

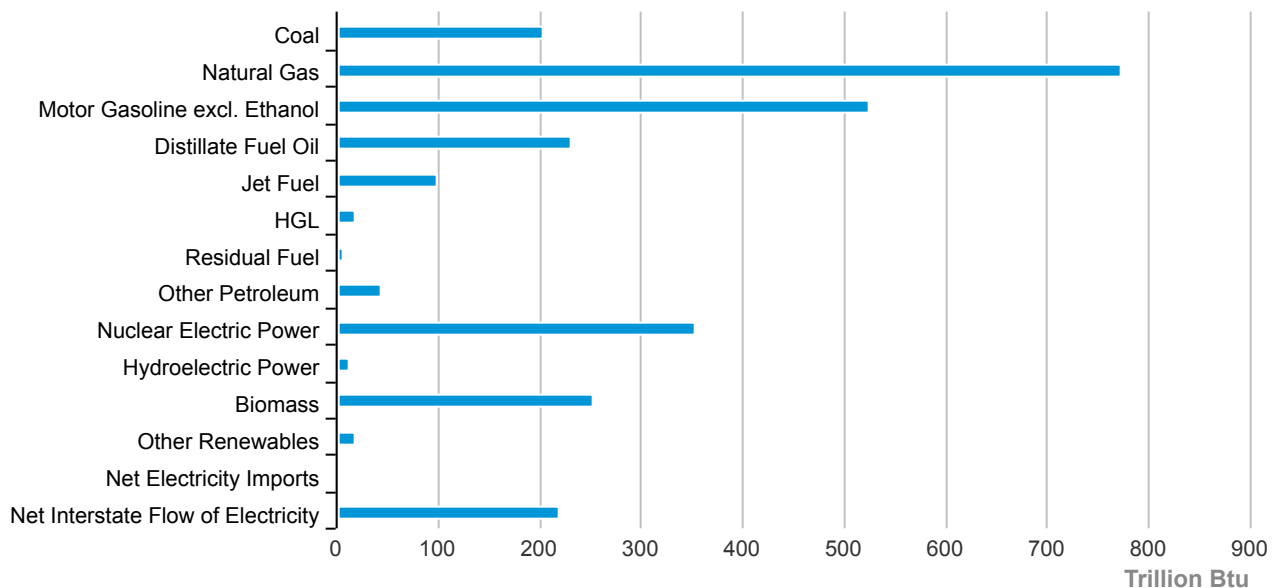
Georgia State Energy Profile

Georgia Quick Facts

- The Elba Island liquefied natural gas (LNG) import terminal has added liquefaction and export facilities with the capacity to export 350 million cubic feet per day. Export operations began in August 2020, and more than 84 billion cubic feet were exported from Elba in 2021.
- Two new nuclear reactors under construction at Georgia's Vogtle nuclear power plant will almost double the plant's generating capacity and currently have planned startup dates in 2023.
- Natural gas accounted for 45% of Georgia's total electricity net generation in 2021. The state's four operating nuclear reactors accounted for 27%, renewable energy, including hydroelectric power and small-scale solar, accounted for 12%, and coal contributed 15%.
- Georgia ranks second in the nation (after North Carolina) in densified biomass fuel manufacturing capacity and has the nation's largest wood pellet manufacturing plant. Georgia is a leading wood pellet exporter.
- Major interstate highways and typically the world's busiest passenger airport helped make Georgia's transportation sector fifth in the nation in energy consumption in 2020. Petroleum products were the state's largest source of energy in 2020 (32%).

Last Updated: January 19, 2023

Georgia Energy Consumption Estimates, 2021



Source: Energy Information Administration, State Energy Data System

Data

Last Update: September 21, 2023 | Next Update: October 19, 2023

Energy Indicators

Demography	Georgia	Share of U.S.	Period
Population	10.9 million	3.3%	2022
Civilian Labor Force	5.3 million	3.2%	Jul-23
Economy	Georgia	U.S. Rank	Period
Gross Domestic Product	\$ 755.7 billion	8	2022
Gross Domestic Product for the Manufacturing Sector	\$ 73,810 million	10	2022
Per Capita Personal Income	\$ 57,129	38	2022
Vehicle Miles Traveled	120,685 million miles	4	2021
Land in Farms	10.2 million acres	28	2022
Climate	Georgia	U.S. Rank	Period
Average Temperature	64.8 degrees Fahrenheit	4	2022
Precipitation	45.7 inches	12	2022

