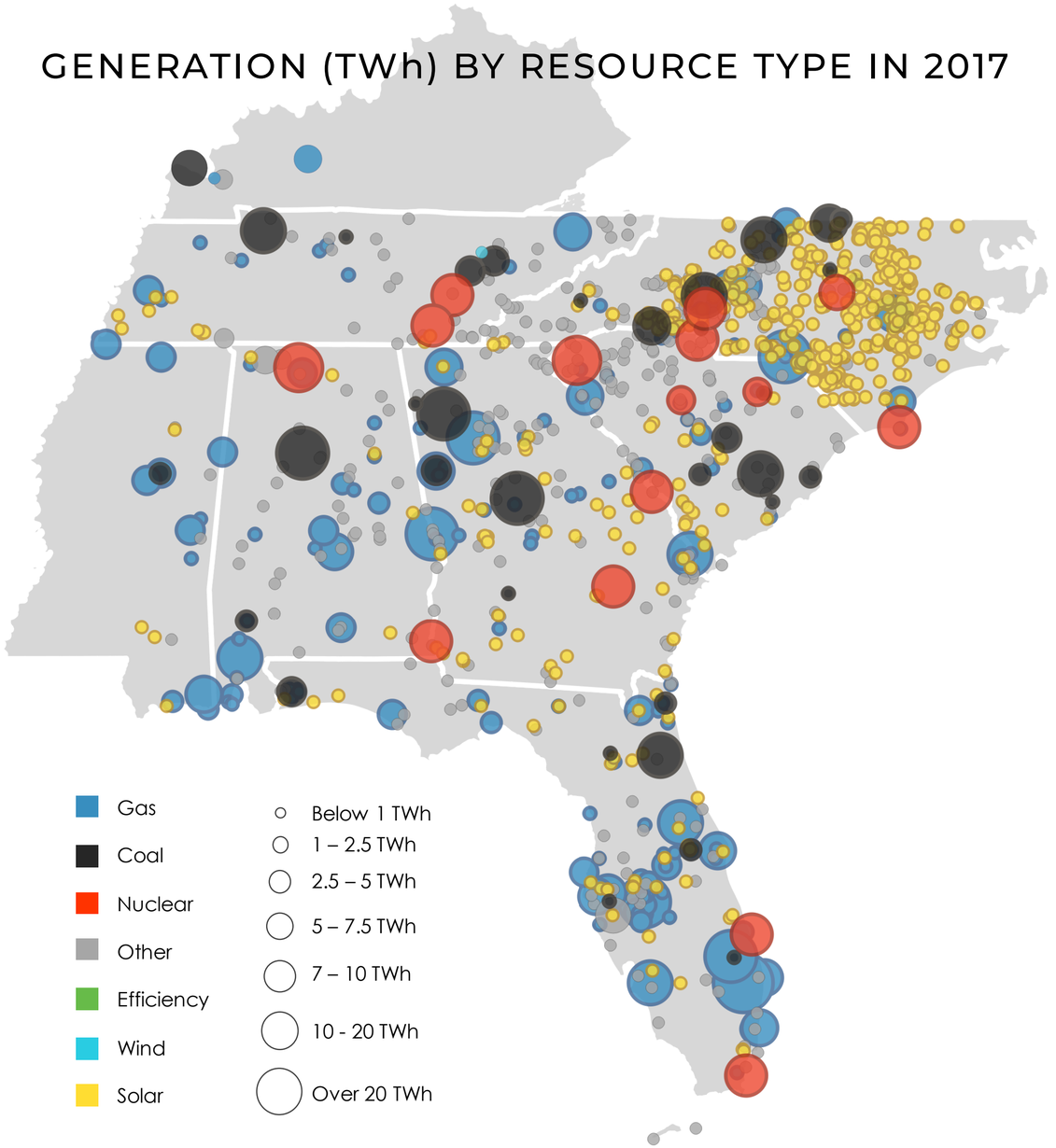
LOCATION OF GENERATION IN SOUTHEAST

The size, location, and type of generation in the Southeast are all products of state and utility leadership, including:

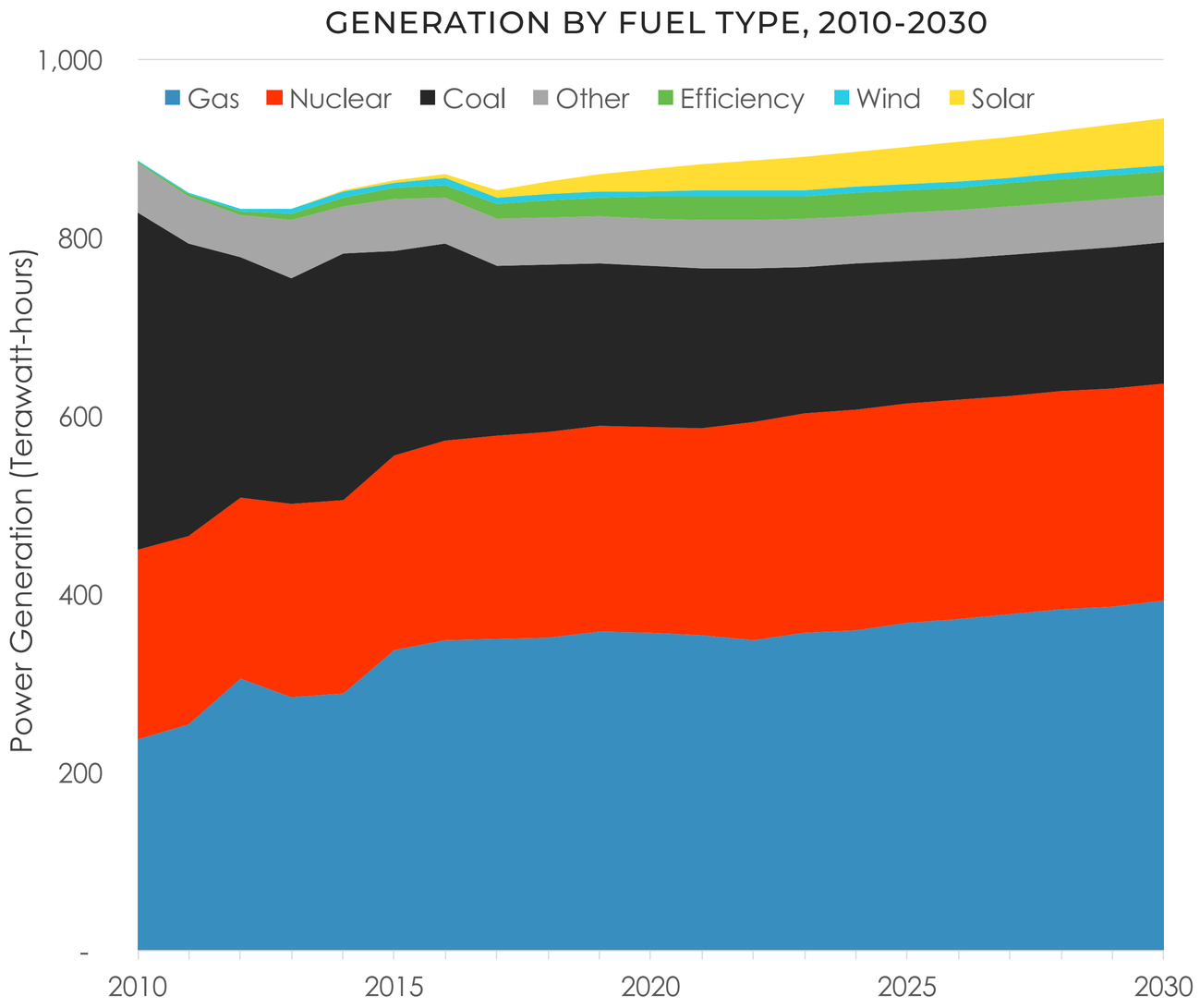
Interpretation of PURPA: State regulatory bodies have the authority to interpret guidelines for Public Utility Regulatory Policies Act (PURPA) guidelines, a law from the 70's used to ensure market access for non-utility generation. Much of the solar added in North and South Carolina is owned by independent entities and sold to utilities under PURPA contracts.

Integrated Resource Plan (IRP) rules: IRPs are the formal future planning process for utilities and their frequency is usually determined by state policy. Rules vary in terms of how much to consider market power resources. For example, wind is notably absent from most utility generation portfolios. Most Southeastern utilities that use wind power rely on power purchase agreements (PPAs) with wind farms from outside the region.

Cost recovery for large-scale generation: High capital, high capacity projects are located primarily in the territory of investor-owned utilities (IOUs), and the federally-owned Tennessee Valley Authority (TVA). It is common for municipal and co-op utilities to contract for power from these IOUs rather than constructing themselves.



SOUTHEAST GENERATION FORECAST

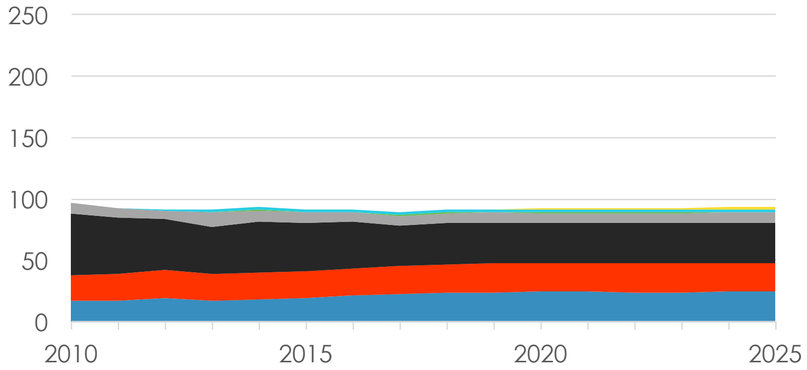


Utility announcements and resource plans shape the forecasted generation mix of the region. SACE has identified several major trends:

- Dependence on fracked gas will continue to grow. By 2030, current plans would result in gas fueling nearly half (42%) of the region's total electric generation.
- Utility investment in solar are overtaking past investments in energy efficiency. Solar is expected to make up 6% generation in 2030. Future forecast updates may reflect new opportunities for wind resources as utilities evaluate in-region and offshore resources.
- More coal generation is expected to retire, though current utility plans include continued significant use of coal through at least 2030. Given the EPA's finalization of the "Affordable Clean Energy" (ACE) rule, it is unclear if utilities will keep generation relatively low at remaining coal plants, or instead choose to run them more often.
- The future of nuclear generation is uncertain. Operating licenses for existing nuclear plants will begin to move into uncharted territory after 2030, when many of them will need new operating licenses to operate beyond 60 years.

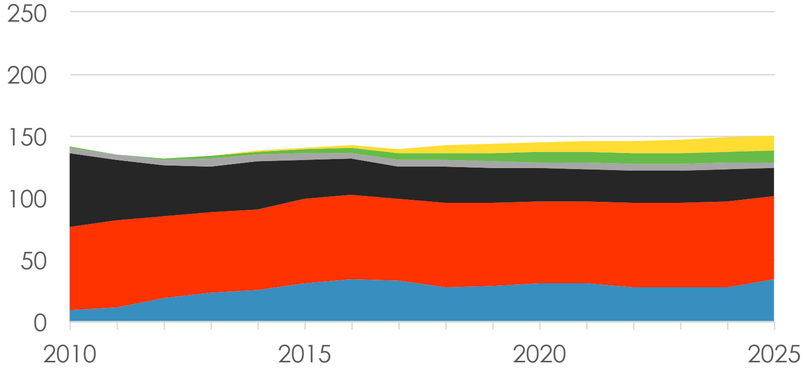
STATE GENERATION PROFILES: 2010-2030

ALABAMA



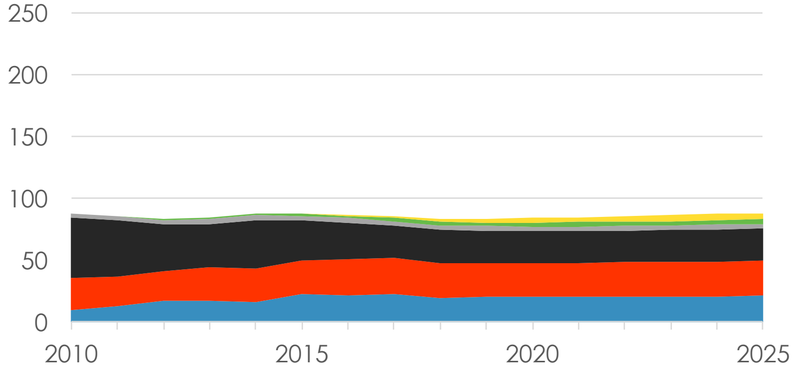
89 TWh of generation in 2030
a decrease of 3.9% from 2010

NORTH CAROLINA



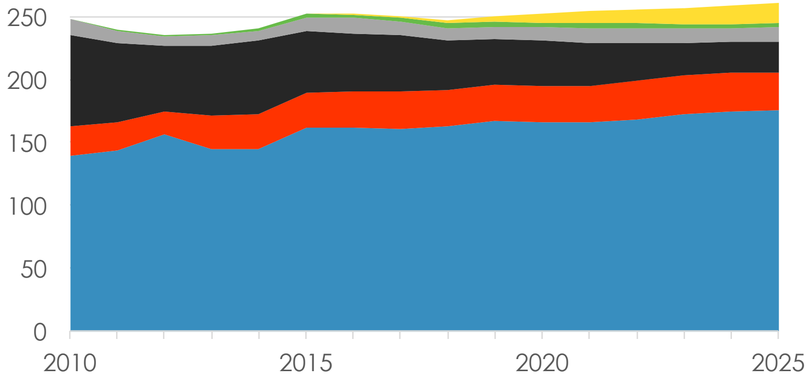
134 TWh of generation in 2030
an increase of 3.3% from 2010

