

Short-Term Energy Outlook

STEO

August 2023



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Short-Term Energy Outlook

Overview

U.S. energy market indicators	2022	2023	2024
Brent crude oil spot price (dollars per barrel)	\$101	\$83	\$86
Retail gasoline price (dollars per gallon)	\$3.97	\$3.56	\$3.45
U.S. crude oil production (million barrels per day)	11.91	12.76	13.09
Natural gas price at Henry Hub (dollars per million British thermal units)	\$6.42	\$2.58	\$3.22
U.S. liquefied natural gas gross exports (billion cubic feet per day)	10.6	11.9	13.3
Shares of U.S. electricity generation			
Natural gas	39%	42%	40%
Coal	20%	16%	15%
Renewables	22%	22%	25%
Nuclear	19%	19%	19%
U.S. GDP (percentage change)	2.1%	1.9%	1.2%
U.S. CO₂ emissions (billion metric tons)	4.96	4.80	4.80

Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, August 2023

- Crude oil prices.** The Brent crude oil spot price averages \$85 per barrel (b) in August in our forecast. Crude oil prices have increased since June, primarily because of extended voluntary cuts to Saudi Arabia's crude oil production and increasing global demand. We expect these factors will continue to reduce global oil inventories and put upward pressure on oil prices in the coming months, with the Brent price averaging \$86/b in the second half of 2023 (2H23), up about \$7/b from our July *Short-Term Energy Outlook* (STEO) forecast for the same period. Rising global oil production in 2024 in our forecast keeps pace with oil demand and puts moderate downward pressure on crude oil prices beginning in the second quarter of 2024 (2Q24).
- Global oil production.** We forecast global liquid fuels production will increase by 1.4 million barrels per day (b/d) in 2023. Non-OPEC production increases by 2.1 million b/d in 2023, which is partly offset by a drop in OPEC liquid fuels production. In 2024, global production increases by 1.7 million b/d, with 1.2 million b/d coming from non-OPEC countries. Non-OPEC production growth in the forecast is led by the United States, Brazil, Canada, Guyana, and Norway.
- U.S. crude oil production.** As a result of higher expected well-level productivity and higher crude oil prices, we expect U.S. crude oil production will average 12.8 million b/d in 2023 and 13.1 million b/d in 2024, both annual records.
- Natural gas production.** [Associated natural gas](#) production growth in the Permian Basin, driven by higher oil prices, has supported U.S. dry natural gas production in 2023 despite a decline in natural

gas prices. We expect production to average about 104 billion cubic feet per day (Bcf/d) through the end of 2024, compared with 103 Bcf/d in 2Q23. Flat production largely reflects continuing growth in associated natural gas production offset by declines in natural gas directed drilling.

- **Electricity generation.** Hot temperatures in July, especially in the southern states, pushed U.S. electricity demand to near-record levels. We estimate that electricity sales totaled 388 billion kilowatthours in July, roughly equal to the record electricity consumption in July and August 2022.
- **U.S. economy.** U.S. GDP growth in our forecast increases by 1.9% in 2023, up from 1.5% in last month's forecast. We apply energy price forecasts to the S&P Global macroeconomic model to generate the forecasts for the U.S. economy used in our STEO.

Notable forecast changes

current forecast: August 8, 2023; previous forecast: July 11, 2023	2023	2024
U.S. crude oil production (current forecast) (million barrels per day)	12.8	13.1
Previous forecast	12.6	12.8
Percentage change	1.6%	1.9%
Brent crude oil spot price (current forecast) (dollars per barrel)	\$83	\$86
Previous forecast	\$79	\$84
Percentage change	4.1%	3.6%
U.S. gasoline inventories (current forecast) (million barrels)	233.5	230.9
Previous forecast	239.9	237.1
Percentage change	-2.7%	-2.6%
U.S. dry natural gas production (current forecast) (billion cubic feet per day)	103.0	104.1
Previous forecast	102.3	102.4
Percentage change	0.6%	1.7%
Real gross domestic product (current forecast) (percentage)	1.9%	1.2%
Previous forecast	1.5%	1.3%
Percentage point change	0.4	-0.1

Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, August 2023

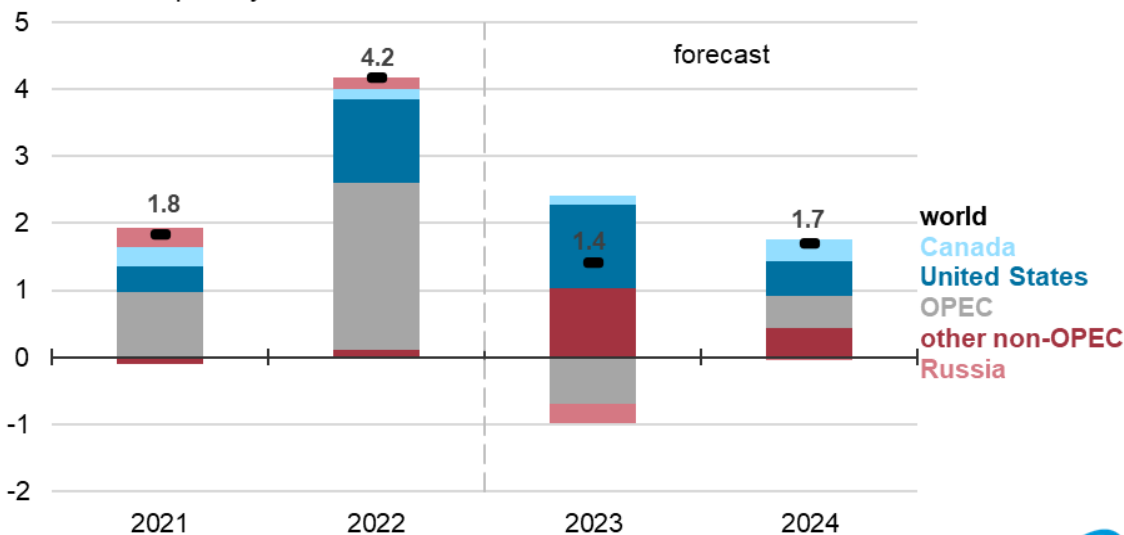
Global Oil Markets

Global oil supply and prices

The Brent crude oil spot price in our forecast increases in the coming months, reflecting our expectations of tightening balances in global oil markets. The Brent crude oil spot price averaged \$80 per barrel (b) in July, up \$5/b from June. Crude oil prices increased primarily because of extended voluntary cuts to Saudi Arabia's crude oil production and expectations of higher global demand. We expect the production cuts, combined with increasing demand, will cause global oil inventories to fall and to put upward pressure on oil prices through the end of this year. The Brent price in our forecast averages \$86/b in the second half of 2023 (2H23) and reaches \$88/b in November and December and remains near that level in the first quarter of 2024 (1Q24). Crude oil prices begin to ease in 2Q24 as supply growth leads to some rebuilding of global oil inventories later in 2024. The Brent price in our forecast averages \$86/b in 2024.

Annual change in world liquid fuels production

million barrels per day



Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, August 2023



We forecast global liquid fuels production will increase by 1.4 million barrels per day (b/d) in 2023 because of strong [growth from non-OPEC producers](#) and despite decreases in production from OPEC and Russia. This forecast reflects Saudi Arabia's announcement on August 3 that it would extend its voluntary 1 million b/d product cut through September. We expect Russia's production will decline between 0.2 million b/d and 0.3 million b/d on average this year compared with 2022 and remain unchanged in 2024.

Global liquid fuels production in the forecast rises by 1.7 million b/d in 2024, which is more than 0.2 million b/d than we forecast last month. Despite production cuts that extend through 2024, OPEC crude oil production will likely increase in 2024 by an average of 0.6 million b/d. Higher production targets for the United Arab Emirates in 2024 and increasing production from Iran and Venezuela will drive this increase.