Prices

Petroleum	Georgia	U.S. Average	Period	find more
Domestic Crude Oil First Purchase	--	\$ 68.58 /barrel	Jun-23	
Natural Gas	Georgia	U.S. Average	Period	find more
City Gate	\$ 4.43 /thousand cu ft	\$ 4.68 /thousand cu ft	Jun-23	find more
Residential	\$ 32.30 /thousand cu ft	\$ 20.16 /thousand cu ft	Jun-23	find more
Coal	Georgia	U.S. Average	Period	find more
Average Sales Price	--	\$ 36.50 /short ton	2021	
Delivered to Electric Power Sector	\$ 4.62 /million Btu	\$ 2.47 /million Btu	Jun-23	
Electricity	Georgia	U.S. Average	Period	find more
Residential	14.62 cents/kWh	16.11 cents/kWh	Jun-23	find more
Commercial	11.31 cents/kWh	12.81 cents/kWh	Jun-23	find more
Industrial	7.01 cents/kWh	8.21 cents/kWh	Jun-23	find more

Reserves

Reserves	Georgia	Share of U.S.	Period	find more
Crude Oil (as of Dec. 31)	--	--	2021	find more
Expected Future Production of Dry Natural Gas (as of Dec. 31)	--	--	2021	find more
Expected Future Production of Natural Gas Plant Liquids	--	--	2021	find more
Recoverable Coal at Producing Mines	--	--	2021	find more
Rotary Rigs & Wells	Georgia	Share of U.S.	Period	find more
Natural Gas Producing Wells	--	--	2020	find more
Capacity	Georgia	Share of U.S.	Period	
Crude Oil Refinery Capacity (as of Jan. 1)	0 barrels/calendar day	0.0%	2022	
Electric Power Industry Net Summer Capacity	36,335 MW	3.1%	Jun-23	

Supply & Distribution

Production	Georgia	Share of U.S.	Period	find more
Total Energy	671 trillion Btu	0.7%	2021	find more
Crude Oil	--	--	Jun-23	find more
Natural Gas - Marketed	--	--	2021	find more
Coal	--	--	2021	find more
Total Utility-Scale Net Electricity Generation	Georgia	Share of U.S.	Period	find more
Total Net Electricity Generation	11,782 thousand MWh	3.3%	Jun-23	
Utility-Scale Net Electricity Generation (share of total)	Georgia	U.S. Average	Period	
Petroleum-Fired	0.1 %	0.3 %	Jun-23	find more
Natural Gas-Fired	51.1 %	45.3 %	Jun-23	find more
Coal-Fired	13.0 %	16.2 %	Jun-23	find more
Nuclear	25.3 %	18.2 %	Jun-23	find more
Renewables	11.0 %	19.6 %	Jun-23	

Supply & Distribution

Stocks	Georgia	Share of U.S.	Period	find more
Motor Gasoline (Excludes Pipelines)	77 thousand barrels	0.6%	Jun-23	
Distillate Fuel Oil (Excludes Pipelines)	1,420 thousand barrels	1.7%	Jun-23	find more
Natural Gas in Underground Storage	--	--	Jun-23	find more
Petroleum Stocks at Electric Power Producers	1,106 thousand barrels	4.8%	Jun-23	find more
Coal Stocks at Electric Power Producers	W	W	Jun-23	find more
Fueling Stations	Georgia	Share of U.S.	Period	
Motor Gasoline	5,081 stations	4.6%	2021	
Propane	75 stations	3.1%	Aug-23	
Electric Vehicle Charging Locations	1,553 stations	2.9%	Aug-23	
E85	62 stations	1.5%	Aug-23	
Compressed Natural Gas and Other Alternative Fuels	23 stations	0.8%	Aug-23	

