



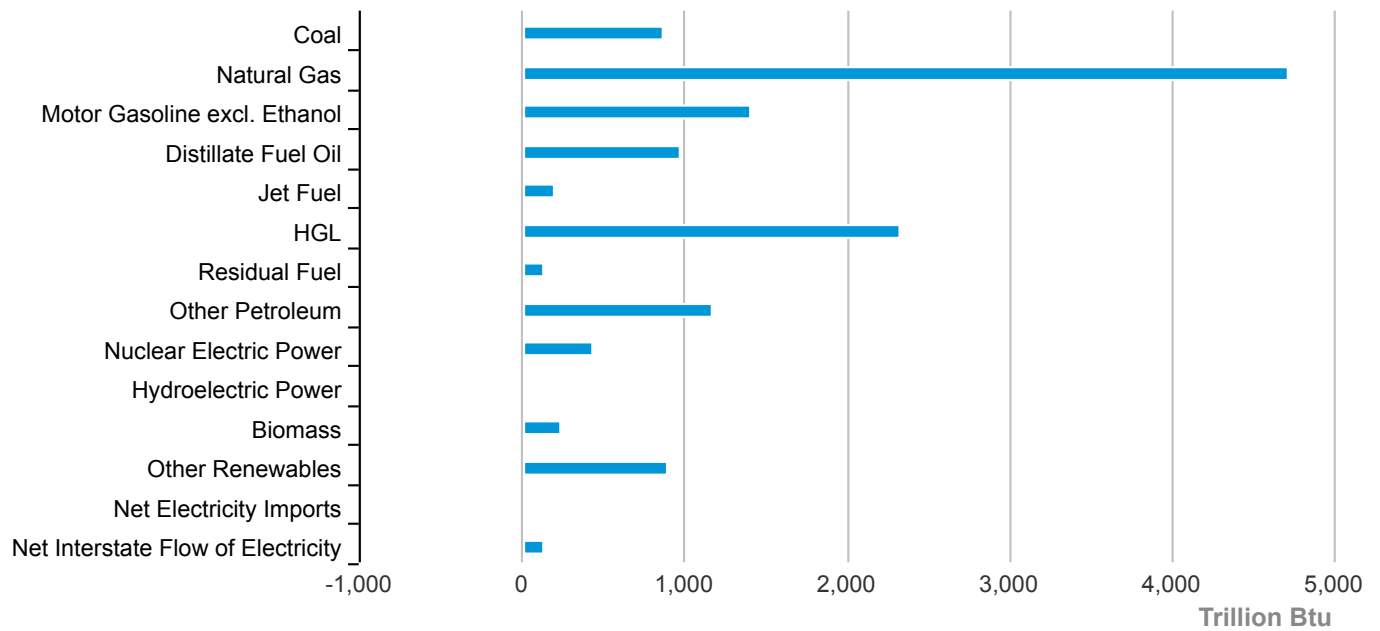
Texas State Energy Profile

Texas Quick Facts

- Texas is the top crude oil- and natural gas-producing state in the nation. In 2021, Texas accounted for 43% of the nation's crude oil production and 25% of its marketed natural gas production.
- Texas has the most crude oil refineries and the most refining capacity of any state. The 31 petroleum refineries in Texas can process a combined total of almost 5.9 million barrels of crude oil per calendar day—32% of the nation's refining capacity as of January 2021.
- In 2021, Texas produced about 26% of all U.S. wind-powered electricity generation, leading the nation for the 16th year in a row. Wind power surpassed the state's nuclear generation for the first time in 2014 and exceeded coal-fired generation for the first time in 2019.
- Texas produces more electricity than any other state, generating nearly twice as much as second-place Florida. In 2021, Texas accounted for about 12% of the nation's total electricity net generation.
- Texas leads the nation in energy consumption across all sectors and is the largest energy-consuming state in the nation. The industrial sector, including the state's refineries and petrochemical plants, accounts for more than half of the state's energy consumption and for 23% of the nation's total industrial sector energy use.

Last Updated: May 19, 2022

Texas Energy Consumption Estimates, 2020



Source: Energy Information Administration, State Energy Data System

Data

Last Update: December 15, 2022 | **Next Update:** January 19, 2023

Energy Indicators

Demography	Texas	Share of U.S.	Period
Population	29.5 million	8.9%	2021
Civilian Labor Force	14.6 million	8.9%	Oct-22
Economy	Texas	U.S. Rank	Period
Gross Domestic Product	\$ 1,985.3 billion	2	2021
Gross Domestic Product for the Manufacturing Sector	\$ 231,999 million	2	2021
Per Capita Personal Income	\$ 59,674	25	2021
Vehicle Miles Traveled	260,582 million miles	2	2020
Land in Farms	127.0 million acres	1	2017
Climate	Texas	U.S. Rank	Period
Average Temperature	66.1 degrees Fahrenheit	3	2021
Precipitation	28.9 inches	34	2021

Prices

Petroleum	Texas	U.S. Average	Period	find more
Domestic Crude Oil First Purchase	\$ 84.81 /barrel	\$ 84.59 /barrel	Sep-22	
Natural Gas	Texas	U.S. Average	Period	find more
City Gate	\$ 9.27 /thousand cu ft	\$ 9.81 /thousand cu ft	Sep-22	find more
Residential	\$ 31.90 /thousand cu ft	\$ 24.60 /thousand cu ft	Sep-22	find more
Coal	Texas	U.S. Average	Period	find more

Average Sales Price	\$ 20.40 /short ton	\$ 36.50 /short ton	2021
Delivered to Electric Power Sector	W	\$ 2.51 /million Btu	Sep-22
Electricity	Texas	U.S. Average	Period find more
Residential	14.47 cents/kWh	16.32 cents/kWh	Sep-22 find more
Commercial	9.72 cents/kWh	13.45 cents/kWh	Sep-22 find more
Industrial	7.67 cents/kWh	9.34 cents/kWh	Sep-22 find more

Reserves

Reserves	Texas	Share of U.S.	Period	find more
Crude Oil (as of Dec. 31)	15,612 million barrels	43.6%	2020	find more
Expected Future Production of Dry Natural Gas (as of Dec. 31)	102,370 billion cu ft	23.0%	2020	find more
Expected Future Production of Natural Gas Plant Liquids	9,467 million barrels	45.7%	2020	find more
Recoverable Coal at Producing Mines	292 million short tons	2.4%	2021	find more
Rotary Rigs & Wells	Texas	Share of U.S.	Period	find more
Natural Gas Producing Wells	118,957 wells	24.6%	2020	find more
Capacity	Texas	Share of U.S.	Period	
Crude Oil Refinery Capacity (as of Jan. 1)	5,948,529 barrels/calendar day	33.2%	2022	
Electric Power Industry Net Summer Capacity	144,579 MW	12.5%	Sep-22	