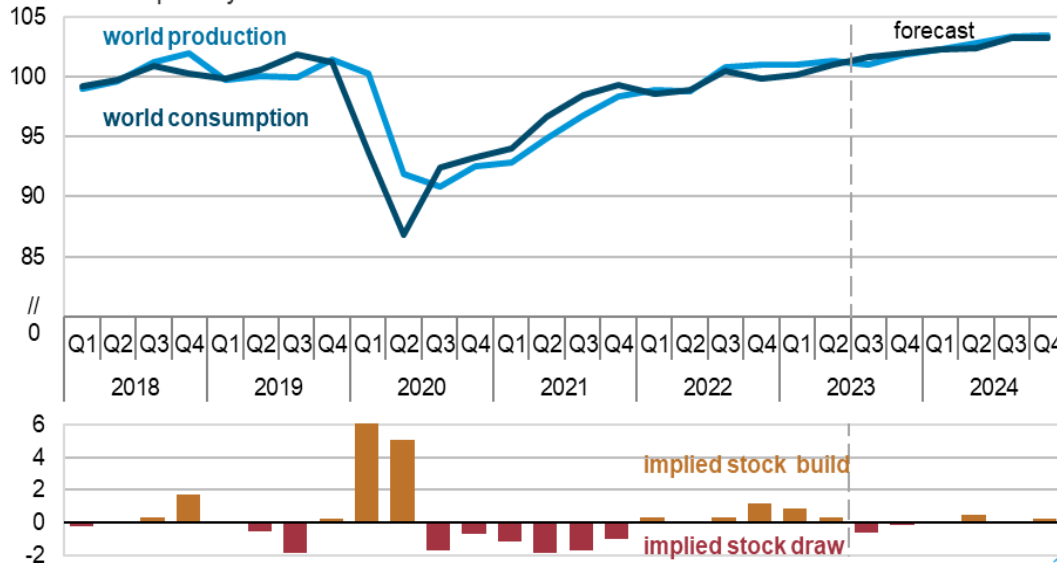
Non-OPEC countries are the main drivers of global production growth in the forecast. We expect that non-OPEC production will increase by 2.1 million b/d in 2023 and 1.2 million b/d in 2024. Although the United States is expected to lead non-OPEC growth, contributing 1.3 million b/d of supply growth in 2023 and 0.5 million b/d in 2024, we forecast strong growth from other non-OPEC producers as well. In South America, we forecast that Brazil will increase production by 0.5 million b/d from 2022 through 2024, driven by increased output from floating, production, storage, and offloading (FPSO) vessels. Other countries with significant growth in 2024 in our forecast include Canada, Guyana, and Norway.

Global oil inventories

We estimate global oil inventories will transition from a period of inventory builds in 1H23 to inventory draws through the end of the year, placing upward pressure on global oil prices. Global oil inventories increased by an average of 0.6 million b/d in 1H23, and we forecast they will decrease by an average of 0.4 million b/d in 2H23. We expect slight inventory builds in 2024, which puts some downward pressure on oil prices in the forecast for next year.