Consumption & Expenditures

Summary	Georgia	U.S. Rank	Period	
Total Consumption	2,836 trillion Btu	9	2021	find more
Total Consumption per Capita	263 million Btu	32	2021	find more
Total Expenditures	\$ 38,650 million	8	2021	find more
Total Expenditures per Capita	\$ 3,583	37	2021	find more
by End-Use Sector	Georgia	Share of U.S.	Period	
Consumption				
» Residential	704 trillion Btu	3.4%	2021	find more
» Commercial	519 trillion Btu	3.0%	2021	find more
» Industrial	753 trillion Btu	2.3%	2021	find more
» Transportation	861 trillion Btu	3.2%	2021	find more
Expenditures				
» Residential	\$ 9,604 million	3.4%	2021	find more

Consumption & Expenditures

» Commercial	\$ 5,808 million	2.9%	2021	find more
» Industrial	\$ 4,955 million	2.1%	2021	find more
» Transportation	\$ 18,284 million	3.0%	2021	find more
by Source	Georgia	Share of U.S.	Period	
Consumption				
» Petroleum	183 million barrels	2.5%	2021	find more
» Natural Gas	753 billion cu ft	2.5%	2021	find more
» Coal	10 million short tons	1.9%	2021	find more
Expenditures				
» Petroleum	\$ 20,461 million	2.7%	2021	find more
» Natural Gas	\$ 5,137 million	2.7%	2021	find more
» Coal	\$ 568 million	2.4%	2021	find more
Consumption for Electricity Generation	Georgia	Share of U.S.	Period	find more
Petroleum	12 thousand barrels	0.7%	Jun-23	find more
Natural Gas	29,626 million cu ft	3.3%	Apr-23	find more
Coal	788 thousand short tons	2.4%	Jun-23	find more
Energy Source Used for Home Heating (share of households)	Georgia	U.S. Average	Period	
Natural Gas	38.0 %	46.5 %	2021	
Fuel Oil	0.1 %	4.1 %	2021	
Electricity	56.2 %	41.0 %	2021	
Propane	4.4 %	5.0 %	2021	
Other/None	1.3 %	3.5 %	2021	

Environment

Renewable Energy Capacity	Georgia	Share of U.S.	Period	find more
Total Renewable Energy Electricity Net Summer Capacity	6,763 MW	2.1%	Jun-23	
Ethanol Plant Nameplate Capacity	0 million gal/year	0.0%	2023	
Renewable Energy Production	Georgia	Share of U.S.	Period	find more

Environment

Utility-Scale Hydroelectric Net Electricity Generation	107 thousand MWh	0.5%	Jun-23	
Utility-Scale Solar, Wind, and Geothermal Net Electricity Generation	767 thousand MWh	1.7%	Jun-23	
Utility-Scale Biomass Net Electricity Generation	421 thousand MWh	10.5%	Jun-23	
Small-Scale Solar Photovoltaic Generation	50 thousand MWh	0.7%	Jun-23	
Fuel Ethanol Production	0 thousand barrels	0.0%	2021	
Renewable Energy Consumption	Georgia	U.S. Rank	Period	find more
Renewable Energy Consumption as a Share of State Total	11.7 %	24	2021	
Fuel Ethanol Consumption	11,168 thousand barrels	7	2021	
Total Emissions	Georgia	Share of U.S.	Period	find more
Carbon Dioxide	124.1 million metric tons	2.5%	2021	
Electric Power Industry Emissions	Georgia	Share of U.S.	Period	find more
Carbon Dioxide	43,566 thousand metric tons	2.6%	2021	
Sulfur Dioxide	44 thousand metric tons	3.8%	2021	
Nitrogen Oxide	34 thousand metric tons	2.7%	2021	

Analysis

Last Updated: January 19, 2023

Overview

Georgia has the largest land area of any state east of the Mississippi River. Located on the Atlantic coast at the southern end of the Blue Ridge Mountains in the Appalachians, elevations in northwestern Georgia rise to almost 5,000 feet. Between the mountains and the ocean are the rolling hills of the Piedmont region and Georgia's broad coastal plains.¹ Despite its location near the Appalachian coalfields and oil and natural gas basins, Georgia does not have any significant fossil fuel reserves.² Nuclear power supplies slightly more than half of the primary energy produced in Georgia, and the rest comes from renewable resources, specifically biomass, solar energy, and hydropower.³ Two-thirds of the state is forested and Georgia leads the nation in commercial timberland.^{4,5} The state has many wood processing mills, wood-fueled power plants, and wood pellet manufacturers.^{6,7} Although most of Georgia's natural lakes are in the southern