SOUTH CAROLINA



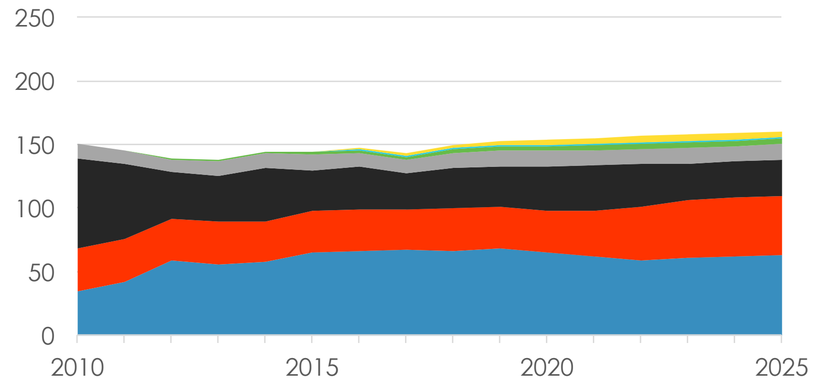
88 TWh of generation in 2030
an increase of 0.5% from 2010

FLORIDA



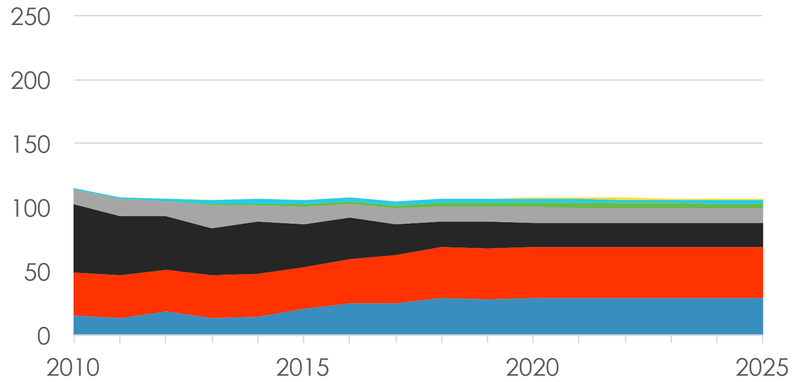
267 TWh of generation in 2030
an increase of 7.5% from 2010

GEORGIA



163 TWh of generation in 2030
an increase of 8.4% from 2010

TENNESSEE



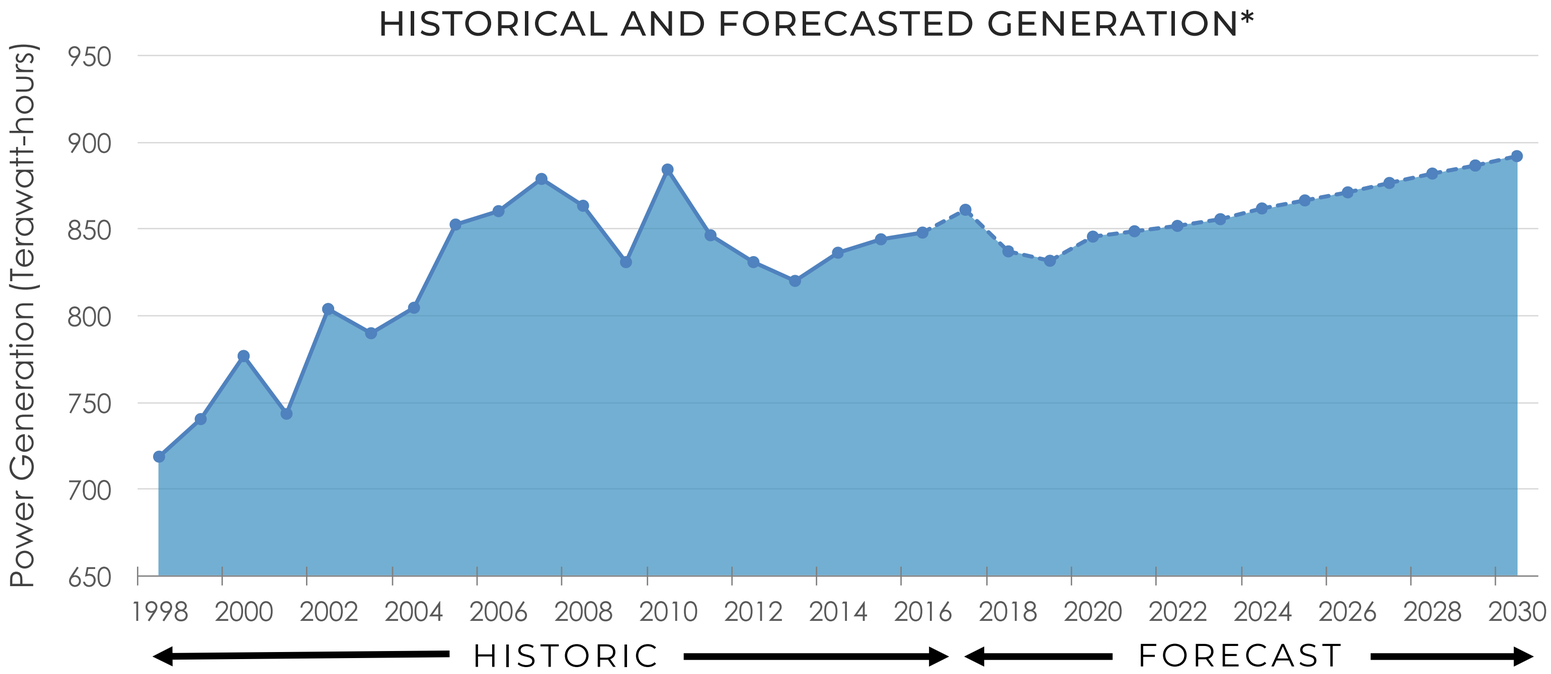
103 TWh of generation in 2030
a decrease of 9.7% from 2010

Power Generation (Terawatt-hours)

Gas Coal Nuclear Other Efficiency Wind Solar

Note: generation based on state of consumption, not state where generator is located.

EMISSIONS DRIVER: LOAD GROWTH



PLANNING FOR GROWTH OR STAGNATION?

- If a utility expects significant increases in demand, regulator approval is required to construct for new generation capacity.
- Utilities expecting flat load might simply maintain the existing resource mix or retire expensive power plants and replace them with cheaper options.
- When a utility's load is declining it may opt to retire power plant(s) without replacement to avoid operation costs for unnecessary generation.

LONG-TERM FORECAST IS LOW OR NO GROWTH FOR SOUTHEASTERN UTILITIES

Many utilities are expecting relatively flat long-term growth for the first time in decades. The aggregate of current utility plans (depicted above) lead to only a 1.8% increase in generation between 2010 and 2030 levels. This contrasts the significant load growth seen in the late 1990's and early 2000's. Utilities in the Southeast are not projecting a return to the level of prolonged growth on which the utility business model was based, meaning new generation will be driven by power plant retirements more so than increasing customer demand.

* Note: Historical generation is not weather-normalized while forecasted generation is based on load forecasts that assume each year is a "normal" weather year.

EMISSIONS DRIVER: RESOURCE PLANNING

STATES HELP DECIDE THE RESOURCE MIX

The amount and source of energy that powers the region is guided by the resource plans of individual electric utilities, called integrated resource plans (IRPs). The goal of an IRP is to compare costs of different types of energy and develop a future resource mix that best fits forecasted energy demand at the "lowest system cost." The planning process is usually overseen and ultimately approved or rejected by state regulators who represent the public interest. Rejection of an IRP has historically been very rare.

CAN STATES PICK ENERGY THAT AVOIDS EMISSIONS?

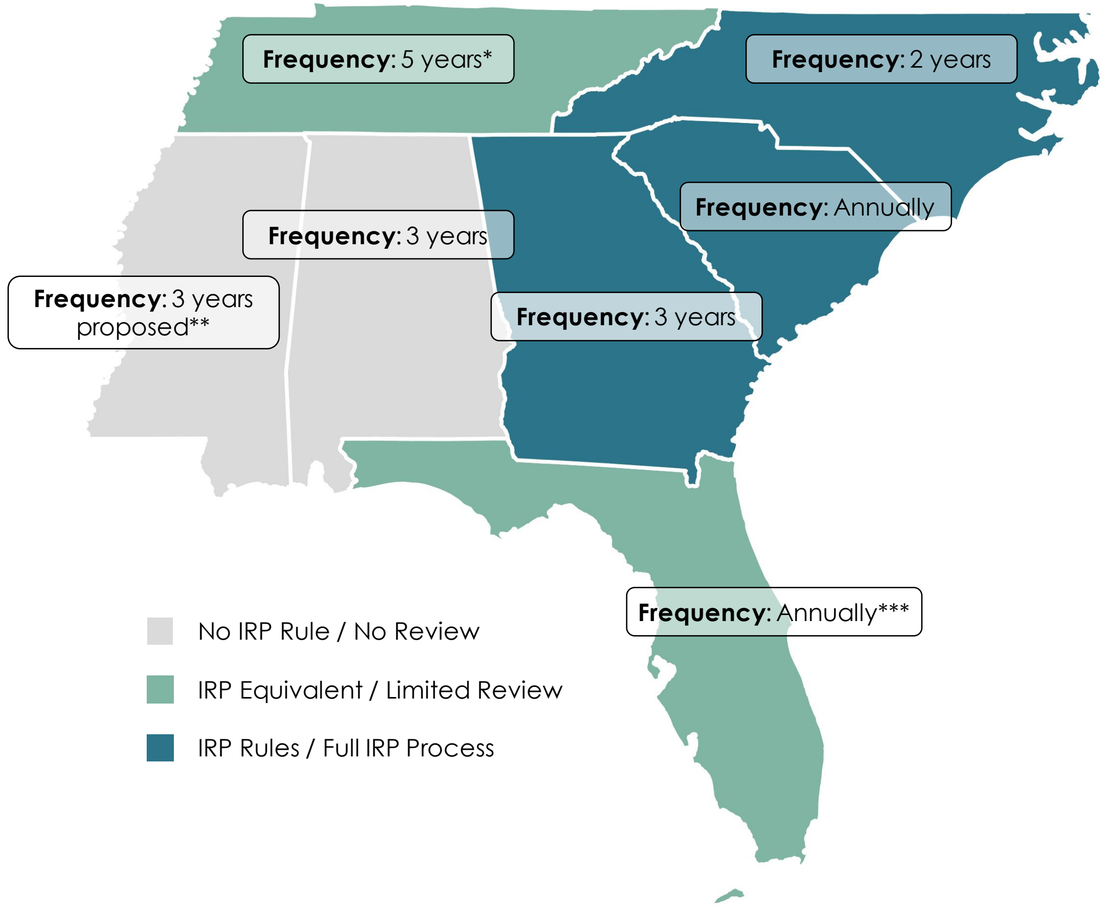
Many aspects of generation resources can be considered during an IRP. In some states outside the region, there are explicit requirements to weigh pollution and carbon emissions into the final selection of a resource portfolio. No Southeastern state requires consideration of CO_2 emissions in an IRP. Some states do not even require that resource plans be approved by regulators; in these cases the need for the new generation is reviewed only when the utility proposes constructing a new power plant.

*TVA policy is to update its IRP at least every 5 years though the span between recent IRPs was 3 years.

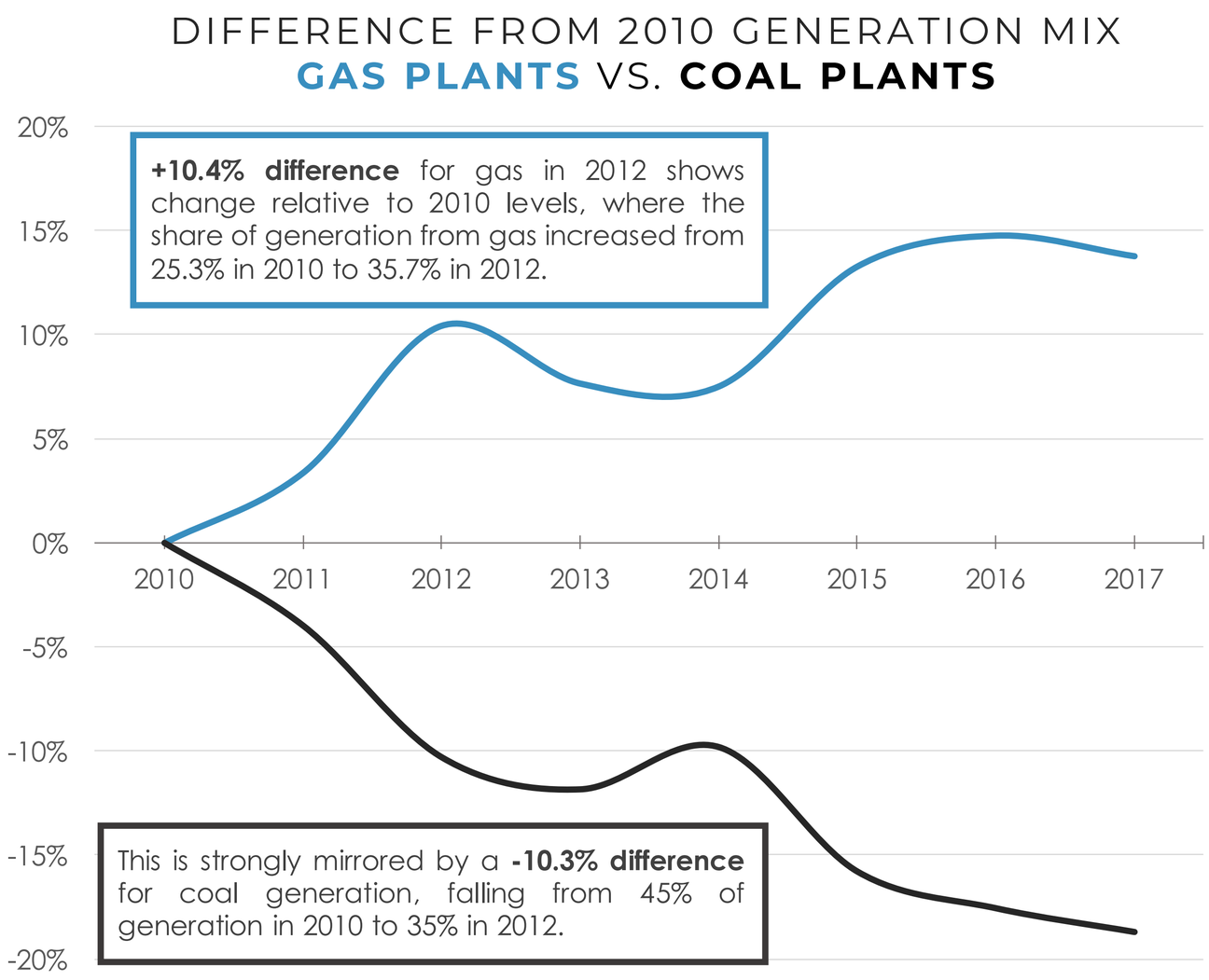
**The Mississippi PSC opened an IRP rulemaking docket in 2017 that is still under consideration.