Supply & Distribution

Production	Texas	Share of U.S.	Period	find more
Total Energy	23,329 trillion Btu	24.4%	2020	find more
Crude Oil	5,145 thousand barrels per day	41.9%	Sep-22	find more
Natural Gas - Marketed	9,875,390 million cu ft	26.5%	2021	find more
Coal	17,250 thousand short tons	3.0%	2021	find more
Total Utility-Scale Net Electricity Generation	Texas	Share of U.S.	Period	find more
Total Net Electricity Generation	45,131 thousand MWh	12.9%	Sep-22	
Utility-Scale Net Electricity Generation (share of total)	Texas	U.S. Average	Period	
Petroleum-Fired	NM	0.3 %	Sep-22	find more
Natural Gas-Fired	56.1 %	44.6 %	Sep-22	find more
Coal-Fired	16.4 %	18.5 %	Sep-22	find more
Nuclear	7.4 %	18.2 %	Sep-22	find more
Renewables	19.6 %	17.9 %	Sep-22	
Stocks	Texas	Share of U.S.	Period	find more
Motor Gasoline (Excludes Pipelines)	3,670 thousand barrels	31.2%	Sep-22	
Distillate Fuel Oil (Excludes Pipelines)	20,710 thousand barrels	25.5%	Sep-22	find more
Natural Gas in Underground Storage	677,514 million cu ft	8.9%	Sep-22	find more
Petroleum Stocks at Electric Power Producers	1,864 thousand barrels	8.2%	Sep-22	find more
Coal Stocks at Electric Power	6,602 thousand tons	8.2%	Sep-22	find more

Producers

Fueling Stations	Texas	Share of U.S.	Period
Motor Gasoline	11,388 stations	10.1%	2019
Propane	352 stations	14.1%	2022
Electricity	2,189 stations	4.7%	2022
E85	264 stations	6.4%	2022
Compressed Natural Gas and Other Alternative Fuels	91 stations	7.0%	2022

Consumption & Expenditures

Summary	Texas	U.S. Rank	Period	
Total Consumption	13,481 trillion Btu	1	2020	find more
Total Consumption per Capita	461 million Btu	6	2020	find more
Total Expenditures	\$ 108,196 million	2	2020	find more
Total Expenditures per Capita	\$ 3,703	10	2020	find more
by End-Use Sector	Texas	Share of U.S.	Period	
Consumption				
» Residential	1,744 trillion Btu	8.5%	2020	find more
» Commercial	1,631 trillion Btu	9.7%	2020	find more
» Industrial	7,266 trillion Btu	23.2%	2020	find more
» Transportation	2,840 trillion Btu	11.7%	2020	find more
Expenditures				
» Residential	\$ 21,054 million	8.1%	2020	find more
» Commercial	\$ 12,865 million	7.4%	2020	find more
» Industrial	\$ 34,347 million	20.6%	2020	find more
» Transportation	\$ 39,930 million	9.8%	2020	find more

by Source	Texas	Share of U.S.	Period	
Consumption				
» Petroleum	1,432 million barrels	21.5%	2020	find more
» Natural Gas	4,609 billion cu ft	15.1%	2020	find more
» Coal	56 million short tons	11.8%	2020	find more
Expenditures				
» Petroleum	\$ 66,034 million	13.1%	2020	find more
» Natural Gas	\$ 10,636 million	7.9%	2020	find more
» Coal	\$ 1,792 million	9.2%	2020	find more
Consumption for Electricity Generation	Texas	Share of U.S.	Period	find more
Petroleum	NM	NM	Sep-22	find more
Natural Gas	184,241 million cu ft	16.1%	Sep-22	find more
Coal	5,181 thousand short tons	14.0%	Sep-22	find more
Energy Source Used Texas for Home Heating (share of households)		U.S. Average	Period	
Natural Gas	33.8 %	46.5 %	2021	
Fuel Oil	0.1 %	4.1 %	2021	
Electricity	61.9 %	41.0 %	2021	
Propane	3.0 %	5.0 %	2021	
Other/None	1.2 %	3.5 %	2021	

Environment

Renewable Energy Capacity	Texas	Share of U.S.	Period	find more
Total Renewable Energy Electricity Net Summer Capacity	48,992 MW	16.2%	Oct-22	

Ethanol Plant Nameplate Capacity	380 million gal/year	2.2%	2022	
Renewable Energy Production	Texas	Share of U.S.	Period	find more
Utility-Scale Hydroelectric Net Electricity Generation	44 thousand MWh	0.3%	Sep-22	
Utility-Scale Solar, Wind, and Geothermal Net Electricity Generation	8,678 thousand MWh	20.7%	Sep-22	
Utility-Scale Biomass Net Electricity Generation	129 thousand MWh	3.0%	Sep-22	
Small-Scale Solar Photovoltaic Generation	307 thousand MWh	5.6%	Sep-22	
Fuel Ethanol Production	5,549 thousand barrels	1.7%	2020	
Renewable Energy Consumption	Texas	U.S. Rank	Period	find more
Renewable Energy Consumption as a Share of State Total	8.5 %	31	2020	
Fuel Ethanol Consumption	31,926 thousand barrels	1	2020	
Total Emissions	Texas	Share of U.S.	Period	find more
Carbon Dioxide	683.2 million metric tons	13.2%	2019	
Electric Power Industry Emissions	Texas	Share of U.S.	Period	find more
Carbon Dioxide	206,175 thousand metric tons	12.5%	2021	
Sulfur Dioxide	148 thousand metric tons	12.7%	2021	
Nitrogen Oxide	148 thousand metric tons	11.8%	2021	

Analysis

Last Updated: May 19, 2022

Texas is a large state with a wealth of energy resources. It leads the nation in energy production, providing nearly one-fourth of the country's domestically produced energy.¹ Second only to Alaska in total land area, Texas stretches about 800 miles at its widest points, east to west and north to south, and crude oil and natural gas fields are present across much of that expanse.^{2,3} Coal is found in bands that cut across the eastern Texas coastal plain and in other areas in the north-central and southwestern parts of the state.⁴ Texas also has abundant renewable energy resources and is first in the nation in wind-generated electricity.⁵ With a significant number of sunny days across vast distances, Texas is also among the leading states in solar energy potential.^{6,7,8} Geothermal resources suitable for power generation are present in eastern and southern Texas.⁹ Uranium—the fuel for nuclear reactors—was mined from sandstone deposits in the Texas coastal plain as early as 1961, and significant resources remain.^{10,11} More recently, a project that will mine rare earth elements and other critical minerals is in development in southwest Texas. These minerals are used in many energy-related technologies.^{12,13,14}

Texas is the nation's largest net energy supplier.

Texas ranks second in the nation, after California, in both population and the size of its economy.^{15,16} Texas also accounts for about one-seventh of the nation's total energy consumption, more than any other state, and it is sixth among the states in per capita energy consumption.¹⁷ However, because Texas produces much more energy than it consumes, it is the nation's largest net energy supplier.¹⁸ The Texas industrial sector includes the energy-intensive chemical manufacturing and petroleum industries, and industry is the state's largest energy consumer. It accounts for slightly more than half of the state's total end-use sector energy consumption.^{19,20} Transportation is the second-largest energy user in Texas. It accounts for almost one-fourth of the state's total end-use energy consumption, in part because of the large number of registered motor vehicles in Texas, the great distances across the state, and the resulting high number of vehicle miles traveled annually.^{21,22,23}

The Texas climate varies significantly from east to west. Warm, moist air from the Gulf of Mexico sweeps westward across the state, losing moisture as it goes. The result is a climate that ranges from humid and subtropical along the coast, where much of the state's population resides, to semi-arid on the high plains of central and western Texas, and arid in the state's mountainous west. Frequent freezing temperatures occur in winter in the lightly populated high plains, and summer temperatures average above 90°F in the most densely populated parts of Texas where energy use for cooling is high.^{24,25,26} Even so, the residential sector accounts for just one-eighth of the state's total end-use energy consumption. In part

because of the state's large population, Texas leads the nation in total residential energy use, but it ranks among the lowest one-fifth of states in per capita residential energy consumption.²⁷ The commercial sector accounts for almost as much energy consumption as the residential sector.²⁸