Major highways and one of the world's busiest airports help make Georgia fifth in the nation in transportation

part of the state, the larger, man-made lakes and reservoirs that provide hydroelectric power are concentrated in the river valleys of the north.⁸ Georgia's solar potential is among the highest in the Southeast, but the state has little onshore wind energy potential.^{9,10} However, there are large areas with substantial wind energy resources in the Atlantic Ocean off Georgia's coast.¹¹

sector energy consumption.

Georgia ranks among the top 10 states in the nation in total energy consumption, but, with its large population (eighth-highest in the nation), the state's per capita energy consumption is lower than in three-fifths of the states.^{12,13,14} The transportation sector accounts for the largest share of Georgia's end-use energy consumption.¹⁵ Major interstate highways and Atlanta's international airport helped make Georgia's transportation sector fifth in the nation in energy consumption in 2020.¹⁶ The industrial sector accounts for the second-largest share of state energy use, followed closely by the residential sector.¹⁷ Georgia has several energy-intensive industries, including the manufacture of food, beverages, tobacco products, chemicals, and paper.^{18,19} With Georgia's warm and humid climate, air conditioning is widely used, and the residential sector's per capita energy consumption is above the national average.^{20,21,22}

Electricity

Natural gas and nuclear power fuel almost three-fourths of Georgia's total in-state electricity net generation. The share of generation fueled by natural gas alone has nearly tripled since 2010, and it now accounts for almost half of the state's net generation.²³ In 2021, Georgia was among the top five nuclear power-producing states in the nation.²⁴ The state's two nuclear power plants typically provide about one-fourth of the state's net generation.²⁵ Each power plant has two operating reactors, but two new reactors are under construction at the existing Vogtle nuclear plant in Waynesboro, Georgia. They will almost double the plant's generating capacity.²⁶ Those reactors currently are scheduled to begin operations in 2023.^{27,28}

Coal and renewable resources provide almost all the rest of Georgia's electricity generation. Coal-fired power plants fueled more than half of generation in Georgia before 2010, but coal's contribution declined with the retirement of two-fifths of the state's coal-fired generating capacity, almost 4,900 megawatts.²⁹ In 2021, coal fueled about 15% of Georgia's total in-state generation. Renewable resources—particularly biomass, solar energy, and hydroelectric power—provided about 12% of the state's net generation. Small amounts of petroleum liquids and petroleum coke as well as a few multifuel generators supplied the rest of Georgia's power.³⁰

Although Georgia is among the top 10 electricity-producing states, it typically uses more power than it generates. During the past decade, Georgia acquired about one-sixth of the electricity it consumed each year from other states.^{31,32} In 2021, Georgia's residential sector, where nearly three in five households use electricity for heating and almost all homes have air conditioning, accounted for 43% of electricity sales.^{33,34} The commercial sector consumed 33% and the industrial sector used 24%. The transportation sector accounted for a small amount of the state's electricity consumption for rail.³⁵ Additionally, Georgia ranked 10th in the nation in the number of registered electric vehicles in 2021 and has more than 1,500 all electric vehicle charging stations, most of which are public access.^{36,37}

Two nuclear reactors under construction at Georgia's Vogtle nuclear plant will almost double the plant's generating capacity.

Renewable energy

In 2021, renewable resources accounted for more than one-tenth of Georgia's total in-state electricity net generation, and two-fifths of that generation came from biomass, primarily wood and wood-derived fuels.³⁸ The state led the nation in the use of wood and wood-derived fuels for electricity generation and in the amount of generation from all biomass resources.^{39,40} About 22 million acres of Georgia's

Georgia is the national leader in electricity

generation from biomass.