***Florida utilities submit ten-year site plans, which serve a function similar to IRPs but are not integrated with demand-side planning and do not include meaningful public participation.

LEVEL OF PUBLIC REVIEW FOR RESOURCE PLANS



EMISSIONS DRIVER: COAL REPLACEMENT



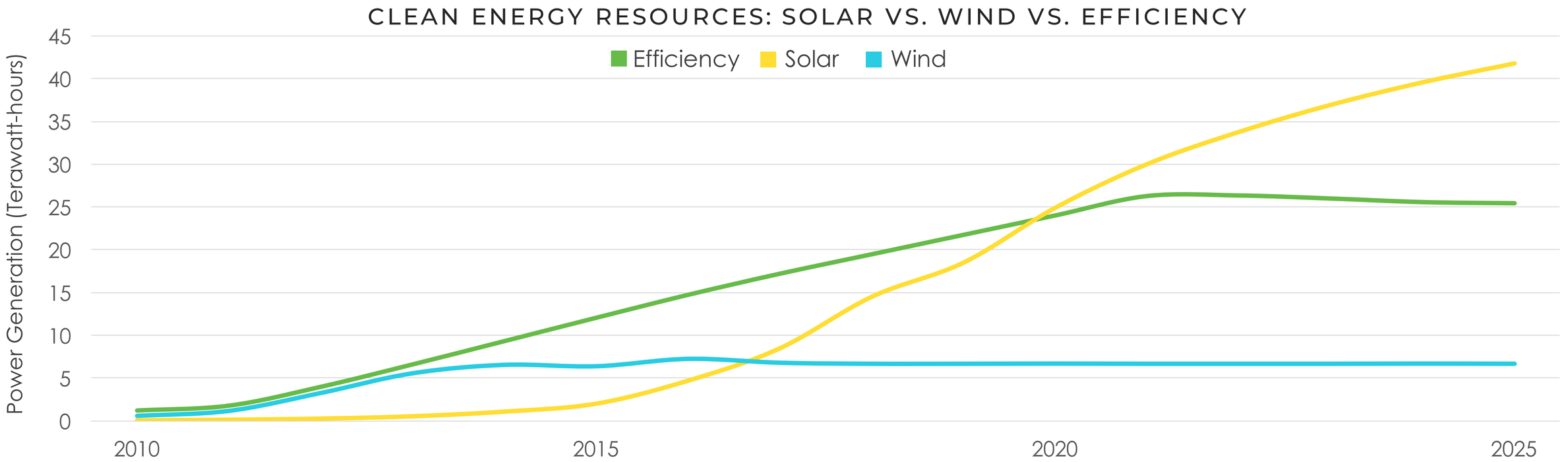
GAS DEPENDENCE HAS REPLACED COAL

Gas emits about half the CO_2 per MWh generated than coal, which makes the replacement of coal with gas an important factor in explaining recent emissions trends. However, the process of drilling for and delivering gas to the region causes extremely high methane emissions, primarily due to leaks in the gas transmission system.

New estimates suggest that roughly 2.4% of gas is lost through leaks. Based on the current demand for gas from Southeast power plants, this results in methane emissions with the greenhouse gas potential of about 44 million tons of carbon dioxide each year. Accounting for these fugitive methane emissions is particularly important for states like Florida where gas represented 64% of the state's entire generation in 2017 and is expected to continue to grow.

This is an emerging issue. Some utilities, including Duke Energy and Southern Company, have begun to estimate and report methane emissions. As more entities track and report methane emissions we will be able to report on regional methane emission trends with greater accuracy.

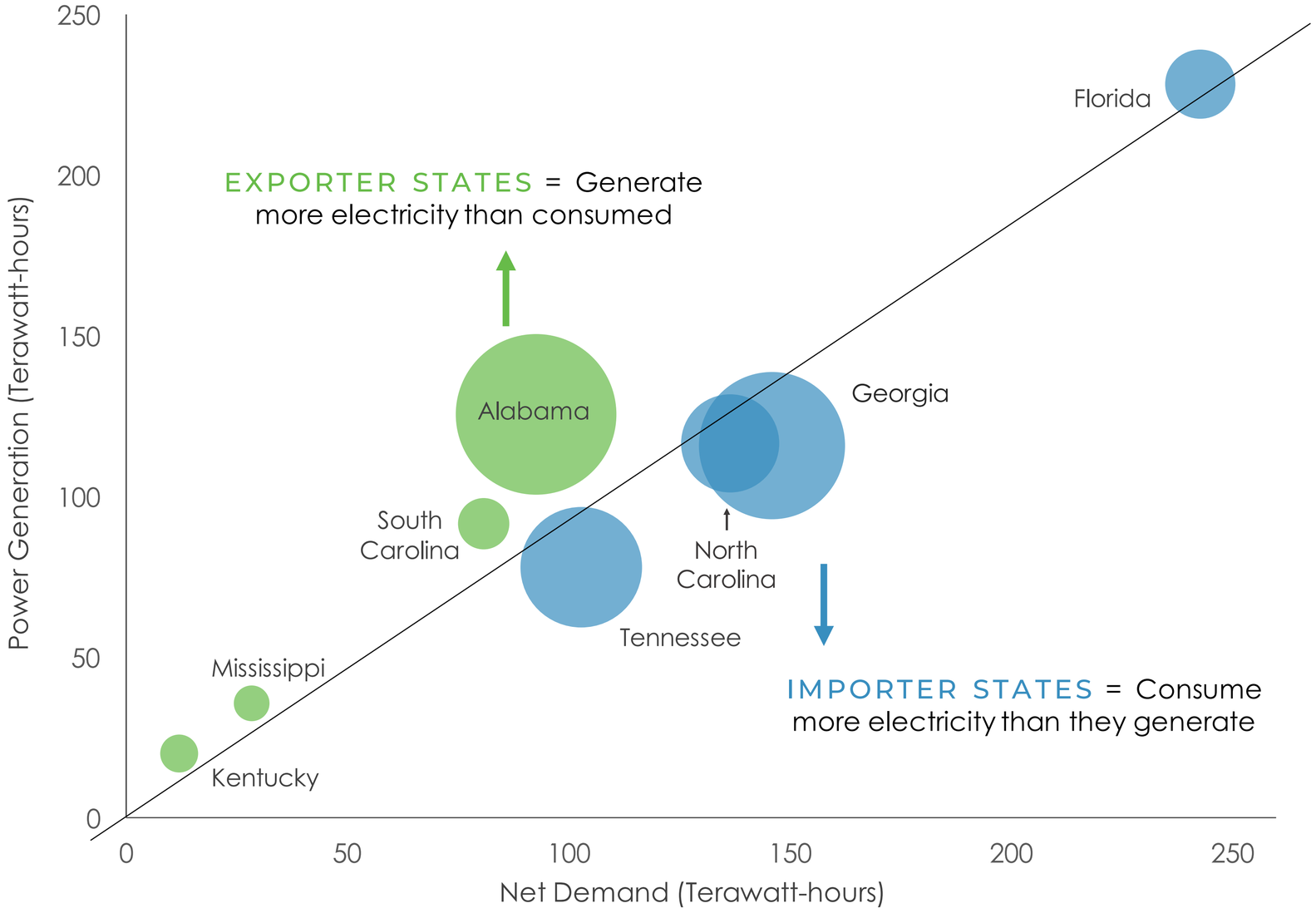
EMISSIONS DRIVER: CLEAN ENERGY INVESTMENTS



Energy efficiency, solar, and wind provide clean energy in the region. Utility demand-side management programs have demonstrated that they are a realistic and economical alternative to constructing new power plants, and should be considered on equal footing with supply-side resources in resource planning. Wind generation remains flat as utilities are not planning to enter into new contracts for wind power. Solar will be the regions' leading clean energy resource by 2020.

Many utility planning processes struggle to keep up with the latest technology and cost advancements in wind and solar, and do not evaluate energy efficiency as a resource on the detailed measure level, resulting in a gap between the potential for cost effective clean energy in the region and the clean energy resources in utilities' current plans. Increasing clean energy resources will help utilities meet current emission goals and decarbonize the power sector to help address the climate crisis.

EMISSIONS DRIVER: POWER PURCHASES



When power plants generate more electricity than customers consume, the plant owner can sell excess generation to other companies to help recover costs.

Entities that buy more power than they can generate are net **importers** of power, whereas those that sell extra generation are **exporters**.

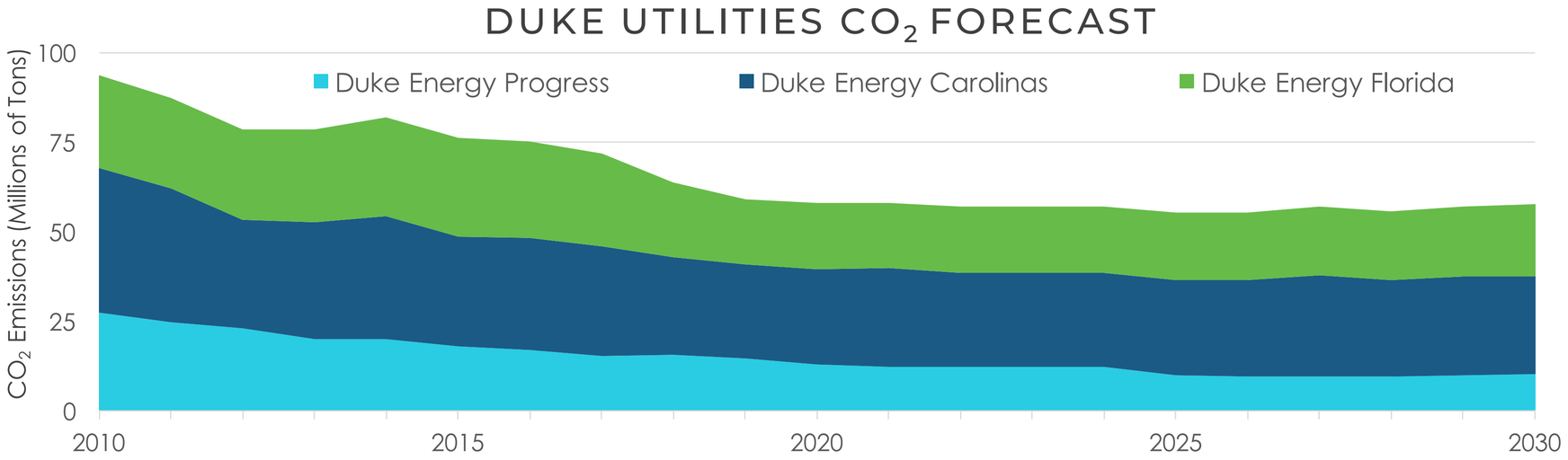
A utility in one state can even turn down its own plants, sometimes technically at a "loss," in order to buy generation from a power plant in another state. States such as Alabama and Georgia have large transactions, exporting and importing (respectively) 32 and 30 TWh annually to meet demand.