World liquid fuels production and consumption balance

million barrels per day



Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, August 2023



Petroleum Products

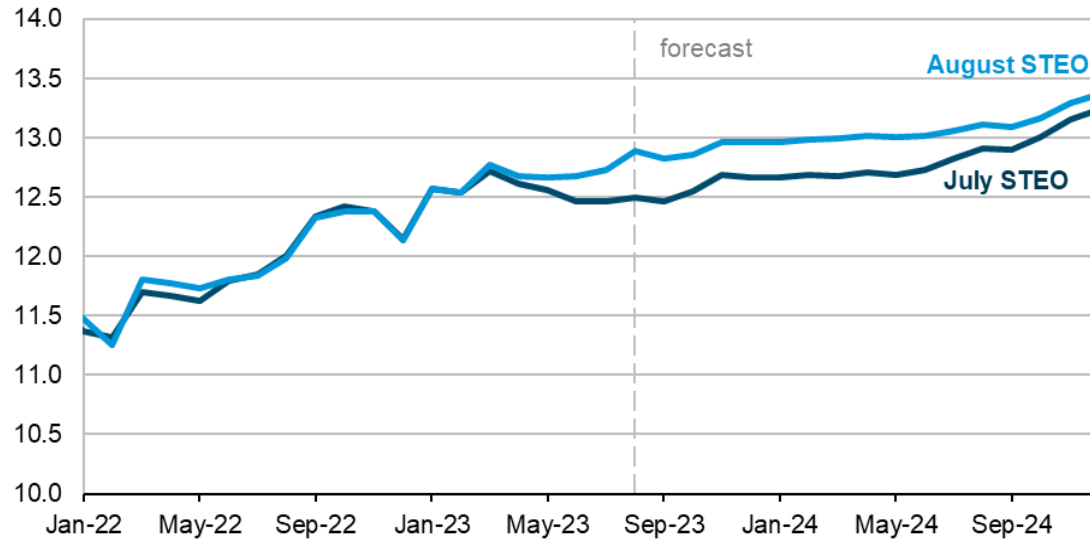
U.S. crude oil production

In our August STEO, we now expect total U.S. crude oil production to average 12.8 million barrels per day (b/d) in 2023, an annual average increase of about 0.2 million b/d compared with our July STEO. Our higher production outlook reflects the effect of higher well productivity in recent historical data from the *Petroleum Supply Monthly*, which we have extended into our current forecast for July and forward through 2023. Our outlook for higher crude oil prices, beginning in July 2023 and continuing into 2024,

supports higher production in 2024 because of the lagged effect of prices on rig additions and production.

U.S. domestic crude oil production

million barrels per day



Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, August 2023

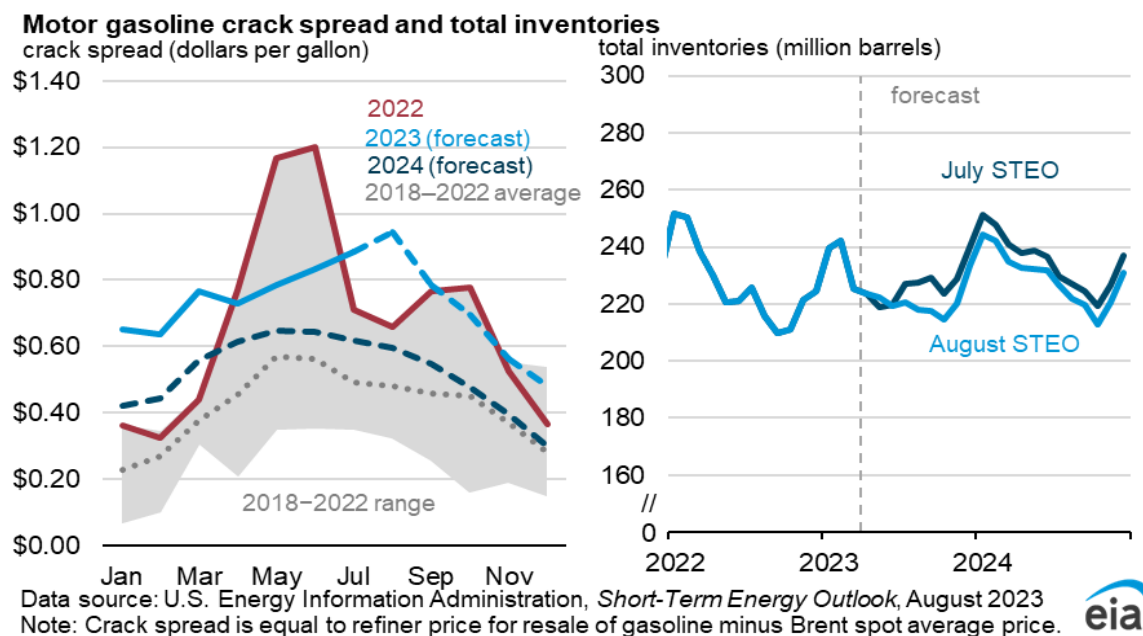


We estimate that increases in well-level productivity observed in recent data will drive increasing production through the end of 2023, before crude oil production stabilizes near 13.0 million b/d in 1H24. Production growth slows because we assume that growth in well-level productivity will slow.

Although production changes little in early 2024, we expect production next year will average 13.1 million b/d, more than 0.2 million b/d more than in the July STEO. Despite slowing growth in well-level productivity, our forecast for rising crude oil prices results in increased oil-directed rig activity in 2024. U.S. crude oil production picks up in 2H24 and approaches 13.4 million b/d in December 2024.