Petroleum

Texas has led all states in crude oil production in every year but one since at least 1970.²⁹ The state accounts for more than two-fifths of the nation's crude oil proved reserves and production.³⁰ In 29 of the past 41 years, it also produced more crude oil than all the federal offshore producing areas combined.³¹

More than one-fourth of the nation's 100 largest oil fields by reserves are in Texas. Many of those fields are in the Permian Basin of West Texas and in the Eagle Ford Shale of South Texas.³² The discovery of the Spindletop oil field in East Texas started the state's first major oil boom in 1901. That field's annual production peaked at 17.5 million barrels in 1902, but quickly declined.³³ Later discoveries led to increased state crude oil production until 1972, when Texas' annual crude oil production peaked at slightly more than 1.26 billion barrels. Output fell in subsequent years, and by 2007 production was only

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slightly more than one-fourth of the 1972 peak.³⁴ However, production rose again, most sharply after 2010, as hydraulically fractured horizontal wells drilled in both the Permian Basin and the Eagle Ford shale led to increased crude oil production.^{35,36,37} In 2017, Texas oil production exceeded the state's 1972 peak for the first time, and in 2019 annual output reached a new high of 1.85 billion barrels. In 2020, annual production fell slightly to nearly 1.8 billion barrels in part because of lower demand during the COVID-19 global pandemic. Although overall production was down to less than 1.75 billion barrels in 2021, it was largely due to the weather-related production decrease in February of that year, which disrupted the otherwise steady increase in production as demand and prices increased.^{38,39} West Texas Intermediate (WTI), a light (low density), sweet (low sulfur content) crude oil produced in Texas and elsewhere, is the benchmark for crude oil pricing in North America in both the physical and futures markets. WTI is a standard in part because of its ample supply and because of its proximity to a major market trading hub at Cushing, Oklahoma.⁴⁰

Texas is home to two of the nation's four U.S. Strategic Petroleum Reserve (SPR) crude oil storage sites. SPR was created to reduce the impacts of supply disruptions. The Reserve, managed by the U.S. Department of Energy (DOE), can hold a combined total of up to 714 million barrels of crude oil in 60 huge underground salt caverns. The Texas sites have a combined storage capacity of 417 million barrels and are located in salt caverns in the state's Gulf Coast region.⁴¹ In 2021, SPR sold millions of barrels of crude oil to counter market disruptions caused, in part, by the COVID-19 pandemic.⁴² In 2022, SPR

released more crude oil to ensure an adequate supply of petroleum in response to Russia's invasion of Ukraine.⁴³

Texas also leads the nation in crude oil refining. The majority of the Texas refineries are clustered near ports along the Gulf Coast, and that region has the largest concentration of oil refineries in the United States.⁴⁴ Texas has about one-fourth of the nation's operable refineries and nearly one-third of the total U.S. refining capacity. The state's 31 petroleum refineries can process a combined total of almost 5.9 million barrels of crude oil per calendar day.^{45,46} The nation's largest refinery is in Port Arthur, Texas, and it alone can process about 607,000 barrels of crude oil per calendar day.⁴⁷ Many of the Texas refineries are complex facilities that can process a wide variety of crude oil types into high-value products, such as motor gasoline, and into feedstocks for the chemical industry.^{48,49,50} Texas petroleum products are sent from the state's refineries by interstate pipeline, barge, and tanker to U.S. markets, primarily in the eastern and central states, and some are shipped to foreign markets.^{51,52} In February 2021, an extreme winter weather event temporarily shut down refineries along the Gulf Coast. Texas refinery infrastructure is vulnerable to shutdowns during hurricane season as well.^{53,54}

Texas consumes more petroleum than any other state and ranks second in per capita petroleum use by volume.⁵⁵ Unlike all other states, except Louisiana, the industrial sector is the largest petroleum consumer in Texas, accounting for almost two-thirds of state use.⁵⁶ Texas is also the nation's largest consumer of hydrocarbon gas liquids (HGLs), distillate fuel oil including diesel fuel for highway use, and residual fuel oil. The state uses more HGLs, including propane and ethane, than all other states combined.⁵⁷ The industrial sector uses almost all the HGLs consumed in Texas as feedstock for the state's petrochemical industry.^{58,59} The transportation sector uses almost all the rest of the petroleum consumed in Texas. The commercial and residential sectors together account for about 1% of the petroleum consumed in the state. The commercial sector uses almost three times as much petroleum as the residential sector, where less than 3% of households use petroleum products, primarily propane, for space heating.^{60,61}

Much of Texas can use conventional motor gasoline without ethanol, but the eastern half of the state and El Paso County at the state's extreme western tip require several different motor gasoline blends to meet diverse clean air-quality requirements. The metropolitan areas of Greater Houston and Dallas-Fort Worth require reformulated motor gasoline blended with ethanol.⁶² Texas has four fuel ethanol plants that, in total, can produce almost 10 million barrels of ethanol per year. Because Texans consume three times more fuel ethanol than the state's plants can produce, additional supplies come from out of state.^{63,64,65} In 2020, fuel ethanol producers significantly reduced production in part because of reduced demand during the COVID-19 pandemic. In February 2021, an extreme winter weather event also sharply reduced fuel ethanol production in Texas.⁶⁶

Natural gas

Nearly one-fourth of U.S. proved dry natural gas reserves and about 30 of the 100 largest natural gas fields are located, in whole or in part, in Texas.^{67,68}

In 2021, the state produced one-fourth of the nation's natural gas. Gross withdrawals of natural gas reached an all-time high of 10.5 trillion cubic feet, even though an extreme winter weather event temporarily reduced the state's dry natural gas production by almost half during February 2021.^{69,70,71} Most of the past decade's increase in Texas natural gas production was from the Eagle Ford shale and the Permian Basin, where advances in horizontal drilling and hydraulic fracturing technologies improved production from shales and other low permeability formations.^{72,73,74}

Texas accounts for one-fourth of the nation's natural gas production.

Texas has 17,000 miles of interstate natural gas pipelines within its borders.⁷⁵ Those pipelines transport natural gas from Texas across the nation and into Mexico.⁷⁶ Large volumes of natural gas enter the state, primarily through Oklahoma, Louisiana, and New Mexico, but more natural gas leaves the state than enters. In 2020, almost three times more natural gas left Texas than entered the state. Nearly half of the natural gas that leaves Texas goes to other countries, primarily Mexico. Most of the rest continues on to Louisiana.⁷⁷

Texas has liquefied natural gas (LNG) terminals along its Gulf Coast at Freeport, Corpus Christi, and Sabine Pass.^{78,79} The Corpus Christi LNG export facility began operating in 2018.⁸⁰ As natural gas production increased, several of the nation's LNG import terminals converted to or added export facilities. The Freeport LNG import terminal converted into an export terminal and began export operations in 2019.⁸¹ The Golden Pass LNG terminal at Sabine Pass is also adding export facilities and is expected to be operational in 2024.⁸² In 2020, Texas LNG terminals accounted for about half of U.S. LNG exports.⁸³