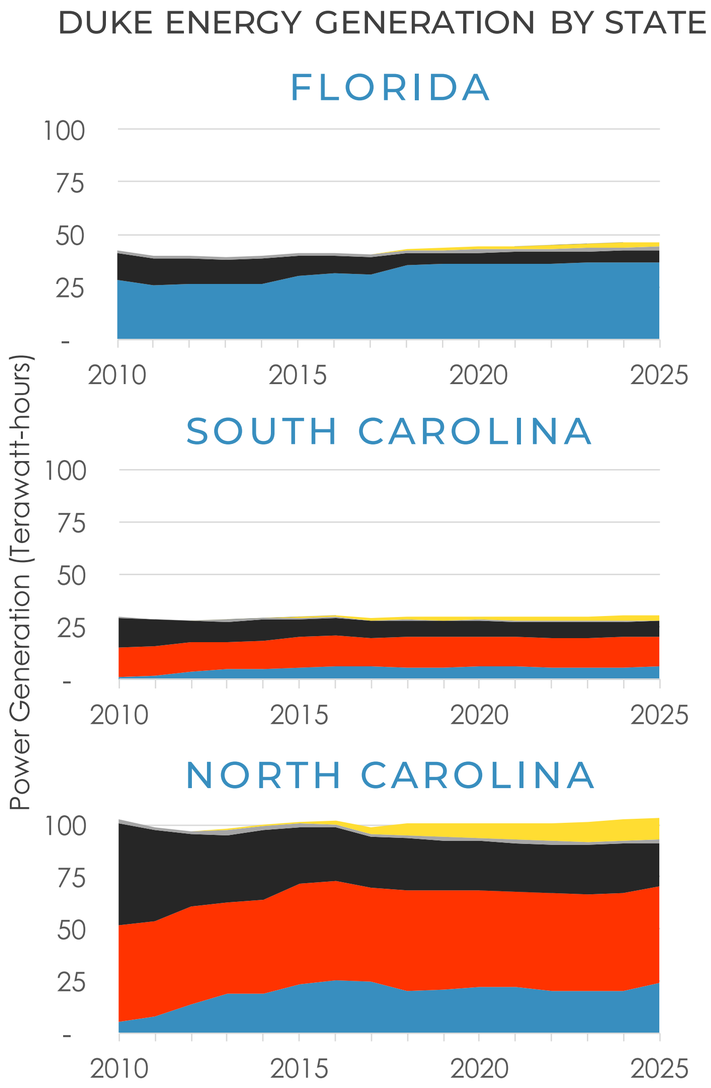
Many utility CO_2 emission reduction goals are based on emissions from power plants the utility owns, and thus exclude emissions from purchased power.

UTILITY HIGHLIGHT: DUKE ENERGY

In 2017, Duke Energy announced a goal to reduce total CO2 emissions by 40% by 2030, compared to 2005 levels, for all Duke Energy subsidiaries. Duke Energy's Southeastern utilities account for approximately three-fourths of its reported CO2 emissions. Duke Energy's 2005 emissions for its Southeast fleet are estimated to be 99 million tons of carbon. Based on current plans, emissions from serving Duke's customers in the Southeast will be approximately 40% lower in 2020 than emissions from Duke Southeast subsidiary-owned generation in 2005. However, unless current plans are substantially changed, we do not expect further reductions in annual emissions levels through at least 2025.

As shown at right, Duke Energy Florida has nearly phased out its coal generation and relies almost exclusively on gas. The Carolinas present a stark contrast, with substantial - and increasing solar generation, but a sustained reliance on coal.

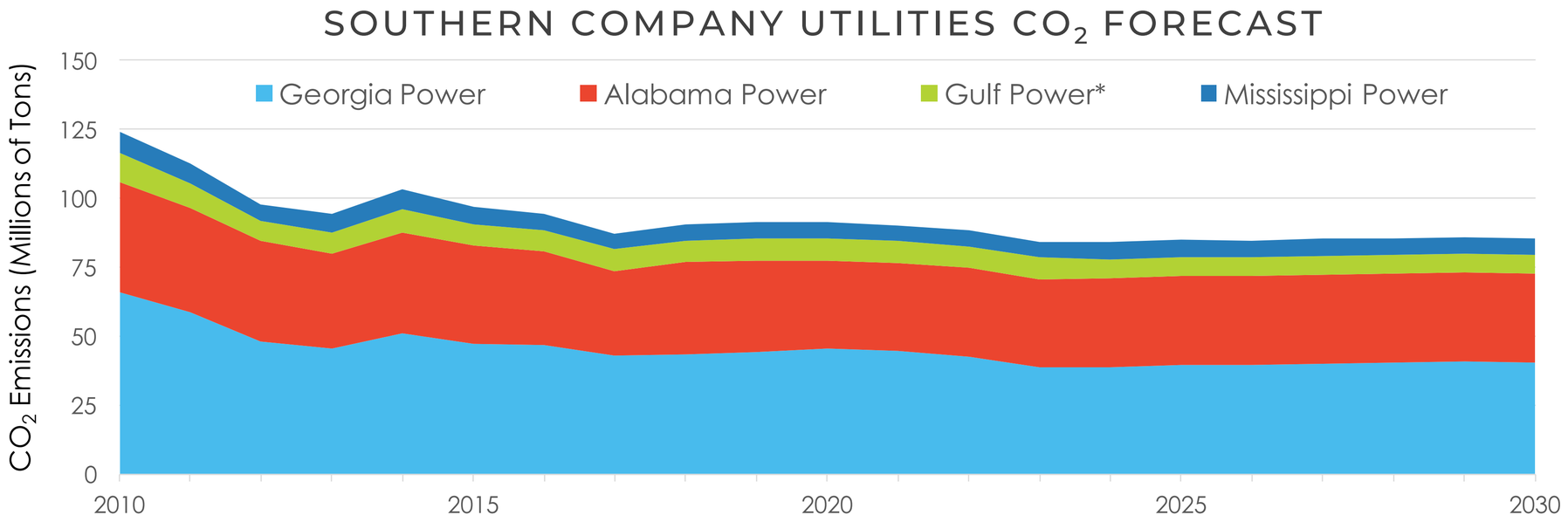


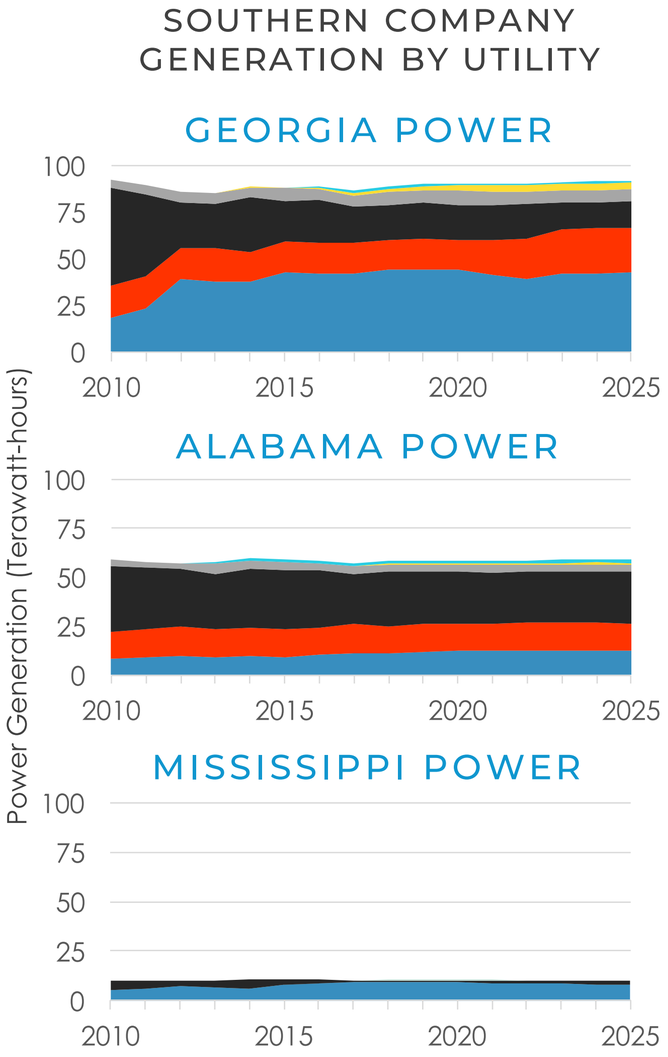


UTILITY HIGHLIGHT: SOUTHERN COMPANY

In 2018, Southern Company announced an intermediate goal to reduce CO_2 emissions by 50% from 2007 levels by 2030 and a long-term goal of "low-to-no" carbon by 2050. According to annual shareholder reports, Southern Company's 2007 emissions were approximately 153 million tons of CO_2 based on a "financial control" standard.

Southern Company-owned utilities' current plans and practices result in an emission reduction of only approximately 42% by 2030 when taking into account purchased power. As with Duke-owned utilities, Southern utilities' generation varies by state. While coal is on the decline in Georgia, Alabama Power has not disclosed plans to substantially reduce reliance on coal.

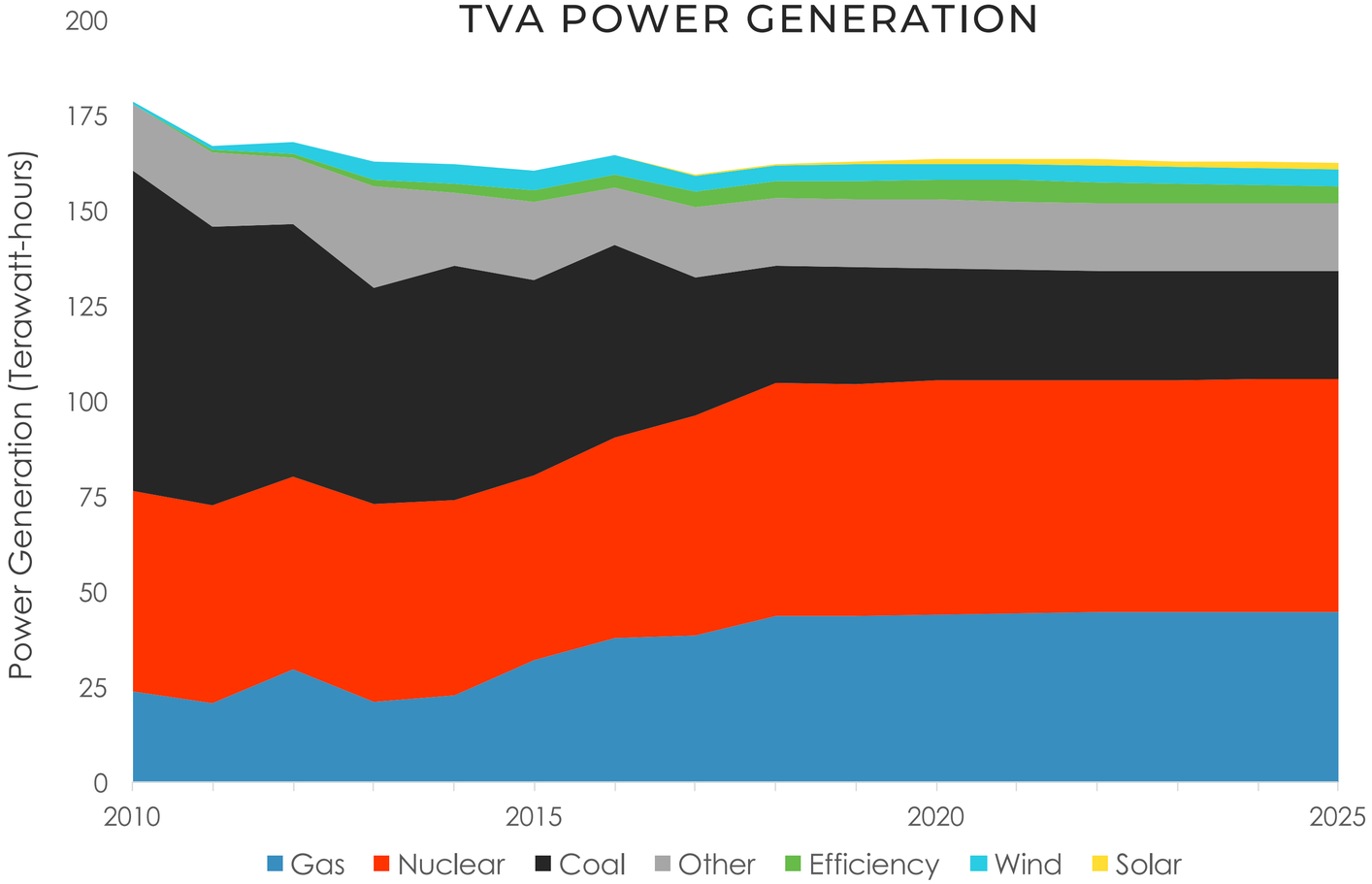




* Note: Gulf Power remained a unit of the Southern Company through 2018. That ownership transfer to NextEra will be reflected in the next update.

UTILITY HIGHLIGHT: TENNESSEE VALLEY AUTHORITY

Public power utilities are owned by local, state, or federal governments or are cooperatives owned by their customers. The Southeast is home to the largest public power utility in the country: the Tennessee Valley Authority (TVA).



TVA's CO_2 emissions dropped 51% from 2005 to 2018, driven primarily by a reduction in coal generation. Coal accounted for 47% of generation in 2010 and 18% in 2017. Some of that coal generation has gone away because overall load in TVA has declined since 2010, but most of the reduction in coal generation has been replaced with generation from gas and nuclear.

TVA just completed its latest IRP, which stated an average reduction in carbon intensity (CO_2/MWh) of 70% across most cases. However, according to the final IRP, TVA's likely future resource mix would result in emissions that are only 57% below 2005 levels in 2038. That means TVA reduced emissions by 51% in 13 years but only plans to get another 6 percentage points of reductions in the next 20 years.

The emission reductions in the IRP are driven by two factors: coal retirements that are replaced with a combination of solar and gas, and lower load forecasts than in previous IRPs.

*Note: TVA's latest IRP was not finalized in time to include generation and emissions data in the forecasts presented in this report.