U.S. gasoline inventories and prices

In our August STEO, we expect lower gasoline production to reduce inventories and increase gasoline prices and crack spreads (the difference in price between a gallon of gasoline and a gallon of crude oil) in 2H23 compared with the July STEO. Previously, we assumed high crack spreads and more U.S. refining capacity in 2023 would contribute to rising gasoline production and inventory builds. However, a series of unplanned refinery outages this summer have limited increased refinery operations. Among the outages, a reformer outage occurred at [Marathon's Galveston Bay refinery](#), and fluid catalytic cracking unit outages occurred at [Phillips 66's Bayway refinery](#) and [ExxonMobil's Baton Rouge refinery](#). Many of the outages affected secondary conversion units, reducing the relative yields of gasoline from those facilities. We decreased our outlook for refinery utilization and refinery gasoline yield for the rest of the summer and the start of fall, which reduces our forecast of gasoline production. Lower gasoline production and lower net imports of gasoline contribute to lower total gasoline inventories in our forecast, which we now expect to remain near the five-year (2018–2022) low through the end of our forecast.



In the August STEO, we estimate that persistent low gasoline inventories through the forecast period will contribute to higher gasoline crack spreads compared with last month's forecast. The annual average gasoline crack spread averages \$0.73 dollars per gallon (gal) in 2023, compared with \$0.63/gal in the July STEO. The increasing crack spread and higher crude oil prices both contribute to higher overall retail gasoline prices in this month's forecast as well. We now estimate 2023 U.S. retail gasoline prices to average \$3.56/gal in 2023 and \$3.45/gal in 2024.

Natural Gas

Natural gas production

We forecast U.S. dry natural gas production to remain relatively flat for the rest of 2023 and 2024. Dry natural gas production averaged more than 102 billion cubic feet per day (Bcf/d) in the first half of 2023 (1H23), which is a 6 Bcf/d increase compared with the same period in 2022. We expect dry natural gas production will average about 104 Bcf/d through the end of the forecast in 2024. Production has remained at relatively high levels throughout 2023 despite a [decline in U.S. natural gas prices](#). The U.S. benchmark Henry Hub spot price averaged \$2.41 per million British thermal units (MMBtu) in 1H23, compared with an annual average of \$6.42/MMBtu in 2022.

The Permian Basin has driven the growth in U.S. natural gas production in 2023. Most of the natural gas produced from the Permian Basin is [associated natural gas](#) produced from oil wells, meaning [producers' oil-drilling activities in the region](#) determine natural gas production levels. We expect increased oil-drilling activity to continue to drive increased natural gas production in the Permian Basin, although these increases will be offset by some small production declines in other large producing regions.

We expect dry natural gas production will remain near current levels over the next year, before it starts to rise in the fourth quarter of 2024 as new pipeline capacity comes online and demand for liquefied natural gas feed gas increases as developers expect [two new facilities to come online](#) at the end of 2024.