Texas produces more natural gas than it consumes or sends out of state, and some of its natural gas is placed in underground storage.^{84,85,86} The state has about one-tenth of the U.S. total underground natural gas storage capacity.⁸⁷ More than half of the state's 35 active storage reservoirs—about 70% of the state's natural gas working gas storage capacity—are in depleted oil and gas fields converted for storage use. The rest are in salt caverns.⁸⁸

Texas is the nation's largest natural gas consumer, accounting for 15% of the U.S. total.⁸⁹ The industrial and electric power sectors each account for almost two-fifths of state natural gas use.⁹⁰ The industrial sector in Texas accounted for about 22% of the nation's total industrial sector natural gas consumption in

2020.⁹¹ The amount of natural gas used for electricity generation in Texas is greater than in any other state and accounted for about 15% of the U.S. electric power sector's total in 2020.⁹² Texas uses almost twice as much natural gas in the production, processing, and distribution of natural gas as is consumed in the state's commercial and residential end-use sectors combined. In 2020, the residential and commercial end-use sectors together accounted for about 8% of all the natural gas consumed in Texas.⁹³ More than one-third of Texas households rely on natural gas as their primary heating fuel, but the state's per capita residential natural gas use ranks among the lowest one-fourth of states.^{94,95,96}

Coal

Texas has an estimated 9 billion tons of recoverable coal reserves, almost 4% of the nation's total.⁹⁷ The state is the second-largest lignite producer in the United States, after North Dakota, and the ninth-largest coal producer overall.⁹⁸ Lignite is the rank of coal with the lowest heat value. It is used almost exclusively for power generation, usually at power plants near producing lignite mines.⁹⁹ Substantial lignite deposits are found in a broad band in the Texas Gulf Coast region from the Rio Grande to the Arkansas border.¹⁰⁰ Higher-grade bituminous coal occurs in deposits in north-central Texas west of Fort Worth and in small areas in the center of the state and along the state's southern border.¹⁰¹ Although underground mines produced most of the coal in Texas before the mid-1950s, those mines closed decades ago, and now surface mines produce all of the state's coal.¹⁰² Currently, six mines produce lignite, and one produces bituminous coal.¹⁰³

Texas is the second-largest lignite producer in the nation.

Texas is the nation's largest coal consumer.¹⁰⁴ On a tonnage basis, Texas lignite accounts for almost one-third of the state's coal consumption, with nearly all the rest of the state's needs met by subbituminous coal brought from Wyoming by rail. Texas consumes all of the lignite mined within the state and uses almost all of it to generate electricity. Railroads, trucks, and conveyor belts deliver the lignite to Texas power plants. Industrial facilities in the state receive small amounts of coal from Colorado, Texas, and Oklahoma.^{105,106}

Electricity

Texas produces more electricity than any other state, generating almost twice as much as the second-highest electricity-producing state, Florida.¹⁰⁷ Natural gas-fired power plants supplied about half the electricity generated in Texas in 2021. Natural gas fuels more electricity net generation in Texas than in any other state and accounts for 15% of all U.S. natural gas-fired generation.¹⁰⁸ Wind is the second-largest

Texas generates more electricity than any other state, almost twice as much as

second-place Florida.

source of in-state generation in Texas. In 2021, wind supplied one-fifth of Texas' in-state utility-scale (1 megawatt or larger) generation, providing more in-state power than coal for the second year in a row. Because of the increase in wind power and the retirement of almost 6,000 megawatts of coal-fired generating capacity, coal-fired power plants supplied 18% of state generation in 2021, down from a 36% share in 2011.¹⁰⁹ The state's two operating nuclear power plants supplied 8% of the state's electricity net generation in 2021.¹¹⁰ Most of the rest of the utility-scale generation in Texas is from renewable resources including solar, biomass, and hydroelectric power, as well as from other gases that are refinery byproducts.¹¹¹

The Electricity Reliability Council of Texas (ERCOT) operates the state's main power grid. The ERCOT grid operates completely within Texas and serves about 75% of the state's land area and 26 million customers.^{112,113} The ERCOT grid has few connections with the other interconnected power systems that serve the eastern and western contiguous United States.¹¹⁴ Because the ERCOT service area does not extend across the state's borders, ERCOT is not subject to federal oversight and is, for the most part, dependent on its own resources to meet the state's electricity needs.¹¹⁵ In February 2021, a major winter weather system, with extreme cold temperatures spread across much of the central United States, disrupted energy systems and caused serious health and safety issues, particularly in Texas. The cold weather increased energy demand and also affected energy supply, causing intense and widespread energy market disruptions. Notably, electricity deliveries were disrupted in the parts of Texas served by ERCOT because of the limited number of connections the ERCOT grid has with the nation's larger interconnected grids.¹¹⁶

Texas is the nation's largest electricity consumer, but per capita consumption in Texas is less than in about three-tenths of the states. Texas also leads the nation in residential sector electricity consumption, but like total use, the state's residential per capita consumption is less than in almost one-third of the states.¹¹⁷ The largest share of the state's electricity goes to the residential sector, where three in five Texas households use electricity as their primary source for home heating. However, the state's electricity demand peaks during the hot summer months with the increased use of electricity for air conditioning.^{118,119} In 1999, Texas became the first state to establish an energy efficiency resource standard (EERS) that requires the state's investor-owned electric utilities to reduce energy usage.¹²⁰

Renewable energy

Renewable resources provided about one-fourth of in-state electricity net generation in Texas in 2021. The state accounted for about 14% of the nation's total electricity generation from all renewable sources and about one-fifth of the nation's electricity generation from nonhydroelectric renewable sources.¹²¹

Wind accounts for more than four-fifths of the electricity generated from renewable resources in Texas. In

2021, the state led the nation in wind-powered electricity generation, producing more than one-fourth of the U.S. total.^{122,123} Texas regulators designated several high-quality wind resource areas in the western part of the state as Competitive Renewable Energy Zones (CREZ). Transmission service providers proposed and built transmission lines in the CREZ to bring electricity from remote wind farms in the west to urban market centers in the eastern part of the state.¹²⁴ In 2011, Texas became the first, and until 2020 the only, state to reach 10,000 megawatts of wind generating capacity.¹²⁵ By January 2022, Texas had more than 35,000 megawatts of wind capacity, which was more than one-fourth of the state's total generating capacity and almost four-fifths of its renewable generating capacity.¹²⁶

Texas leads the nation in wind-powered electricity generation.