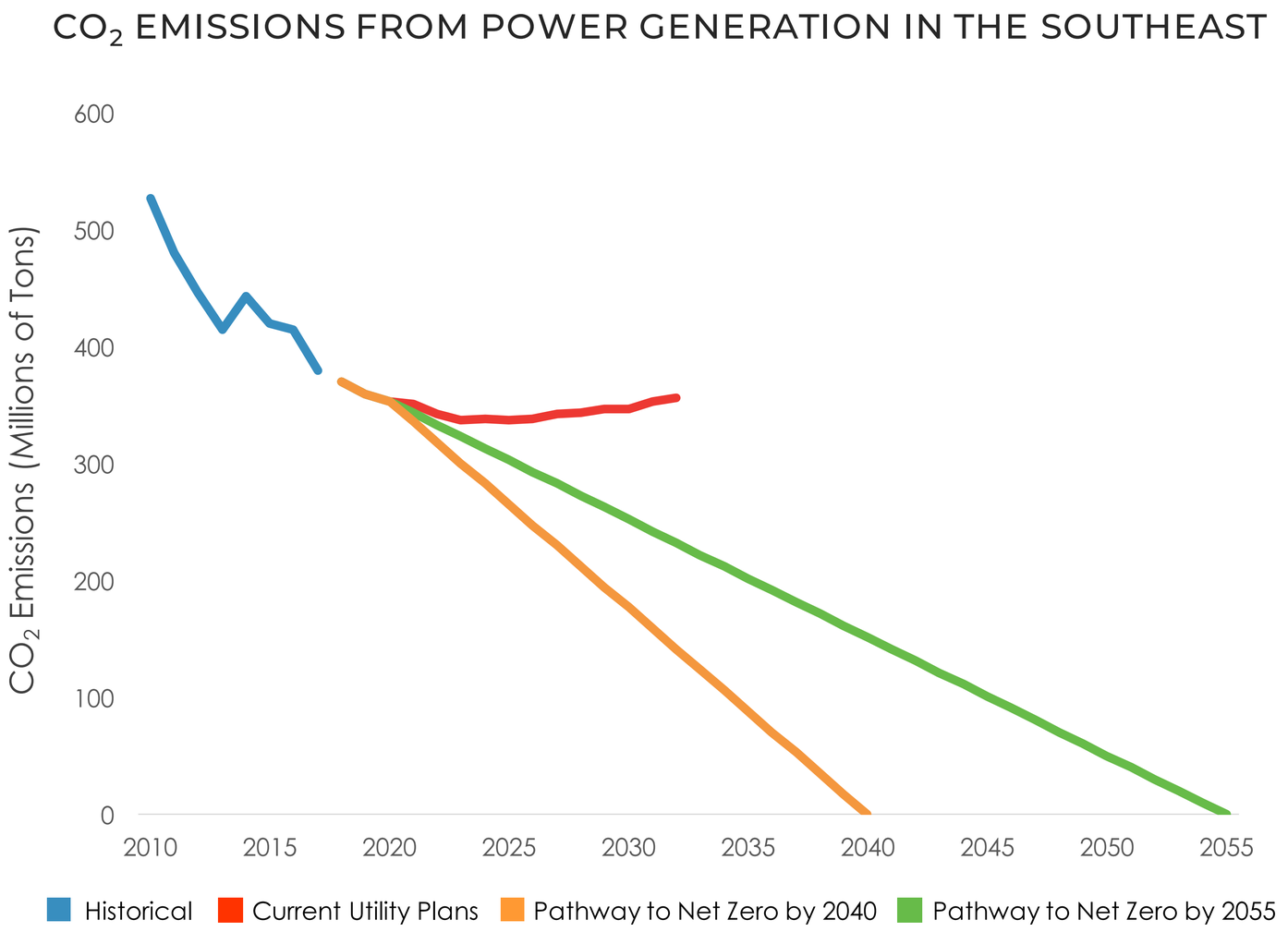
EMISSION TRENDS AND THE CLIMATE CRISIS

GLOBAL GREENHOUSE GAS EMISSIONS MUST REACH NET ZERO BETWEEN 2040 AND 2055 TO LIMIT GLOBAL TEMPERATURE RISE TO 1.5°C.

~IPCC SPECIAL REPORT, OCTOBER 2018

Scientific guidance is that global temperature rise should be limited to 1.5°C to have a chance to avoid the worst of the climate crisis. As of July 2018, 179 countries have stated their aim to keep temperature rise "well below" 2°C and to pursue efforts to limit the temperature increase to 1.5°C by ratifying the Paris Agreement. To limit temperature change to 1.5°C, the Intergovernmental Panel on Climate Change (IPCC), the United Nations body for assessing the science related to climate change, predicts that global greenhouse gas emissions must reach net zero between 2040 and 2055.

CO_2 emissions from power generation in the Southeast represented a measurable portion of global greenhouse gas emissions. Unless utilities make significant changes to their current plans, the Southeast electric sector is not on track to reduce emissions on the trajectory needed to avoid the worst of the climate crisis.



DATA SOURCES, METHODS & ASSUMPTIONS

The primary source for Southeastern generation, capacity, and fuel type for plants and units are reported directly by utilities to the U.S. Energy Information Administration (EIA) in Forms EIA 860 (Annual Electric Generator Data), EIA 861 (Annual Electric Power Industry Report), and EIA 923 (Annual Electric Utility Data). These are supplemented by public domain sources, including other federal data or guidance documents, utility resource plans, utility press releases, security commission filings, and the professional judgment of SACE staff.

The Southeastern baseline generation forecast used in this report includes historic and forecast information related to over 3,500 generators located at over 1,400 plants in the Southeast (or specifically identified as serving load in the Southeast) through 2035. Also included is forecast information related to generation anticipated by utilities through 2035 that has not been sited at a specific plant. Generation and peak demand forecasts are obtained from FERC 714 (Annual Electric Balancing Authority Area and Planning Area Report).

Emissions are calculated based on fuel use and US EPA, *CO2 Emission Performance Rate and Goal Computation Technical Support Document for CPP Final Rule*, Docket ID No. EPA-HQ-OAR-2013-0602 (August 2015). Emissions are presented in short tons.

Generation is matched to load based on SACE's research into plant ownership, firm contracts, utility power sharing agreements, and judgement of staff experts regarding short-term bilateral market activity. The annual net generation of each unit (or portions of a unit) is assigned to load-serving utilities, "trading" unit assignment between utilities to result is a balanced system; all demand is met by a collection of portions of generating units, having allocated generation proportionally to the percent of the unit assigned to that utility for that year.

The matching of generation to load allows SACE to estimate the actual mix of generation serving a utility's load, taking into account imports or exports, as necessary. Thus, generation and emission estimates in this report are not usually equal to the utility's owned and operated generation.

Additional details on sources, methods and assumptions for solar and energy efficiency resources are available in

- Southern Alliance for Clean Energy (2019). *Solar in the Southeast, 2018 Annual Report.*
- Southern Alliance for Clean Energy (2018). *Energy Efficiency in the Southeast, 2018 Annual Report.*

TRACKING DECARBONIZATION IN THE SOUTHEAST

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APPENDIX A: SOUTHEAST UTILITY SYSTEMS

The geographic coverage of this report encompasses Southeastern that do not participate in interstate electricity market (PJM/MISO regions). Alabama, Florida, Georgia, and South Carolina are fully covered. Small portions of North Carolina and Tennessee are served by utilities that participate in PJM, and thus while statewide figures for these states are relatively comprehensive, they may not align with other data sources. Mississippi and Kentucky are only included insofar as they are part of TVA or the Southern Planning Area.

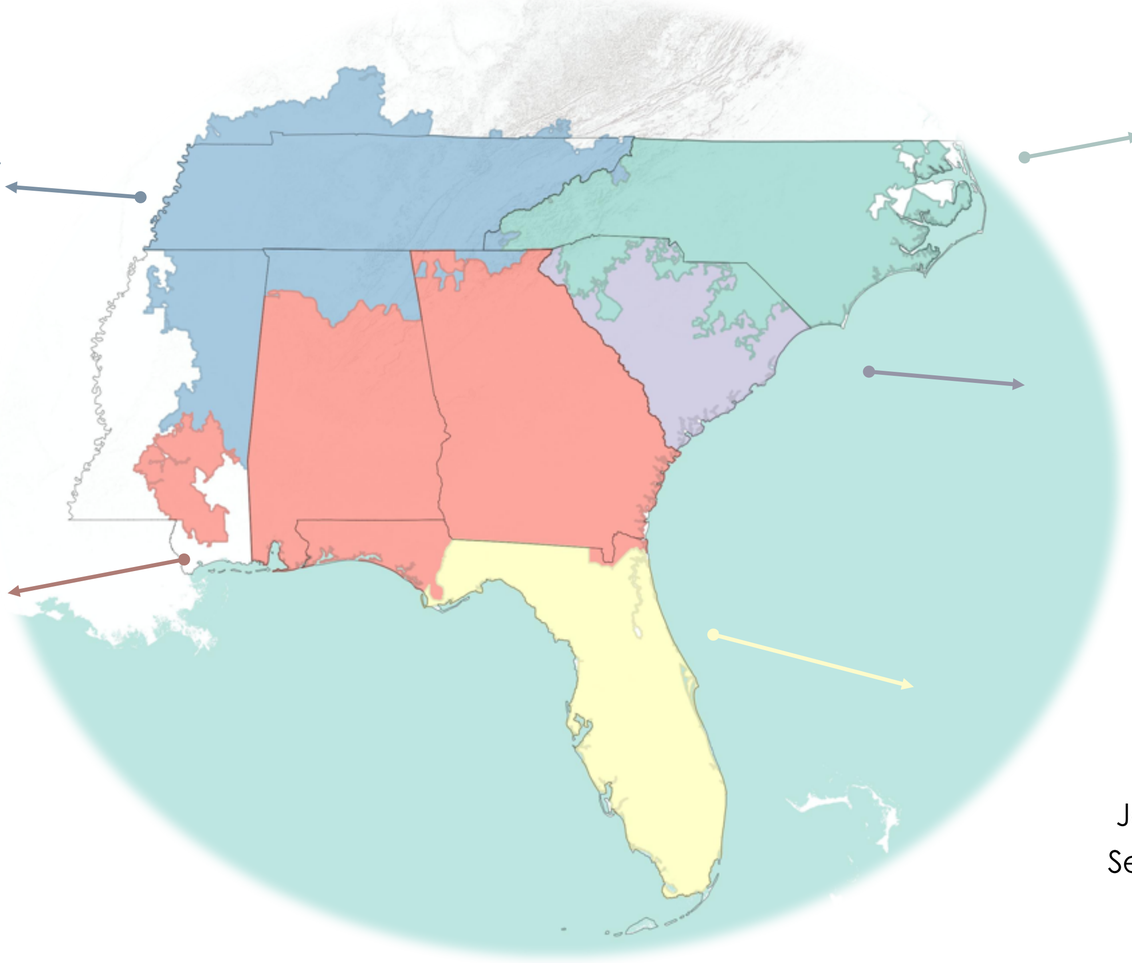
TENNESSEE VALLEY AUTHORITY

Consists of 154 distributor utilities
TN, KY, VA, AL, MS, GA, & NC

SOUTHERN PLANNING AREA

Gulf Power (FL) *
Mississippi Power
Alabama Power
Georgia Power
Oglethorpe Power (GA)
PowerSouth (AL/FL)

**pending sale*



DUKE ENERGY PLANNING AREA

Duke Energy Carolinas
Duke Energy Progress
Municipal Utilities
Cooperative Utilities

SOUTH CAROLINA

South Carolina Gas & Electric
Santee Cooper

FRCC

Duke Energy Florida
Tampa Electric
Florida Power & Light
Jacksonville Electric Authority
Seminole Electric Cooperative

APPENDIX B: SOUTHEAST STATE FIGURES

	Generation (GWh)			CO_2 (short tons)		
UTILITY	2010	2017	2025	2010	2017	2025
All SE Utility Systems	884,770,796	834,488,115	871,458,258	527,010,016	379,369,616	335,301,706
Alabama	96,668,878	88,773,099	92,151,530	62,466,306	45,296,834	45,263,722
Florida	248,147,488	246,552,045	255,756,597	150,286,793	130,891,227	105,802,924
Georgia	150,580,938	140,566,390	155,766,550	94,698,463	66,610,626	64,490,663
Kentucky	15,026,736	12,154,914	12,328,736	8,795,613	4,770,473	3,836,015
Mississippi	30,576,902	27,741,259	27,832,845	19,859,942	12,768,369	12,503,639
North Carolina	140,756,659	133,804,868	139,820,660	66,881,578	43,299,080	35,059,676
South Carolina	87,765,172	82,381,746	83,821,550	59,466,054	39,773,215	36,269,400
Tennessee	114,414,527	101,833,700	103,289,972	66,455,856	39,595,258	31,863,094
Virginia	833,496	680,093	689,819	484,517	252,477	212,573