24 million acres of forest are available for commercial use, and there are many wood product manufacturing plants in the state. Georgia has 6 wood pellet manufacturing plants, including the nation's largest with a capacity of 826,733 tons per year. Georgia's combined wood pellet production capacity is more than 1.8 million tons per year.^{41,42,43} The state is also one of the nation's top wood pellet exporters. Most of the wood pellet exports go to Europe, where they are used as fuel for electricity generation.^{44,45,46}

Solar energy provided more than one-third of Georgia's in-state renewable electricity net generation in 2021, almost all of it from utility-scale facilities with greater than 1 megawatt of capacity.⁴⁷ By late 2022, Georgia had nearly 3,300 megawatts of utility-scale solar PV capacity, and another 1,000 megawatts are expected to be operational by the end of 2024. The 14 largest solar facilities in the state each have capacities of 100 megawatts or more. The four largest came online since the beginning of 2020.⁴⁸ Electricity generation from utility-scale and small-scale (less than 1-megawatt) solar PV in combination more than doubled in the three-year period between 2019 and 2021. Less than one-tenth of the state's solar generation comes from small-scale customer-sited installations, such as roof-top panels.⁴⁹

With 14 river basins and thousands of dams, Georgia has abundant hydroelectric power resources.^{50,51} The state has 29 conventional hydroelectric power plants and 4 hydroelectric pumped storage facilities.⁵² In 2021, about one-fourth of Georgia's electricity generation from renewable resources came from conventional hydroelectric power.⁵³ The state was the sixth-largest hydroelectric power producer east of the Mississippi River and the 14th-largest producer of hydroelectricity in the nation.⁵⁴ Georgia's hydroelectric pumped storage facilities supplement state power in periods of high electricity demand. During periods of low demand for electricity, water is pumped from a lower reservoir to an upper reservoir using relatively inexpensive power. The water is released from the upper reservoir in periods of high demand, generating electricity as the water flows back through turbines on its way to the lower reservoir. Although pumped storage facilities use more power than they generate, they can supply power in periods of peak demand when it is needed.⁵⁵

Georgia has no utility-scale wind-powered electricity generation.⁵⁶ The state has limited onshore wind energy potential, all of it in small areas on the mountain ridges along the state's northern border and in a narrow strip along the state's 100-mile Atlantic coastline. However, Georgia has significant wind resource potential offshore in the Atlantic Ocean.^{57,58}

Georgia has two biodiesel plants that have a combined production capacity of about 22 million gallons of biodiesel per year.⁵⁹ In 2020, the state's biodiesel consumption was about 20 million gallons.⁶⁰ Most motor gasoline sold in the United States is blended with at least 10% ethanol.⁶¹ Georgia's only fuel ethanol plant closed in mid-2020 after it was idled because of decreased demand as a result of the economic effects of the COVID-19 pandemic.⁶² The plant produced about 50 million gallons of fuel ethanol before it closed that year. However, the state consumed more than 450 million gallons of fuel ethanol in 2020.^{63,64} The fuel ethanol Georgia needs each year arrives by rail from the Midwest.⁶⁵

Georgia does not have a renewable energy portfolio standard, nor does it have a voluntary renewable energy target. However, several utilities in the state offer financial incentives that promote energy efficiency, renewable generation, and electric vehicle use. State policies include electric vehicle tax incentives, as well as energy standards for public buildings, interconnection guidelines, and solar easement regulations.⁶⁶ Georgia allowed, but did not require, utilities to offer net metering. However, in 2019 a regulatory change required the state's largest utility to offer net metering for up to 5,000 rooftop solar customers or 32 megawatts of capacity, whichever came first. That limit was reached in 2021.⁶⁷

Petroleum

Georgia does not have any crude oil production or proved petroleum reserves.^{68,69} None of the nearly 200 exploration wells drilled in the state during the 20th century were successful.^{70,71} Georgia no longer has any petroleum refineries. The state's last crude oil refinery closed at the end of 2014.^{72,73} No crude oil pipelines cross Georgia, and the state

receives refined petroleum products from two interstate petroleum product pipeline systems and an interstate propane pipeline.⁷⁴ The Port of Savannah also receives petroleum product imports from around the world.⁷⁵