Texas ranks sixth in the nation in solar power potential.¹²⁷ In 2021, the state was the country's second-largest producer, after California, of solar photovoltaic (PV)-sourced power. Solar capacity at the state's large- and small-scale (less than 1 megawatt) facilities nearly doubled between December 2020 and December 2021, when it rose from 5,987 to 10,329 megawatts.¹²⁸ Solar energy accounted for about 3% of the state's total electricity generation, and small-scale solar facilities provided about one-seventh of that total.¹²⁹

Biomass fueled about 0.3% of Texas utility-scale in-state electricity generation in 2021, more than two-thirds of it from wood or wood-derived fuels.¹³⁰ The state also has a large wood pellet plant that processes wood waste into pellets. That plant has a capacity of about 500,000 tons per year.^{131,132} Texas also has several biogas facilities that recycle organic waste into renewable energy. Most are at wastewater treatment centers and landfills. Two anaerobic digesters, located in the state's panhandle, process manure and agricultural waste into methane.¹³³ Texas produces liquid biofuels at four fuel ethanol plants in the agriculturally rich high plains region in the Texas Panhandle. Those plants can produce about 400 million gallons of fuel ethanol per year from corn and sorghum feedstocks.^{134,135} The state also has 8 biodiesel plants that can produce about 380 million gallons of biodiesel each year.¹³⁶ A new refinery in Newton County, Texas, will process one million tons of wood waste into a variety of biofuels, including sustainable aviation fuel and renewable diesel.¹³⁷

The relatively gentle terrain and low rainfall throughout much of Texas are not conducive to hydroelectric power development, and fewer than two dozen hydroelectric power plants contribute less than 0.3% of in-state electricity generation.¹³⁸ Although there are a large number of non-powered dams in Texas, there is limited potential for further hydroelectric development.¹³⁹ Thousands of crude oil and natural gas wells in Texas produce billions of barrels of non-potable water annually as a byproduct of crude oil and natural gas production. That water, as hot as 200°C, is a potential geothermal resource that could be

used to generate electricity. Direct-use applications, such as ground-source heat pumps, use low-temperature geothermal resources at locations around the state.¹⁴⁰

In 1999, the Texas Public Utility Commission adopted rules for the state's renewable energy mandate. The mandate required 10,000 megawatts of renewable capacity by 2025, including 500 megawatts from resources other than wind. Texas exceeded the 2025 goal in 2009, mostly because of the state's wind farms.¹⁴¹ In January 2022, the state had more than 9,900 megawatts of utility-scale renewable capacity from sources other than wind, and, when small-scale solar is included, the state had almost 11,500 megawatts of non-wind renewable generating capacity.¹⁴²

Endnotes

¹ U.S. Energy Information Administration (EIA), State Energy Data System, Table P2, Energy Production Estimates in Trillion Btu, 2019.

² Texas State Historical Association, Texas Almanac, Environment, The Physical State of Texas, accessed April 2, 2022.

³ U.S. EIA, Texas, Profile Overview, Map Layers/Legends, Oil and Gas Wells, accessed April 2, 2022.

⁴ U.S. EIA, Texas, Profile Overview, Map Layers/Legends, All Coal Mines, Coal Field, accessed April 2, 2022.

⁵ U.S. EIA, Electricity Data Browser, Net generation for all sectors, All states, Wind, Annual, 2021.

⁶ Bomar, George W., Weather, The Handbook of Texas Online, accessed April 2, 2022.

⁷ Roberts, Billy J., Direct Normal Solar Irradiance, National Renewable Energy Laboratory (February 22, 2018).

⁸ Nebraska Energy Office, Comparison of Solar Power Potential by State, updated March 11, 2010.

⁹ Roberts, Billy J., Geothermal Resources of the United States, Map, National Renewable Energy Laboratory (February 22, 2018).

¹⁰ Texas Bureau of Economic Geology, Uranium, accessed April 2, 2022.

¹¹ Uranium Producers of America, Uranium in America, Uranium in Texas, accessed April 2, 2022.

¹² Texas Comptroller of Public Accounts, Texas Comptroller Visits USA Rare Earth's Round Top Project for Good for Texas Tour: Supply Chains Edition, Press Release (October 27, 2021).

¹³ Friend, Daniel, Texas Could Play Central Role in Shift Away from China's Rare Earth Dominance, The Texan (December 27, 2021).

¹⁴ PR Newswire, "Importance of Rare Earth Elements (REEs) soars as Demand Increases," Press Release (March 16, 2021).

¹⁵ U.S. Census Bureau, State Population Totals and Components of Change: 2020-2021, Annual Estimates of the Resident Population for the United States, Regions, States, District of Columbia, and

Puerto Rico: April 1, 2020 to July 1, 2021.

¹⁶ U.S. Bureau of Economic Analysis, Interactive Data, Regional Data, GDP and Personal Income, Annual Gross Domestic Product (GDP) by State, GDP in current dollars, NAICS, All Areas, All Industry Total, 2021.

¹⁷ U.S. EIA, State Energy Data System, Table C14, Energy Consumption Estimates per Capita by End-Use Sector, Ranked by State, 2018.

¹⁸ U.S. EIA, State Energy Data System, Table P3, Total Primary Energy Production and Total Energy Consumption Estimates in Trillion Btu, 2019.

¹⁹ U.S. EIA, Use of Energy Explained, Energy Use in Industry, updated August 2, 2021.

²⁰ U.S. Bureau of Economic Analysis, Regional Data, GDP and Personal Income, Annual Gross Domestic Product (GDP) by State, GDP in current dollars, Texas, All statistics in table, 2021.

²¹ U.S. EIA, State Energy Data System, Table C11, Energy Consumption Estimates by End-Use Sector, Ranked by State, 2019.

²² Federal Highway Administration, Policy and Governmental Affairs, Office of Highway Policy Information, Highway Statistics 2016, Table MV-1, State Motor-Vehicle Registrations, 2020 (December 2021).

²³ Federal Highway Administration, Policy and Governmental Affairs, Office of Highway Policy Information, Highway Statistics 2018, Table VM-2, Functional System Travel, 2020, Annual Vehicle Miles (October 26, 2021).

²⁴ Bomar, George W., Weather, The Handbook of Texas Online, accessed April 2, 2022.

²⁵ U.S. Census Bureau, 2010 Census: Texas Profile, Population Density by Census Tract.

²⁶ U.S. EIA, Residential Energy Consumption Survey (RECS), 2009 RECS Survey Data, Air conditioning, Table HC7.10, Air Conditioning in Homes in South Region, Divisions, and States, 2009.

²⁷ U.S. EIA, State Energy Data System, Table C13, Energy Consumption Estimates per Capita by End-Use Sector, Ranked by State, 2019.

²⁸ U.S. EIA, State Energy Data System, Table C11, Energy Consumption Estimates by End-Use Sector, Ranked by State, 2019.

²⁹ U.S. EIA, "U.S. crude oil production grew 17% in 2018, surpassing the previous record in 1970," Today in Energy (April 9, 2019).

³⁰ U.S. EIA, Crude Oil Proved Reserves, Reserve Changes, and Production, Proved Reserves as of 12/31 and Estimated Production, 2020.

³¹ U.S. EIA, Crude Oil Production, Texas, Federal Offshore-Gulf of Mexico, Federal Offshore-PADD 5, Annual-Thousand Barrels, 1981-2021.

³² U.S. EIA, Top 100 U.S. Oil & Gas Fields (March 2015), p. 5-7, 11.

³³ Wooster, Robert, and Christine Moor Sanders, "Spindletop Oilfield," Texas State Historical

Association, updated April 2, 2019.

³⁴ The Railroad Commission of Texas, Historical Crude Oil Production and Well Counts, History of Texas Initial Crude Oil, Annual Production and Producing Wells Since 1935, 1935-2018.

³⁵ U.S. EIA, U.S. tight oil production—selected plays, 2007-2021.

³⁶ U.S. EIA, "Horizontally drilled wells dominate U.S. tight formation production," Today in Energy (June 6, 2019).

³⁷ U.S. EIA, "Hydraulically fractured horizontal wells account for most new oil and natural gas wells," Today in Energy (December 20, 2018).

³⁸ U.S. EIA, Texas Field Production of Crude Oil, Annual, Thousand Barrels and Monthly Thousand Barrels, 1981-2021.