APPENDIX C: SOUTHEAST UTILITY FIGURES

	Generation (GWh)			CO_2 (short tons)		
UTILITY	2010	2017	2025	2010	2017	2025
All SE Utility Systems	884,770,796	834,488,115	871,458,258	527,010,016	379,369,616	335,301,706
Alabama Cooperatives	612,913	511,651	529,339	343,754	266,880	293,225
Black Warrior Electric Member Corp	471,662	390,520	404,021	264,533	203,698	223,805
Tombigbee Electric Cooperative	141,251	121,131	125,319	79,221	63,183	69,420
Alabama Municipals	3,023,913	2,448,395	2,533,038	1,478,096	986,606	1,271,793
City of Alexander City	172,968	149,183	154,340	81,558	58,251	76,999
City of Dothan	1,197,380	1,010,320	1,045,248	564,588	394,495	521,463
City of Opelika	414,264	423,549	438,191	195,333	165,381	218,609
Sylacauga Utilities Board	213,106	194,673	201,403	100,484	76,013	100,478
Troy Utilities Department	407,083	415,700	430,071	227,549	216,832	238,236
City of Tuskegee	225,186	165,651	171,378	106,180	64,681	85,498
Duke Energy	174,974,972	168,339,212	180,440,945	93,742,416	71,909,534	55,319,947
Duke Energy Progress	48,175,547	45,593,440	46,153,389	27,251,437	15,408,428	9,757,534
Duke Energy Carolinas	84,132,521	82,057,194	87,812,262	40,474,916	30,340,345	26,746,944
Duke Energy Florida	42,666,904	40,688,578	46,475,294	26,016,063	26,160,762	18,815,470
Florida Cooperatives	20,649,205	20,386,033	20,620,912	16,879,149	14,987,012	10,658,502
Central Florida Electric Cooperative	547,459	512,181	519,139	460,514	431,104	279,688
Clay Electric Cooperative	3,540,399	3,356,890	3,402,492	2,978,126	2,825,504	1,833,103
Florida Keys Electric Cooperative Association	720,347	751,948	755,500	551,600	347,052	342,244
Glades Electric Cooperative	348,081	339,420	344,031	292,800	285,691	185,348
Lee County Electric Cooperative	3,839,205	3,994,543	4,013,412	2,939,843	1,842,070	1,818,636
Peace River Electric Cooperative	666,194	770,111	780,573	560,392	648,205	420,536
Reedy Creek Improvement Dist	1,238,734	1,232,508	1,249,251	844,740	640,718	601,805
Sumter Electric Cooperative	3,123,812	3,366,430	3,412,162	2,627,700	2,833,534	1,838,312
Suwannee Valley Electric Cooperative	503,105	543,813	551,201	423,204	457,729	296,961
Talquin Electric Cooperative	1,140,393	989,660	1,003,104	959,280	833,000	540,425
Tri-County Electric Cooperative	324,043	324,216	328,620	272,580	272,894	177,045
Withlacoochee River Electric Cooperative	4,238,127	3,991,670	4,045,896	3,565,044	3,359,800	2,179,738
Seminole Electric Cooperative	419,306	212,643	215,532	403,327	209,713	144,661

APPENDIX C: SOUTHEAST UTILITY FIGURES

	Generation (GWh)			CO_2 (short tons)		
UTILITY	2010	2017	2025	2010	2017	2025
Florida Municipals	37,073,112	36,151,144	37,403,181	27,550,341	24,202,520	21,776,818
City of Alachua	134,131	132,183	144,057	102,024	77,882	66,933
City of Bartow	306,816	285,148	297,493	202,983	146,022	141,151
City of Clewiston	110,883	106,447	111,056	73,358	54,511	57,120
Florida Municipal Power Agency	151,743	141,001	147,106	69,289	52,422	53,116
Fort Pierce Utilities Authority	568,067	573,053	597,863	375,821	293,456	304,657
Gainesville Regional Utilities	1,923,320	1,810,837	1,973,511	1,813,559	1,691,509	1,672,634
City of Green Cove Springs	128,138	125,714	131,157	84,773	64,377	67,459
Havana Power & Light Company	27,688	24,125	25,169	18,318	12,354	12,946
City of Homestead	485,728	561,252	585,551	322,260	287,902	293,549
Beaches Energy Services	805,547	730,828	719,938	532,932	374,251	361,277
Jacksonville Electric Authority (JEA)	13,459,863	12,577,803	12,390,382	11,401,626	9,455,910	7,550,775
City of Key West	745,537	753,386	756,945	493,231	385,803	385,055
Kissimmee Utility Authority	1,428,294	1,580,689	1,649,124	1,043,865	808,603	837,190
City of Lake Worth	441,293	475,325	495,904	300,460	244,392	263,994
City of Lakeland	3,141,420	3,124,628	3,361,000	1,947,912	2,075,706	1,563,796
City of Leesburg	526,228	489,855	511,063	348,141	250,851	262,859
City of New Smyrna Beach	419,704	435,943	438,002	277,667	223,243	225,281
City of Ocala	1,349,095	1,304,041	1,360,499	892,532	667,789	690,741
Orlando Utilities Commission	6,558,117	6,897,532	7,436,788	4,730,845	5,079,008	5,034,927
City of Starke	78,583	70,696	73,757	51,989	36,203	37,936
City of Tallahassee	2,931,322	2,758,112	2,982,000	1,494,485	1,348,415	1,324,419
City of Vero Beach	784,021	761,234	764,830	597,668	351,041	346,575
City of Winter Park	0	431,312	449,986	0	220,871	222,430
Florida Power & Light	112,385,545	115,010,185	115,553,454	51,178,996	42,394,083	33,537,581
FPUC	781,946	656,375	637,234	692,226	454,252	409,918
Florida Public Utilities Company	781,946	656,375	637,234	692,226	454,252	409,918

APPENDIX C: SOUTHEAST UTILITY FIGURES

	Generation (GWh)			CO_2 (short tons)		
UTILITY	2010	2017	2025	2010	2017	2025
Georgia Municipals	12,403,825	11,387,113	13,572,725	6,028,050	5,082,551	6,175,681
City of Adel	132,280	120,306	146,267	66,789	55,604	69,939
Albany Water Gas & Light Commission	1,115,800	925,393	1,125,082	563,375	427,705	537,971
City of Acworth	107,902	101,089	122,903	54,481	46,722	58,767
City of Buford	178,759	208,123	253,034	90,257	96,192	120,991
City of Cairo	151,260	138,789	168,738	76,372	64,147	80,684
City of Calhoun	363,128	430,845	523,816	183,346	199,131	250,469
City of Camilla	151,691	148,567	180,626	76,590	68,666	86,368
City of Cartersville	563,450	611,209	743,101	284,490	282,493	355,323
City of College Park	296,413	288,327	350,545	149,661	133,261	167,617
City of Covington	441,790	435,951	530,024	223,063	201,491	253,437
Crisp County Power Commission	444,189	439,287	534,080	203,920	189,933	235,775
Dalton Utilities	1,448,745	1,800,437	1,917,354	522,218	668,802	627,039
City of Douglas	288,623	280,028	340,455	145,728	129,425	162,793
City of East Point	405,437	384,262	467,181	204,708	177,601	223,388
City of Elberton	158,802	136,949	166,501	80,180	63,296	79,614
Fitzgerald Water Light & Bond Commission	223,409	189,665	230,593	112,801	87,661	110,261
Fort Valley Utility Commission	134,805	121,606	147,847	68,064	56,205	70,695
City of Griffin	436,196	419,544	510,077	220,239	193,908	243,899
City of La Grange	538,750	530,643	645,150	272,019	245,257	308,486
City of Lawrenceville	338,330	332,420	404,152	170,825	153,640	193,250
City of Marietta	1,119,900	1,082,265	1,315,805	565,446	500,209	629,168
City of Monroe	163,565	155,304	188,817	82,585	71,780	90,285
City of Moultrie	214,368	190,968	232,177	108,236	88,263	111,018
Municipal Electric Authority	31,087	26,622	32,367	10,583	8,311	10,566
Newnan Water Sewer & Light Commission	344,106	322,693	392,326	173,742	149,145	187,596
City of Norcross	112,998	118,602	144,195	57,054	54,816	68,949
City of Sylvania	666,093	717,920	872,839	336,315	331,814	417,358
City of Thomaston	138,580	130,360	158,490	69,970	60,251	75,784
City of Thomasville	557,294	504,290	613,110	281,382	233,077	293,166
City of Washington	113,602	94,649	115,073	57,358	43,746	55,024

APPENDIX C: SOUTHEAST UTILITY FIGURES

	Generation (GWh)			CO_2 (short tons)		
UTILITY	2010	2017	2025	2010	2017	2025
Mississippi Cooperatives	3,394,992	3,001,080	2,974,825	2,315,337	1,538,110	1,832,295
Pearl River Valley Electric Power Association	1,167,404	1,053,243	1,044,029	796,153	539,807	643,052
Southern Pine Electric Power Association	2,227,588	1,947,837	1,930,797	1,519,184	998,303	1,189,243
North Carolina Cooperatives	20,002,079	19,069,796	19,867,709	7,923,116	4,633,222	3,976,809
Albemarle Electric Member Corp	251,524	227,274	230,065	100,774	52,583	38,445
Blue Ridge Electric Member Corp	1,204,372	1,112,624	1,190,658	482,534	257,421	226,966
Cape Hatteras Electric Member Corp	149,687	135,602	137,267	59,972	31,373	26,166
Carteret-Craven Electric Member Corp	669,927	607,584	615,046	268,407	140,573	117,241
Central Electric Membership Corp	423,050	425,410	455,246	169,496	98,424	86,780
Edgecombe-Martin County EMC	273,505	231,876	234,724	109,580	53,648	44,744
Four County Electric Member Corp	1,009,821	945,074	956,681	404,587	218,656	182,365
French Broad Electric Member Corp	562,813	547,314	554,036	225,492	126,628	105,612
Halifax Electric Member Corp	180,569	164,173	166,189	72,345	37,984	30,010
Haywood Electric Member Corp	330,176	306,290	327,772	132,286	70,864	62,481
Jones-Onslow Electric Member Corp	1,256,155	1,237,533	1,252,732	503,281	286,320	238,799
Lumbee River Electric Member Corp	1,336,807	1,323,205	1,339,456	535,594	306,141	255,330
North Carolina Electric Member Corp	368,622	237,185	240,098	45,694	24,017	23,177
Pee Dee Electric Member Corp	419,368	401,932	430,121	168,021	92,992	81,991
Pitt & Greene Electric Member Corp	217,309	200,579	203,042	87,065	46,407	38,704
Piedmont Electric Member Corp	531,961	492,542	527,086	213,131	113,956	100,474
Randolph Electric Member Corp	576,108	520,931	557,466	230,819	120,524	106,266
Roanoke Electric Member Corp	319,591	287,650	291,183	128,045	66,552	55,506
Rutherford Electric Member Corp	1,340,433	1,281,431	1,371,304	537,047	296,476	261,401
South River Electric Member Corp	910,307	845,777	856,164	364,716	195,682	163,204
Surry-Yadkin Electric Member Corp	430,274	381,558	408,319	172,390	88,279	77,835
Tri-County Electric Member Corp	592,623	556,491	563,325	237,435	126,298	105,045
Tideland Electric Member Corp	406,528	376,845	381,473	162,876	87,188	72,717
Union Electric Membership Corp	1,341,140	1,354,277	1,449,259	537,330	313,330	276,261
Wake Electric Membership Corp	741,292	780,355	835,085	297,000	180,546	159,186
EnergyUnited Electric Member Corp	2,671,416	2,686,399	2,874,809	1,081,550	876,015	769,592
Brunswick Electric Member Corp	1,437,447	1,401,885	1,419,102	575,916	324,345	270,513

APPENDIX C: SOUTHEAST UTILITY FIGURES

	Generation (GWh)			CO_2 (short tons)		
UTILITY	2010	2017	2025	2010	2017	2025
North Carolina Municipals	17,631,454	15,440,027	15,985,990	5,719,244	3,629,050	3,092,884
City of Albemarle	327,367	296,364	317,149	34,586	43,051	36,158
Town of Apex	261,304	325,569	329,567	111,388	99,599	86,113
Town of Ayden	112,102	105,174	106,466	47,787	32,175	27,818
Town of Clayton	106,162	110,923	112,285	45,255	33,934	29,339
City of Concord	921,239	927,692	992,756	139,716	49,988	0
City of Elizabeth City	352,868	317,989	321,894	150,420	97,280	84,108
City of Fayetteville Public Works Commission	2,358,836	2,047,388	2,072,533	1,362,153	641,777	568,842
Town of Forest City	139,496	118,722	127,049	22,853	24,649	23,368
Town of Edenton	109,462	101,339	102,584	46,661	31,002	26,804
City of Gastonia	759,806	730,286	781,504	124,474	151,621	143,744
Greenville Utilities Commission	1,775,382	1,764,991	1,786,667	756,808	539,950	466,839
Town of High Point	1,218,963	1,160,440	1,241,827	128,784	168,569	141,578
Town of Huntersville	169,114	238,316	255,030	17,867	34,619	29,075
City of Kings Mountain	146,841	156,918	167,923	22,270	8,455	0
City of Kinston	482,028	465,349	471,064	205,478	142,361	123,084
City of Laurinburg	150,508	141,434	143,171	64,158	43,268	37,409
City of Lexington	447,361	398,324	426,260	47,264	57,862	48,597
City of Lumberton	318,221	285,669	289,177	135,651	87,393	75,559
City of Monroe	650,867	723,362	774,095	68,764	105,078	88,253
City of Morganton	378,652	342,878	366,926	40,079	49,928	41,847
City of New Bern	510,748	456,552	462,159	217,721	139,669	120,758
New River Light & Power	234,373	209,536	212,109	35,545	11,291	0
City of Newton	169,807	145,983	156,221	17,940	21,206	17,810
North Carolina Municipal Power Agency	195,673	146,092	156,338	38,582	13,718	13,438
North Carolina Eastern Municipal Power Agency	164,447	126,367	127,919	71,309	24,741	21,391
Town of Pineville	124,691	112,471	120,359	13,174	16,338	13,722
City of Rocky Mount	771,927	711,707	720,448	329,056	217,727	188,246
City of Shelby	210,836	197,922	211,803	22,275	28,751	24,147
Town of Smithfield	184,408	174,249	176,389	78,609	53,307	46,089
City of Statesville	463,100	463,565	496,077	48,927	67,339	56,557
Town of Tarboro	256,316	238,013	240,936	109,262	72,814	62,954
Town of Wake Forest	158,213	162,750	164,749	67,443	49,789	43,047
City of Washington	318,808	288,438	291,980	135,901	88,240	76,292
City of Wilson	1,320,170	1,247,255	1,262,573	562,760	381,563	329,898