As in many states, petroleum provides the largest share of energy consumed in Georgia, accounting for about one-third of the state's total energy use.⁷⁶ In 2020, the state ranked among the top 10 states in total petroleum consumption, but it was among the lowest one-third of states in per capita petroleum use.⁷⁷ The transportation sector accounted for almost nine-tenths of the state's petroleum use, more than three-fifths of that as motor gasoline.^{78,79} Georgia's extensive transportation network, including interstates, the nation's fastest growing port, the world's busiest airport and two major railroads, uses much of the rest of the petroleum consumed in Georgia as diesel fuel or jet fuel.^{80,81} In 2020, the state's industrial sector was the second-largest petroleum consumer, and it used about 7% of the petroleum consumed in Georgia. The commercial sector accounted for almost 3% and the residential sector, where about 3 in 100 households heat with petroleum products, mostly propane, consumed almost all the rest.⁸² The electric power sector used a very small amount of petroleum.⁸³

Natural gas

Georgia does not have any natural gas proved reserves or production.^{84,85} However, in 2018, in part because of increased interest in shale gas exploration in northern Georgia, the state established an oil and gas board to review and issue permits related to drilling and hydraulic fracturing activities.⁸⁶ Georgia receives the natural gas it needs from other states by pipeline. In the past it received natural gas from other countries through the Elba Island liquefied natural gas (LNG) import terminal.⁸⁷ LNG imports peaked in 2007, but as U.S. natural gas production increased in recent years, Georgia import volumes went from a peak of more than 170 billion cubic feet in 2007 to none in 2021.⁸⁸ Because of shifting market conditions, the Elba Island terminal added liquefaction facilities to enable the export of up to 350 million cubic feet of natural gas per day. The terminal began commercial export operations in August 2020.^{89,90} In 2021, the Elba Island export terminal sent 84 billion cubic feet of LNG to several other countries. Most of the natural gas supply that arrives by pipeline enters Georgia through Alabama. In 2021, almost three-fifths of the natural gas that entered Georgia left the state. Most of it continued on to South Carolina and Florida.⁹¹

Georgia's Elba Island LNG import terminal added LNG export facilities that began operations in 2020.

Although natural gas consumption in Georgia is greater than in three-fourths of the states, Georgia's per capita consumption is less than in about two-thirds of the states.⁹² Between 2011 and 2021, natural gas use by the state's electric power sector more than doubled.⁹³ More than half (55% in 2021) of the natural gas delivered to Georgia consumers is used for electricity generation, making the electric power sector the largest natural gas consumer.⁹⁴ The industrial sector was the second-largest natural gas consumer and accounted for one-fifth of state use. The residential sector, where more than one in three Georgia households use natural gas for home heating, consumed one-sixth, in part because the state's climate is warm and humid during most of the year, limiting heating demand.^{95,96,97} In 2021, the commercial sector used most of the rest. The transportation sector consumed a small amount of natural gas as vehicle fuel.⁹⁸ The state has 17 public access and 25 private access compressed natural gas vehicle fueling stations.⁹⁹

Coal

Georgia has no active coal mines and only a small amount of recoverable coal reserves.¹⁰⁰ Some coal mining occurred in Georgia as early as the 1830s, but commercial production ended in the mid-1980s.¹⁰¹ As coal-fired power plants in the state retired during the past decade, coal consumption in Georgia declined from almost 36 million tons in 2010 to about 10 million tons in 2021. Almost all of that coal fuels electricity generation, but nearly 3% of the coal consumed in Georgia goes to industrial facilities.¹⁰² In 2021, coal from Wyoming, Illinois, and a few other states went to Georgia's three coal-fired power plants, and the state's industrial consumers received coal from Kentucky.^{103,104} The Port of

Savannah handles a small amount of U.S. coal exports. In 2019, for the first time since 2015, a small amount of imported coal entered at the Savannah port. However, no coal imports arrived there in 2020 or 2021.¹⁰⁵