³⁹ U.S. EIA, NYMEX Futures Prices, Crude Oil in Dollars per Barrel, Monthly, 1983-2022.

⁴⁰ U.S. EIA, "Benchmarks play an important role in pricing crude oil," Today in Energy (October 28, 2014).

⁴¹ U.S. Department of Energy, Fossil Energy, SPR Storage Sites, accessed April 6, 2022.

⁴² U.S. Department of Energy, "DOE to Notice Sale From Strategic Petroleum Reserve and Ongoing Exchange to Address Oil Supply Disruptions Costing Americans at the Pump," Press Release (December 10, 2021).

⁴³ U.S. EIA, "U.S. to release 30 million barrels of crude oil from its Strategic Petroleum Reserve," Today in Energy (March 8, 2022).

⁴⁴ U.S. EIA, Refinery Capacity Report (June 2021), Table 3, Capacity of Operable Petroleum Refineries by State as of January 1, 2021, p. 17, 20.

⁴⁵ U.S. EIA, Number and Capacity of Petroleum Refineries, Total Number of Operable Refineries, Annual (as of January 1), 2021.

⁴⁶ U.S. EIA, Number and Capacity of Petroleum Refineries, Atmospheric Crude Oil Distillation Operable Capacity, Annual (as of January 1), 2021.

⁴⁷ U.S. EIA, Refinery Capacity Report (June 2020), Table 3, Capacity of Operable Petroleum Refineries by State as of January 1, 2021.

⁴⁸ U.S. EIA, Crude Oil Input Qualities, API Gravity, Annual, 2016-21.

⁴⁹ U.S. EIA, Crude Oil Input Qualities, Sulfur Content, Annual, 2016-21.

⁵⁰ U.S. EIA, Refinery Net Production, Texas Gulf Coast, and Texas Inland, Annual-Thousand Barrels, 2016-21.

⁵¹ U.S. EIA, Movements by Pipeline, Tanker, Barge and Rail between PAD Districts, Petroleum Products, Annual Thousand Barrels, 2016-21, From PADD 3.

⁵² U.S. EIA, East Coast and Gulf Coast Transportation Fuels Markets (February 2016), p. 87-93.

⁵³ U.S. EIA, "Cold weather led to refinery shutdowns in U.S. Gulf Coast region," Today in Energy (March

1, 2021).

⁵⁴ U.S. EIA, "Gulf Coast refinery runs are approaching levels seen prior to Hurricane Harvey," Today in Energy (October 26, 2017).

⁵⁵ U.S. EIA, State Energy Data System, Table C15, Petroleum Consumption, Total and per Capita, Ranked by State, 2019.

⁵⁶ U.S. EIA, State Energy Data System, Table F16, Total Petroleum Consumption Estimates, 2020.

⁵⁷ U.S. EIA, State Energy Data System, Table C2, Energy Consumption Estimates for Selected Energy Sources in Physical Units, 2019.

⁵⁸ U.S. EIA, State Energy Data System, Table F11, Hydrocarbon Gas Liquids Consumption Estimates, 2020.

⁵⁹ U.S. EIA, Hydrocarbon Gas Liquids Explained, updated October 26, 2021.

⁶⁰ U.S. Census Bureau, Texas, Table B25040, House Heating Fuel, 2019 American Community Survey 1-Year Estimates.

⁶¹ U.S. EIA, State Energy Data System, Table F16, Total Petroleum Consumption Estimates, 2020.

⁶² Larson, B.K., U.S. Gasoline Requirements as of January 2018, ExxonMobil, accessed April 7, 2022.

⁶³ U.S. EIA, U.S. Fuel Ethanol Plant Production Capacity, Nameplate Capacities of Fuel Ethanol Plants, January 1, 2021, Excel File.

⁶⁴ U.S. EIA, State Energy Data System, Table P1, Primary Energy Production Estimates in Physical Units, 2019.

⁶⁵ U.S. EIA, State Energy Data System, Table F25, Fuel ethanol consumption estimates, 2020.

⁶⁶ U.S. EIA, "Extreme winter weather event in Texas reduced fuel ethanol production in February," Today in Energy (March 31, 2021).

⁶⁷ U.S. EIA, Natural Gas Reserves Summary as of December 31, 2020, Dry Natural Gas, Annual.

⁶⁸ U.S. EIA, Top 100 U.S. Oil & Gas Fields (March 2015), p. 8-10.

⁶⁹ U.S. EIA, Natural Gas Gross Withdrawals and Production, Gross Withdrawals and Marketed Production, Annual, 2021.

⁷⁰ U.S. EIA, Texas Natural Gas Gross Withdrawals, Annual, 1967-2021.

⁷¹ U.S. EIA, "Texas natural gas production fell by almost half during recent cold snap," Today in Energy (February 25, 2021).

⁷² U.S. EIA, Permian Region Drilling Productivity Report, Permian Region Natural gas production (April 2022).

⁷³ U.S. EIA, Eagle Ford Region Drilling Productivity Report (April 2022).

⁷⁴ U.S. EIA, Natural Gas Gross Withdrawals and Production, Texas, 2016-21.

⁷⁵ Texas Railroad Commission, Texas Pipeline System Mileage, accessed April 8, 2022.

- ⁷⁶ U.S. EIA, U.S. Energy Mapping System, Natural Gas Interstate Pipeline Map Layer, accessed April 8, 2022.
- ⁷⁷ U.S. EIA, International and Interstate Movements of Natural Gas by State, Texas, Annual 2015-20.
- ⁷⁸ U.S. Federal Energy Regulatory Commission, North American LNG Import Terminals: Existing, Approved not Yet Built, and Proposed, updated March 5, 2021.
- ⁷⁹ U.S. Federal Energy Regulatory Commission, North American LNG Export Terminals: Existing, Approved not Yet Built, and Proposed, updated March 5, 2021.
- ⁸⁰ Cheniere, Who We Are, accessed April 29, 2022.
- ⁸¹ Freeport LNG, About Freeport LNG, accessed April 18, 2022.
- ⁸² Golden Pass LNG, LNG Export Project, accessed April 18, 2022.
- ⁸³ U.S. EIA, U.S. Natural Gas Imports & Exports by State, Export Volume, Annual. 2016-21.
- ⁸⁴ U.S. EIA, Texas Natural Gas Gross Withdrawals, Annual, 1967-2021.
- ⁸⁵ U.S. EIA, Natural Gas Consumption by End Use, Annual, Texas, 2016-21.
- ⁸⁶ U.S. EIA, International and Interstate Movements of Natural Gas by State, Texas, Annual 2015-20.
- ⁸⁷ U.S. EIA, Underground Natural Gas Storage Capacity, Total Working Gas Capacity, Annual, 2020.
- ⁸⁸ U.S. EIA, Underground Natural Gas Storage Capacity, Texas, Annual, 2020.
- ⁸⁹ U.S. EIA, Natural Gas Consumption by End-Use, Total Consumption, Annual, 2020.
- ⁹⁰ U.S. EIA, Natural Gas Consumption by End-Use, Texas, Annual, 2020.
- ⁹¹ U.S. EIA, Share of Total U.S. Natural Gas Delivered to Consumers, Industrial, Annual, 2020.
- ⁹² U.S. EIA, Share of Total U.S. Natural Gas Delivered to Consumers, Electric Power, Annual, 2020.
- ⁹³ U.S. EIA, Natural Gas Consumption by End-Use, Texas, Annual, 2020.
- ⁹⁴ U.S. Census Bureau, Texas, Table B25040, House Heating Fuel, 2019 American Community Survey 1-Year Estimates.
- ⁹⁵ U.S. EIA, Natural Gas Consumption by End Use, Volumes Delivered to Residential, Annual, 2020.
- ⁹⁶ U.S. Census Bureau, U.S. Census Bureau, State Population Totals and Components of Change: 2020-2021, Annual Estimates of the Resident Population for the United States, Regions, States, District of Columbia, and Puerto Rico: April 1, 2020 to July 1, 2021.
- ⁹⁷ U.S. EIA, Annual Coal Report 2020 (October 2021), Table 15, Recoverable Coal Reserves at Producing Mines, Estimated Recoverable Reserves, and Demonstrated Reserve Base by Mining Method, 2020.
- ⁹⁸ U.S. EIA, Annual Coal Report 2020 (October 2021), Table 6, Coal Production and Number of Mines by State and Coal Rank, 2020.
- ⁹⁹ U.S. EIA, Glossary, Lignite, accessed April 15, 2022.