APPENDIX C: SOUTHEAST UTILITY FIGURES

	Generation (GWh)			CO_2 (short tons)		
UTILITY	2010	2017	2025	2010	2017	2025
Oglethorpe Power	41,886,329	39,464,646	46,823,172	20,580,050	17,265,735	19,604,292
Altamaha Electric Member Corp	407,079	406,461	482,249	199,098	177,864	201,782
Amicalola Electric Member Corp	807,021	741,061	879,238	394,705	324,282	367,890
Canoochee Electric Member Corp	450,866	428,598	508,514	220,514	187,551	212,772
Carroll Electric Member Corp	1,170,392	1,075,065	1,275,520	572,426	470,439	533,702
Central Georgia Electric Member Corp	1,233,286	1,223,866	1,452,066	611,521	540,659	618,190
Coastal Electric Member Corp	476,263	502,144	595,773	232,935	219,734	249,283
Cobb Electric Membership Corp	4,328,178	3,975,344	4,716,581	2,116,865	1,649,769	1,911,398
Coweta-Fayette Electric Member Corp	1,649,959	1,577,506	1,871,646	806,977	690,303	783,133
Excelsior Electric Member Corp	453,349	396,991	471,013	221,728	173,720	197,081
Flint Electric Membership Corp	1,923,958	1,758,512	2,086,402	940,987	754,614	860,559
GreyStone Power Corporation	2,968,121	2,741,915	3,253,169	1,451,676	1,193,426	1,360,773
Georgia Transmission Corp	1,256,492	1,283,453	1,522,764	614,537	561,628	637,154
Grady Electric Membership Corp	356,205	311,223	369,253	174,216	136,189	154,503
Habersham Electric Membership Corp	572,110	504,713	598,821	279,813	220,858	250,558
Hart Electric Member Corp	640,770	581,320	689,712	313,394	254,381	288,589
Irwin Electric Membership Corp	217,711	203,959	241,989	106,480	89,251	101,253
Jackson Electric Member Corp	5,401,436	5,331,058	6,325,080	2,454,414	2,215,267	2,638,908
Jefferson Electric Member Corp	666,908	580,409	688,631	326,177	253,982	288,137
Southern Rivers Energy	385,107	335,037	397,508	188,352	146,609	166,325
Middle Georgia Electric Member Corp	159,303	147,706	175,247	77,913	64,635	73,327
Mitchell Electric Member Corp	532,494	462,028	548,177	260,437	202,180	229,368
Ocmulgee Electric Member Corp	216,673	193,616	229,717	105,972	84,725	96,118
Oconee Electric Member Corp	327,310	275,303	326,636	160,084	120,470	136,671
Oglethorpe Power Corporation	364,436	343,062	407,029	442,843	382,836	409,990
Planters Electric Member Corp	307,686	280,288	332,550	150,486	122,652	139,145
Rayle Electric Membership Corp	303,831	268,269	318,290	148,600	117,392	133,179
Satilla Rural Electric Member Corporation	1,183,679	1,120,182	1,329,050	578,925	490,182	556,100
Sawnee Electric Membership Corporation	3,448,341	3,510,516	4,165,082	1,686,546	1,521,276	1,730,319
Slash Pine Electric Member Corp	188,213	183,672	217,919	92,053	80,373	91,182
Snapping Shoals Electric Member Corp	2,076,281	1,939,085	2,300,644	1,023,820	853,632	973,251

APPENDIX C: SOUTHEAST UTILITY FIGURES

	Generation (GWh)			CO_2 (short tons)		
UTILITY	2010	2017	2025	2010	2017	2025
Oglethorpe Power (Continued)	41,886,329	39,464,646	46,823,172	20,580,050	17,265,735	19,604,292
Sumter Electric Member Corp	425,598	367,885	436,480	208,155	160,983	182,632
Three Notch Electric Member Corp	257,051	234,927	278,731	125,721	102,802	116,627
Tri-County Electric Member Corp	429,275	375,188	445,145	209,954	164,179	186,257
Diverse Power Incorporated	639,594	709,108	841,327	312,819	310,300	352,028
Upson Electric Member Corp	151,942	131,648	156,195	74,313	57,608	65,355
Walton Electric Member Corp	2,727,132	2,550,822	3,026,445	1,333,811	1,113,202	1,112,996
Washington Electric Member Corp	414,915	375,941	446,038	202,930	164,509	186,631
Little Ocmulgee Electric Member Corp	213,468	191,639	227,372	104,405	83,860	95,137
Okefenoke Rural Electric Member Corp	652,591	575,745	683,098	319,175	251,941	285,821
Colquitt Electric Membership Corp	1,375,299	1,269,381	1,506,068	672,644	555,470	630,168
PowerSouth	9,045,976	8,471,132	9,748,000	6,758,460	5,231,332	5,511,000
PowerSouth Energy Cooperative	357,312	330,634	380,471	257,964	384,969	132,899
City of Andalusia	386,872	373,093	429,330	289,441	222,117	246,488
Baldwin County Electric Member Corp	1,392,134	1,414,087	1,627,235	1,041,537	841,862	934,230
Central Alabama Electric Cooperative	792,367	704,149	810,287	592,816	419,208	465,203
Choctawhatche Electric Cooperative	836,956	870,691	1,001,932	626,176	518,357	575,231
Coosa Valley Electric Cooperative	321,650	305,708	351,788	240,645	182,000	201,969
Covington Electric Cooperative	432,386	389,082	447,729	323,493	231,636	257,051
Dixie Electric Cooperative	518,988	523,710	602,650	388,285	311,785	345,994
Escambia River Electric Cooperative	194,922	185,276	213,203	145,833	110,302	122,404
Gulf Coast Electric Cooperative	378,507	349,486	402,165	283,183	208,063	230,891
Pea River Electric Cooperative	350,491	310,253	357,018	262,223	184,706	204,972
South Alabama Electric Cooperative	352,550	330,276	380,059	263,763	196,626	218,200
Southern Pine Electric Cooperative	475,755	482,053	554,714	355,940	286,985	318,473
Tallapoosa River Electric Cooperative	522,918	550,464	633,436	391,225	327,713	363,669
West Florida Electric Cooperative Association	541,621	511,221	588,278	405,218	304,350	337,743
Wiregrass Electric Cooperative	427,946	383,215	440,978	320,171	228,143	253,175
Pioneer Electric Cooperative	211,408	180,133	207,285	158,167	107,240	119,007
Clarke-Washington Electric Member Corp	330,564	277,601	319,444	247,314	165,267	183,400

APPENDIX C: SOUTHEAST UTILITY FIGURES

	Generation (GWh)			CO_2 (short tons)		
UTILITY	2010	2017	2025	2010	2017	2025
Santee Cooper	29,134,304	26,064,407	23,373,000	25,575,362	14,079,205	12,359,102
Aiken Electric Cooperative	1,039,733	937,586	840,771	870,128	451,895	435,921
City of Bennettsville	112,444	92,354	82,818	94,102	44,513	42,939
Berkeley Electric Cooperative	1,921,678	2,655,117	2,380,950	1,608,207	1,279,706	1,234,469
Black River Electric Cooperative	770,204	700,405	628,081	644,566	337,579	325,646
Blue Ridge Electric Cooperative	1,159,290	1,077,668	966,388	970,183	519,411	501,051
Broad River Electric Cooperative	383,648	383,804	344,172	321,066	184,985	178,446
Coastal Electric Cooperative	219,016	185,234	166,107	183,289	89,279	86,123
Edisto Electric Cooperative	360,872	331,842	297,576	302,005	159,940	154,287
Fairfield Electric Cooperative	704,630	670,413	601,186	589,688	323,124	311,702
City of Georgetown	155,814	136,883	122,748	130,397	65,974	63,642
Horry Electric Cooperative	1,210,418	1,193,672	1,070,414	1,012,970	575,323	554,986
Laurens Electric Cooperative	1,105,282	1,073,955	963,059	924,985	517,622	499,324
Little River Electric Cooperative	224,749	192,532	172,651	188,087	92,796	89,516
Lynches River Electric Cooperative	409,369	430,232	385,806	342,591	207,362	200,032
Marlboro Electric Cooperative	810,038	944,698	847,149	677,902	455,323	439,228
Mid-Carolina Electric Cooperative	1,096,127	1,017,068	912,046	917,323	490,204	472,875
Newberry Electric Cooperative	310,196	312,995	280,675	259,596	150,856	145,524
Tri-County Electric Cooperative	347,905	308,159	276,339	291,154	148,526	143,275
Palmetto Electric Cooperative	1,639,319	1,508,294	1,352,548	1,371,908	726,963	701,266
Pee Dee Electric Cooperative	769,322	678,652	608,574	643,828	327,095	315,532
Santee Electric Cooperative	1,402,018	1,300,564	1,166,268	1,173,316	626,842	604,684
South Carolina Public Service Authority	11,625,688	8,511,097	7,632,242	11,046,092	5,691,438	4,267,836
York Electric Cooperative	889,870	1,003,178	899,590	744,711	483,509	466,417
Central Electric Power Cooperative	409,196	418,005	374,842	219,166	128,940	124,382
South Carolina Electric & Gas Company	24,107,294	23,156,054	25,333,048	13,811,884	13,110,901	13,277,640

APPENDIX C: SOUTHEAST UTILITY FIGURES

	Generation (GWh)			CO_2 (short tons)		
UTILITY	2010	2017	2025	2010	2017	2025
South Carolina Municipals	4,584,727	4,175,382	4,477,485	2,697,986	1,520,744	1,921,402
City of Camden	214,311	187,339	189,640	122,798	58,046	50,842
Clinton Combined Utility System	133,119	110,795	118,566	63,525	31,260	35,837
Easley Combined Utility System	325,564	301,702	322,862	155,361	85,122	97,587
City of Gaffney	255,868	240,514	257,382	122,102	67,859	77,796
Greenwood Commission of Public Works	362,393	316,439	338,632	54,961	17,051	0
Greer Commission of Public Works	374,730	381,728	408,500	178,824	107,701	123,472
Lockhart Power	199,462	212,504	227,408	109,738	28,721	28,704
City of Newberry	215,231	218,226	233,531	102,710	61,570	70,586
City of Orangeburg	942,762	841,810	920,952	1,072,931	705,530	1,034,270
Piedmont Municipal Power Agency	77,025	69,877	74,778	7,057	3,790	4,348
City of Rock Hill	817,351	882,671	944,577	390,046	249,037	285,505
City of Seneca	167,239	163,978	175,479	28,029	35,144	32,302
City of Union	150,135	136,701	146,289	71,645	38,569	44,217
City of Laurens	122,293	111,098	118,890	58,359	31,345	35,935
Southern Company	174,294,167	164,970,621	172,125,733	124,247,856	86,181,959	84,006,254
Alabama Power Co	59,478,716	56,964,624	58,933,944	39,932,017	30,624,698	32,356,926
Georgia Power Co	92,398,098	86,360,120	91,968,171	65,831,867	42,993,664	39,386,073
Gulf Power Co	12,126,991	11,408,645	11,075,944	10,782,034	7,118,181	6,145,036
Mississippi Power Co	10,290,362	10,237,232	10,147,673	7,701,938	5,445,416	6,118,220
Tampa Electric	20,511,779	20,334,411	21,785,000	15,590,186	14,031,067	13,184,193
Tennessee Valley Authority (TVA)	178,272,264	155,450,451	157,673,468	103,897,507	57,864,853	49,234,042
Aberdeen Electric Department	201,569	204,875	207,805	117,001	75,927	64,626
Albertville Municipal Utilities Board	601,464	604,928	613,579	349,122	224,189	190,818
Alcorn County Electric Power Association	779,575	607,950	616,644	452,507	225,309	191,771
City of Amory	151,914	136,792	138,748	88,179	50,696	43,150
City of Alcoa Utilities	689,996	620,729	629,606	400,510	230,045	195,802

APPENDIX C: SOUTHEAST UTILITY FIGURES

	Generation (GWh)			CO_2 (short tons)		
UTILITY	2010	2017	2025	2010	2017	2025
TVA (Continued)	178,272,264	155,450,451	157,673,468	103,897,507	57,864,853	49,234,042
Appalachian Electric Cooperative	1,049,285	939,489	952,924	609,061	348,178	296,351
Arab Electric Cooperative	384,679	315,552	320,065	223,288	116,945	99,537
City of Athens Electric Department	1,110,356	1,159,739	1,176,324	644,510	429,804	365,827
Athens Utility Board	637,708	657,367	666,768	370,160	243,623	207,359
Benton County Electric System (TN)	224,898	200,248	203,112	130,543	74,213	63,166
Benton Electric System (KY)	77,889	72,206	73,239	45,211	26,760	22,777
City of Bessemer Utilities	373,565	309,708	314,137	216,837	114,779	97,694
Blue Ridge Mountain EMC	713,258	676,940	686,621	414,013	250,877	213,533
Bolivar Energy Authority	276,190	230,243	233,536	160,315	85,329	72,628
Bowling Green Municipal Utilities	985,079	906,744	919,711	571,792	336,043	286,022
Bristol Tennessee Essential Services	1,116,427	901,831	914,728	648,034	334,222	284,472
BVU Authority	612,968	503,114	510,309	355,799	186,456	158,702
Brownsville Utility Department	226,069	212,597	215,637	131,222	78,789	67,061
Central Electric Power Association	1,038,754	873,965	886,463	602,948	323,895	275,682
Caney Fork Electric Cooperative	716,233	621,920	630,814	415,740	230,486	196,178
Carroll County Electric Department	479,669	434,501	440,715	278,425	161,028	137,058
Electric Power Board of Chattanooga	6,323,422	5,774,430	5,857,007	3,670,451	2,140,027	1,821,479
Cherokee Electric Cooperative	570,460	498,747	505,879	331,125	184,838	157,324
Chickamauga Electric System	39,667	26,561	26,941	23,025	9,844	8,378
CDE Lightband	1,589,243	1,516,014	1,537,694	922,481	561,841	478,210
Cleveland Utilities	1,149,036	1,068,164	1,083,439	666,962	395,866	336,940
Clinton Utilities Board	893,780	795,058	806,428	518,798	294,652	250,792
Columbia Power & Water Systems	713,682	642,590	651,779	414,259	238,146	202,698
Columbus Light & Water	484,958	382,743	388,216	281,495	141,846	120,732
Cookeville Electric Department	591,636	565,643	573,732	343,417	209,630	178,426
Covington Electric System	212,498	242,668	246,138	123,345	89,934	76,547