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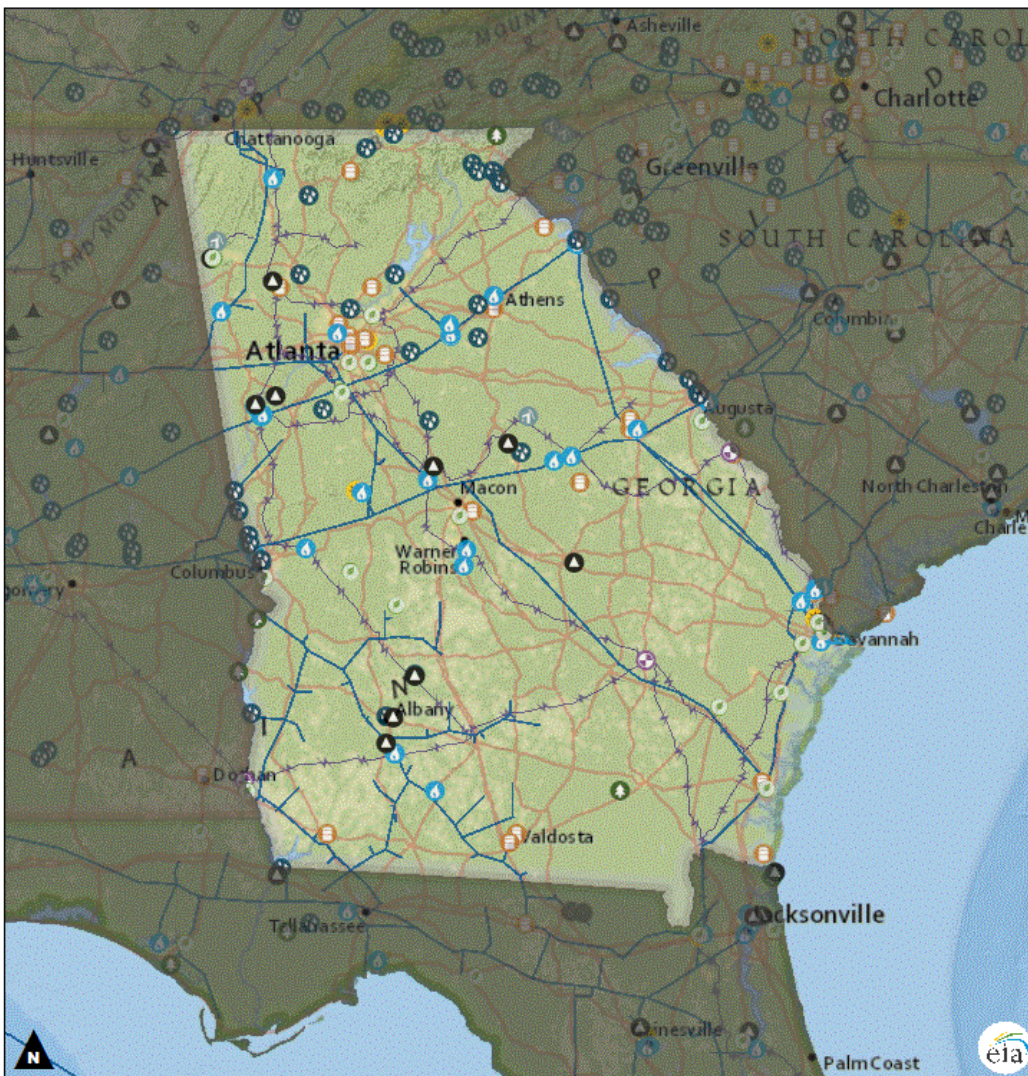
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Grey Base: National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS,

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| ■ Mask | ⊕ Hydroelectric Power Plant | ⬆ Pumped Storage Power Plant |
| ▲ Surface Coal Mine | ⊕ Natural Gas Power Plant | ☀ Solar Power Plant |
| ▼ Underground Coal Mine | ⊕ Nuclear Power Plant | ⊕ Wind Power Plant |
| ⊕ Biomass Power Plant | ● Other Power Plant | ⊕ Wood Power Plant |
| ⊕ Coal Power Plant | ⊕ Other Fossil Gases Power Plant | ⊕ Petroleum Refinery |
| ⊕ Geothermal Power Plant | ⊕ Petroleum Power Plant | ⊕ Strategic Petroleum Reserve |

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