- ¹⁰⁰ Henderson, Dwight F., and Diana J. Kleiner, "Coal and Lignite Mining," Texas State Historical Association, Handbook of Texas, accessed April 15, 2022.
- ¹⁰¹ Mapel, W. J., Bituminous Coal Resources of Texas, U.S. Department of the Interior, Geological Survey Bulletin 1242-D (1967), p. D-2.
- ¹⁰² Garner, L. Edwin, Mineral Resources and Mining, Coal, Lignite, Texas State Historical Association, Handbook of Texas, accessed April 15, 2022.
- ¹⁰³ U.S. EIA, Annual Coal Report 2020 (October 2021), Table 6, Coal Production and Number of Mines by State and Coal Rank, 2020, and Table 2, Coal Production and Number of Mines by State, County, and Mine Type, 2020.
- ¹⁰⁴ U.S. EIA, State Energy Data System, Table C12, Energy Consumption Estimates by Source, Ranked by State, 2019.
- ¹⁰⁵ U.S. EIA, Annual Coal Report 2020 (October 2021), Table 6, Coal Production and Number of Mines by State and Coal Rank, 2020.
- ¹⁰⁶ U.S. EIA, Annual Coal Distribution Report 2020 (October 2021), Texas, Table OS-22, Domestic Coal Distribution, by Origin State, 2020, and Table DS-37, Domestic Coal Distribution, by Destination State, 2020.
- ¹⁰⁷ U.S. EIA, Electric Power Monthly (February 2022), Table 1.3.B.
- ¹⁰⁸ U.S. EIA, Electric Power Monthly (February 2022), Table 1.7.B.
- ¹⁰⁹ U.S. EIA, Electricity, Preliminary Monthly Electric Generator Inventory (based on Form EIA-860M as a supplement to Form EIA-860), Inventory of Retired Generators as of January 2022.
- ¹¹⁰ U.S. Nuclear Regulatory Commission, Texas, Operating Nuclear Power Reactors, updated March 19, 2020.
- ¹¹¹ U.S. EIA, Electricity Data Browser, Net generation for all sectors, Texas, Fuel Type (Check all), Annual, 2001-21.
- ¹¹² U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability, United States Electricity Industry Primer, DOE/OE-0017 (July 2015), p. 11.
- ¹¹³ ERCOT, Company Profile, accessed April 17, 2022.
- ¹¹⁴ Texas State Historical Association, Texas Almanac, Texas Electric Grids: Demand and Supply, accessed April 17, 2022.
- ¹¹⁵ Morehouse, Catherine, "Congress, Texas should 'rethink' ERCOT's 'go it alone approach': FERC Chair Glick," Utility Dive (February 19, 2021).
- ¹¹⁶ U.S. EIA, "Extreme winter weather is disrupting energy supply and demand, particularly in Texas," Today in Energy (February 21, 2021).
- ¹¹⁷ U.S. EIA, State Energy Data System, Table C17, Electricity Retail Sales, Total and Residential, Total and per Capita, Ranked by State, 2019.

- ¹¹⁸ U.S. Census Bureau, Texas, Table B25040, House Heating Fuel, 2019 American Community Survey 1-Year Estimates.
- ¹¹⁹ ERCOT, Fact Sheet April 2022, accessed April 17, 2022.
- ¹²⁰ NC Clean Energy Technology Center, DSIRE, Texas, Required Energy Efficiency Goals, updated April 29, 2016.
- ¹²¹ U.S. EIA, Electricity Data Browser, Net generation for all sectors, United States, Texas, All fuels, Conventional hydroelectric, Other renewables (total), Small-scale solar photovoltaic, Annual, 2021.
- ¹²² U.S. EIA, Electricity Data Browser, Net generation for all sectors, United States, Texas, All fuels, Conventional hydroelectric, Wind, Small-scale solar photovoltaic, Annual, 2021.
- ¹²³ U.S. EIA, Electric Power Monthly (February 2022), Table 1.14.B.
- ¹²⁴ Lasher, Warren, The Competitive Renewable Energy Zones Process, ERCOT (August 11, 2014).
- ¹²⁵ U.S. EIA, Electricity, Detailed State Data, Existing Nameplate and Net Summer Capacity by Energy Source, Producer Type and State (EIA-860), 1990-2020, Excel File.
- ¹²⁶ U.S. EIA, Electric Power Monthly (March 2022), Tables 6.2.A, 6.2.B.
- ¹²⁷ Nebraska Energy Office, Comparison of Solar Power Potential by State, updated March 11, 2010.
- ¹²⁸ U.S. EIA, Electric Power Monthly (February 2022), Tables 1.17.B, 6.2.B.
- ¹²⁹ U.S. EIA, Electricity Data Browser, Net generation for all sectors, Texas, All fuels, All solar, Small-scale solar photovoltaic, Annual, 2021.
- ¹³⁰ U.S. EIA, Electricity Data Browser, Net generation for all sectors, Texas, All fuels, Biomass (total), Wood and wood-derived fuel, Other biomass, Annual, 2021.
- ¹³¹ U.S. EIA, Monthly Densified Biomass Fuel Report, Table 1, Densified biomass fuel manufacturing facilities in the United States by state, region, and capacity, January 2022.
- ¹³² Woodville Pellets, Pellets: Environmentally-Friendly Biofuel, accessed April 18, 2022.
- ¹³³ American Biogas Council, Biogas State Profile: Texas, updated August 7, 2015.
- ¹³⁴ U.S. Environmental Protection Agency, AgSTAR, Livestock Anaerobic Digester Database, accessed April 18, 2022.
- ¹³⁵ U.S. EIA, U.S. Fuel Ethanol Plant Production Capacity, Excel File, U.S. Fuel Ethanol Plant Production Capacity as of January 1, 2021.
- ¹³⁶ Ethanol Producers Magazine, U.S. Ethanol Plants, RINs, Operational, updated December 13, 2021.
- ¹³⁷ U.S. EIA, Monthly Biodiesel Production Report, Table 4, Biodiesel producers and production capacity by state, December 2020.
- ¹³⁸ "USA BioEnergy to build \$1.7 bn biorefinery in Texas," Upstream (February 16, 2022).
- ¹³⁹ U.S. EIA, Electricity Data Browser, Net generation for all sectors, Texas, All fuels, Conventional hydroelectric, Annual, 2001-21.