APPENDIX C: SOUTHEAST UTILITY FIGURES

	Generation (GWh)			CO_2 (short tons)		
UTILITY	2010	2017	2025	2010	2017	2025
TVA (Continued)	178,272,264	155,450,451	157,673,468	103,897,507	57,864,853	49,234,042
Cullman Power Board	329,092	281,098	285,118	191,023	104,176	88,669
Cullman Electric Cooperative	1,126,233	1,061,516	1,076,696	653,726	393,402	334,843
Cumberland Electric Member Corp	2,742,070	2,616,409	2,653,825	1,591,644	969,652	825,317
City of Dayton Electric Department	329,885	286,098	290,189	191,483	106,029	90,246
Decatur Utilities	1,361,923	1,214,896	1,232,270	790,533	450,245	383,225
Dickson Electric Department	986,622	878,849	891,417	572,688	325,705	277,223
Duck River Electric Member Corp	1,987,360	1,830,363	1,856,538	1,153,570	678,340	577,368
Dyersburg Electric System	486,585	409,971	415,834	282,440	151,937	129,321
East Mississippi Electric Power Association	273,700	235,206	238,570	158,870	87,168	74,193
City of Elizabethton Electric Department	592,507	519,860	527,294	343,923	192,662	163,984
Erwin Utilities	257,606	217,106	220,211	149,528	80,460	68,484
Etowah Utilities	198,274	243,824	247,311	115,089	90,362	76,912
Fayetteville Public Utilities	501,009	454,268	460,764	290,812	168,354	143,294
Florence Utilities	1,369,707	1,227,170	1,244,719	795,051	454,794	387,097
Fort Loudoun Electric Cooperative	705,169	611,001	619,739	409,318	226,439	192,733
Fort Payne Improvement Authority	371,939	316,787	321,317	215,893	117,403	99,927
4-County Electric Power Association	1,121,099	1,073,836	1,089,192	650,746	397,968	338,730
Franklin Electric Cooperative (AL)	342,225	221,700	224,870	198,646	82,163	69,933
Franklin Electric Power Board	239,645	196,119	198,924	139,103	72,682	61,864
Fulton Electric System	63,120	53,415	54,179	36,638	19,796	16,849
Gallatin Department of Electricity	824,383	833,262	845,178	478,516	308,810	262,843
Gibson Electric Members Corp	934,628	820,527	832,261	542,508	304,091	258,826
Glasgow Electric Power Board	359,469	287,748	291,863	208,655	106,641	90,767
Greeneville Light & Power System	1,225,324	1,192,113	1,209,161	711,243	441,802	376,039
Electric Board of Guntersville	266,461	241,175	244,624	154,668	89,380	76,076
Harriman Utiliy Board	255,618	213,601	216,656	148,374	79,161	67,378

APPENDIX C: SOUTHEAST UTILITY FIGURES

	Generation (GWh)			CO_2 (short tons)		
UTILITY	2010	2017	2025	2010	2017	2025
TVA (Continued)	178,272,264	155,450,451	157,673,468	103,897,507	57,864,853	49,234,042
Hartselle Utilities	167,174	147,215	149,320	97,037	54,558	46,437
Hickman Electric System	24,401	18,334	18,596	14,164	6,795	5,783
Holly Springs Utility Department	295,080	239,794	243,223	171,280	88,869	75,640
Holston Electric Cooperative	869,600	807,096	818,638	504,762	299,113	254,589
Hopkinsville Electric System	431,037	362,070	367,248	250,197	134,185	114,211
Humboldt Utilities	168,250	150,331	152,481	97,661	55,713	47,420
Huntsville Utilities	5,993,508	5,194,869	5,269,158	3,478,952	1,925,239	1,638,663
Jackson Energy Authority	1,776,295	1,717,180	1,741,737	1,031,056	636,394	541,665
Jellico Electric & Water System	95,729	74,540	75,606	55,566	27,625	23,513
Joe Wheeler Electric Member Corp	1,676,968	1,684,651	1,708,742	973,402	624,338	531,404
BrightRidge	2,117,219	1,884,386	1,911,334	1,228,947	698,361	594,408
Knoxville Utilities Board	6,036,789	5,420,385	5,497,899	3,504,074	2,008,816	1,709,800
LaFollette Utilities Board	463,474	406,559	412,373	269,025	150,672	128,244
Lawrenceburg Electric System	503,744	483,052	489,960	292,400	179,021	152,373
Lenoir City Utilities Board	1,743,479	1,647,371	1,670,929	1,012,008	610,522	519,645
Lewisburg Electric System	315,635	340,458	345,327	183,211	126,175	107,394
Lexington Electric System	531,941	442,033	448,354	308,767	163,819	139,434
Loudon Utilities Board	564,821	632,778	641,827	327,852	234,510	199,603
Louisville Utilities	122,349	124,015	125,788	71,018	45,960	39,119
City of Macon Electric Department	33,100	25,670	26,037	19,213	9,513	8,097
Marshall-De Kalb Electric Cooperative	585,902	428,538	434,666	340,089	158,818	135,178
City of Maryville Electric Department	755,397	780,992	792,161	438,473	289,439	246,355
Mayfield Electric & Water System	163,994	143,514	145,566	95,191	53,187	45,270
McMinnville Electric System	243,452	198,770	201,613	141,313	73,665	62,700
Memphis Light Gas and Water	15,347,677	13,715,639	13,911,779	8,908,610	5,083,071	4,326,445
Meriwether Lewis Electric Cooperative	820,527	1,206,095	1,223,343	476,278	446,984	380,449

APPENDIX C: SOUTHEAST UTILITY FIGURES

	Generation (GWh)			CO_2 (short tons)		
UTILITY	2010	2017	2025	2010	2017	2025
TVA (Continued)	178,272,264	155,450,451	157,673,468	103,897,507	57,864,853	49,234,042
Middle Tennessee Electric Member Corp	6,064,347	5,950,747	6,035,846	3,520,070	2,205,371	1,877,097
Milan Department of Public Utilities	235,515	193,720	196,490	136,705	71,793	61,107
Morristown Utility Systems	928,463	935,395	948,772	538,929	346,661	295,060
Mountain Electric Cooperative	660,131	640,368	649,526	383,175	237,323	201,997
Mount Pleasant Power System	127,959	127,181	129,000	74,274	47,134	40,118
Murfreesboro Electric Department	1,681,840	1,770,530	1,795,849	976,230	656,166	558,494
Murray Electric System	330,167	294,825	299,041	191,647	109,263	92,999
Muscle Shoals Electric Board	303,440	313,619	318,104	176,133	116,228	98,928
Nashville Electric Service	13,487,211	11,991,967	12,163,458	7,828,696	4,444,271	3,782,732
Natchez Trace Electric Power Association	365,185	332,929	337,690	211,973	123,385	105,019
New Albany Light Gas & Water	305,049	336,268	341,077	177,067	124,622	106,072
Newbern Electric Water & Gas	134,471	110,642	112,224	78,054	41,004	34,901
Newport Utilities	622,066	567,292	575,405	361,080	210,241	178,946
North Alabama Electric Cooperative	382,617	383,450	388,934	222,091	142,108	120,955
North Georgia Electric Member Corp	2,796,739	2,405,658	2,440,060	1,623,376	891,547	758,838
Northcentral Mississippi Electric Power Association	977,589	1,043,309	1,058,229	567,445	386,655	329,100
Oak Ridge Electric Department	545,984	518,349	525,762	316,918	192,102	163,507
City of Okolona Electric Department	113,488	97,235	98,626	65,874	36,036	30,672
City of Oxford Electric Department	236,534	231,716	235,030	137,297	85,875	73,092
Paris Board of Public Utilities	516,132	471,354	478,095	299,591	174,686	148,683
Pennyrile Rural Electric Cooperative	1,326,408	1,220,450	1,237,903	769,918	452,304	384,977
Philadelphia Utilities	140,515	124,872	126,658	81,562	46,278	39,389
Pickwick Electric Cooperative	435,662	372,300	377,624	252,881	137,976	117,438
Plateau Electric Cooperative	353,607	311,525	315,980	205,252	115,452	98,267
Pontotoc Electric Power Association	470,745	437,545	443,802	273,245	162,156	138,019
Powell Valley Electric Cooperative	620,690	555,189	563,128	360,282	205,755	175,128

APPENDIX C: SOUTHEAST UTILITY FIGURES

	Generation (GWh)			CO_2 (short tons)		
UTILITY	2010	2017	2025	2010	2017	2025
TVA (Continued)	178,272,264	155,450,451	157,673,468	103,897,507	57,864,853	49,234,042
Prentiss County Electric Power Association	378,607	354,512	359,582	219,764	131,384	111,827
Pulaski Electric System	474,967	464,630	471,274	275,696	172,194	146,562
Rockwood Electric Utility	383,992	311,732	316,190	222,889	115,529	98,332
Russellville Electric Board (AL)	149,026	143,814	145,871	86,503	53,298	45,365
Russellville Electric Plant Board (KY)	149,131	131,680	133,563	86,564	48,801	41,537
Sand Mountain Electric Cooperative	774,345	627,007	635,974	449,471	232,371	197,782
Scottsboro Electric Power Board	338,714	325,320	329,972	196,608	120,565	102,619
Sequachee Valley Electric Cooperative	876,352	816,126	827,797	508,681	302,460	257,438
Sevier County Electric System	1,607,582	1,446,785	1,467,475	933,126	536,184	456,372
Sheffield Utilities	797,535	739,155	749,725	462,932	273,934	233,158
Shelbyville Power System	419,527	382,777	388,251	243,516	141,859	120,743
Smithville Electric System	141,568	134,263	136,183	82,174	49,758	42,352
Southwest Tennessee Electric Member Corp	1,139,404	959,844	973,570	661,371	355,722	302,772
Sparta Electric & Public Works	131,564	124,445	126,225	76,367	46,120	39,255
Springfield Electric	318,946	318,903	323,463	185,133	118,187	100,594
Starkville Electric Department	452,727	432,391	438,574	262,787	160,246	136,393
Sweetwater Utilities Board	258,898	240,707	244,149	150,278	89,207	75,928
Tallahatchie Valley Electric Power Association	730,628	668,991	678,558	424,095	247,931	211,026
Tarrant Electric Department	76,400	63,773	64,685	44,347	23,635	20,116
Tennessee Valley Authority	33,116,700	22,505,611	22,827,452	19,641,479	8,594,961	7,298,079
Tennessee Valley Electric Cooperative	463,526	391,299	396,895	269,055	145,017	123,431
Tippah Electric Power Association	364,936	342,147	347,040	211,828	126,801	107,926
Tishomingo County Electric Power Association	314,906	283,592	287,648	182,788	105,100	89,456
Tombigbee Electric Power Association	1,232,205	1,145,668	1,162,052	715,237	424,589	361,388
Trenton Light & Water Department	67,307	69,879	70,878	39,069	25,897	22,043
Tri-State Electric Member Corp	310,141	289,456	293,595	180,022	107,274	91,306

APPENDIX C: SOUTHEAST UTILITY FIGURES

	Generation (GWh)			CO_2 (short tons)		
UTILITY	2010	2017	2025	2010	2017	2025
TVA (Continued)	178,272,264	155,450,451	157,673,468	103,897,507	57,864,853	49,234,042
Tri-County Electric Member Corp (TN)	1,357,229	1,270,759	1,288,931	787,808	470,948	400,847
Tullahoma Utilities Authority	354,952	296,767	301,011	206,033	109,983	93,612
City of Tupelo Water & Light Department	726,330	639,404	648,548	421,601	236,966	201,693
Tuscumbia Electricity Department	107,594	97,929	99,329	62,453	36,293	30,891
Union City Electric System	454,324	291,309	295,475	263,714	107,960	91,890
Upper Cumberland Electric Member Corp	1,168,799	1,037,736	1,052,576	678,433	384,589	327,342
Volunteer Electric Cooperative	2,493,733	2,299,110	2,331,988	1,447,496	852,059	725,229
Warren Rural Electric Cooperative Corp	2,029,812	2,073,759	2,103,415	1,178,211	768,543	654,144
City of Water Valley Electric Department	72,450	70,578	71,587	42,054	26,156	22,263
Weakley County Municipal Electric System	538,060	464,479	471,121	312,319	172,138	146,515
West Kentucky Rural Electric Cooperative	829,009	697,585	707,561	481,201	258,528	220,045
City of West Point Electric System	102,586	82,929	84,115	59,546	30,734	26,159
Winchester Utilities	205,540	179,803	182,374	119,306	66,636	56,717
Ripley Power & Light	227,362	194,577	197,360	131,973	72,111	61,377
Chickasaw Electric Cooperative	544,314	504,164	511,374	315,949	186,845	159,033
Forked Deer Electric Cooperative	216,824	173,123	175,599	125,856	64,160	54,610
North East Mississippi Electric Power Association	587,802	656,778	666,170	341,192	243,405	207,173
Monroe County Electric Power Association	247,063	211,463	214,487	143,409	78,369	66,704
HFC RECC (Merged into Gibson EMC)	92,818	76,317	77,408	53,877	28,283	24,073
City of Courtland	26,324	21,701	22,011	15,280	8,042	6,845
Murphy Electric Power Board	142,029	138,930	140,917	82,441	51,488	43,824