¹⁴⁰ Hadjerioua, Boualem, et.al, An Assessment of Energy Potential at Non-Powered Dams in the United States, U.S. Department of Energy, Energy Efficiency and Renewable Energy (April 2012), p. 8.

¹⁴¹ U.S. Department of Energy, Energy Efficiency and Renewable Energy, Geothermal Technologies Program, Texas, DOE/GO-102006-2213 (April 2006).

¹⁴² NC Clean Energy Technology Center, DSIRE, Texas, Renewable Generation Requirement, updated June 26, 2018.

¹⁴³ U.S. EIA, Electric Power Monthly (March 2022), Table 6.2.B.

Other Resources

Energy-Related Regions and Organizations

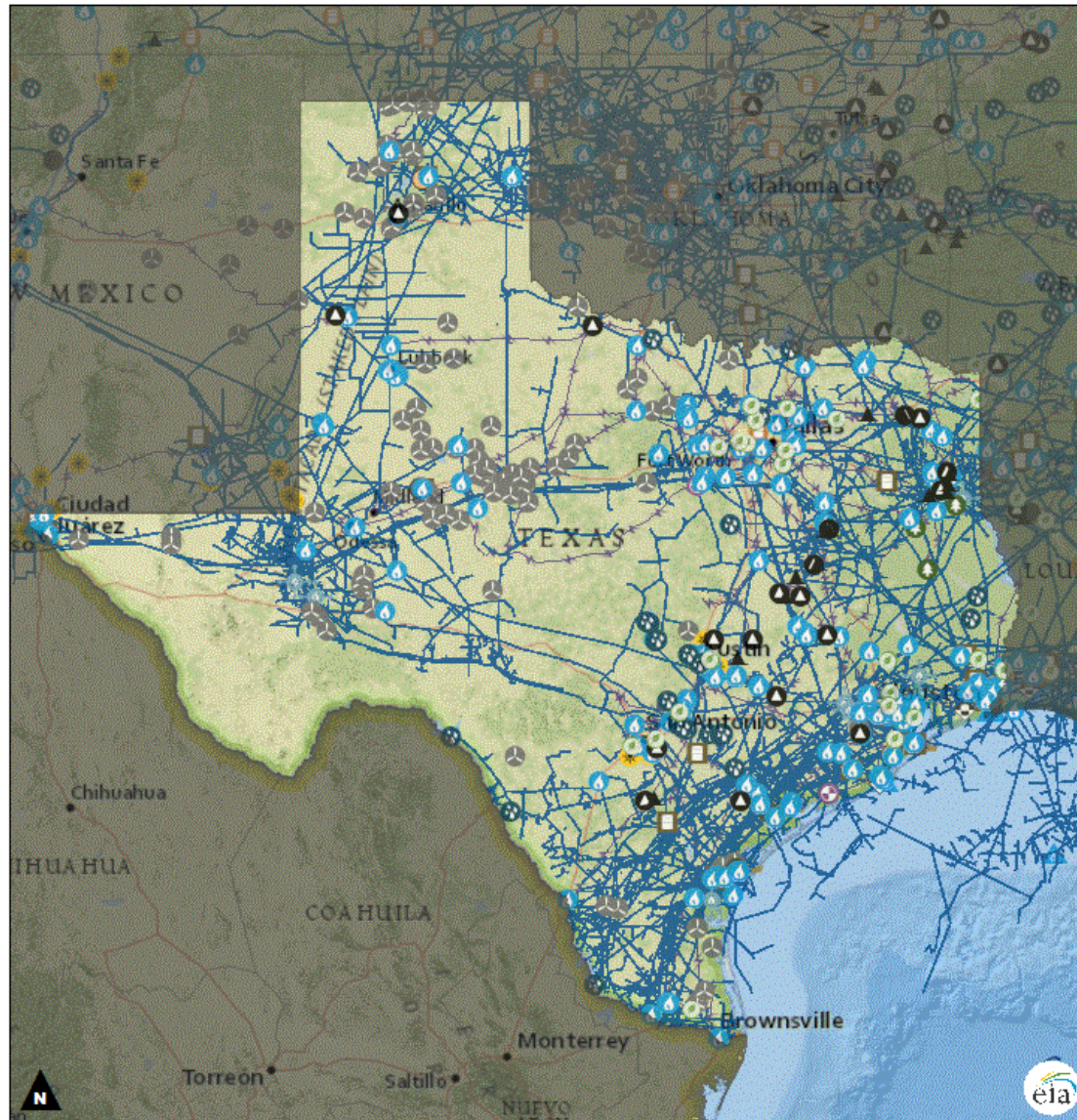
- [Coal Region](#): Interior
- [Petroleum Administration for Defense District \(PADD\)](#): 3
- [Regional Transmission Organization \(RTO\) and Independent System Operator \(ISO\)](#): Southwest Power Pool (SPP)
- [North American Electric Reliability Corporation \(NERC\) ERO Enterprise: Regional Entities](#): Electric Reliability Council of Texas (ERCOT), Southwest Power Pool, Inc (SPP), Texas Reliability Entity (TRE), Western Electricity Coordinating Council (WECC)

Other Websites

- [Texas Comptroller, State Energy Conservation Office](#)
- [Public Utility Commission of Texas](#)
- [The Electricity Reliability Council of Texas \(ERCOT\)](#)
- [Texas Department of Housing and Community Affairs - Comprehensive Energy Assistance Program](#)
- [Federal Reserve Bank of Dallas, Energy Research](#)
- [EIA Gulf of Mexico Fact Sheet](#)
- [Texas Commission on Environmental Quality](#)
- [The Railroad Commission of Texas, Oil and Gas](#)
- [U.S. Nuclear Regulatory Commission - Texas](#)
- [Texas Bureau of Economic Geology, Energy](#)
- [EIA Texas Flickr Album](#)
- [Southern States Energy Board](#)
- [Alternative Fuels Data Center, Federal and State Laws and Incentives](#)
- [U.S. Department of Health and Human Services, Administration for Children and Families, Office of Community Services, Low Income Home Energy Assistance Program \(LIHEAP\)](#)
- [Benefits.Gov, Housing and Public Utilities](#)
- [NC Clean Energy Technology Center, Database of State Incentives for Renewables and Efficiency](#)

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- [National Association of Regulatory Utility Commissioners \(NARUC\)](#)
- [National Association of State Energy Officials \(NASEO\)](#)
- [National Conference of State Legislatures \(NCSL\), Energy](#)
- [National Renewable Energy Laboratory \(NREL\), Geospatial Data Science Data and Tools](#)
- [U.S. Geological Survey \(USGS\), Publications](#)
- [Interstate Oil and Gas Compact Commission](#)
- [U.S. Bureau of Ocean Energy Management](#)
- [Western Area Power Administration](#)
- [Southwestern Power Administration](#)
- [U.S. Geological Survey, Maps](#)
- [Lawrence Livermore National Laboratory, Energy Flow Charts](#)
- [National Renewable Energy Laboratory, State and Local Planning for Energy \(SLOPE\)](#)
- [EIA Status of U.S. Nuclear Outages](#)
- [EIA Natural Gas Storage Dashboard](#)
- [EIA Energy Disruptions](#)



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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