U.S. dry natural gas production

billion cubic feet per day



Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, August 2023



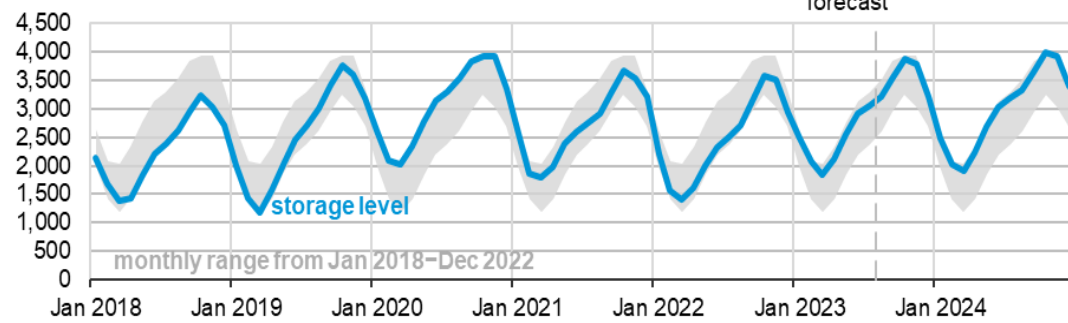
Natural gas inventories

U.S. working natural gas inventories totaled 3,051 billion cubic feet (Bcf) at the end of July, 12% above the five-year (2018–2022) average and 22% above the same period last year. Net injections of natural gas into storage have [exceeded the five-year average](#) by 3% so far this refill season (April 1–October 31), in part due to high natural gas production. The increased surplus of natural gas storage inventories reduced [natural gas prices](#) throughout 1H23 compared with 2022.

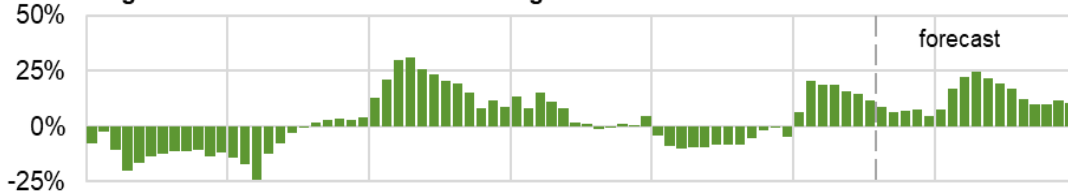
We forecast working natural gas inventories to end the refill season at nearly 3.9 trillion cubic feet (Tcf) which is 7%, or 250 Bcf, higher than the five-year average. We expect storage inventories to remain above the five-year average throughout 2024 as natural gas production remains high and natural gas consumption declines by 2% in 2024 compared with 2023.

U.S. working natural gas in storage

billion cubic feet



Percentage deviation from 2018–2022 average



Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, August 2023



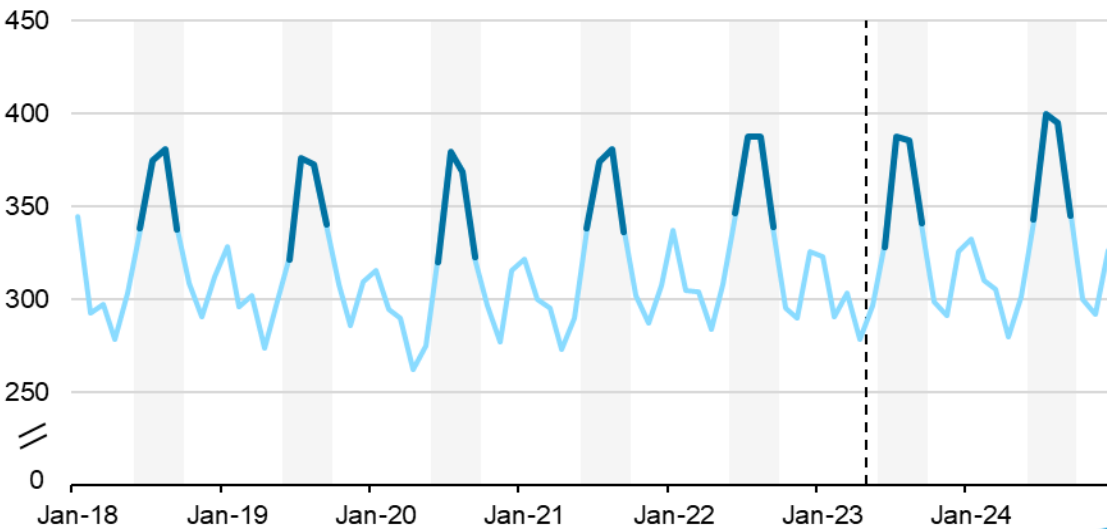
Electricity, coal, and renewables

Electricity demand

Hot temperatures during July, especially in the [southern states](#), pushed U.S. electricity demand to near-record levels. We estimate that U.S. electricity sales to ultimate customers in July 2023 totaled 388 billion kilowatthours, which would equal the record level of electricity consumed in July and August 2022.

U.S. monthly sales of electricity to ultimate customers in all sectors

billion kilowatthours



Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, August 2023

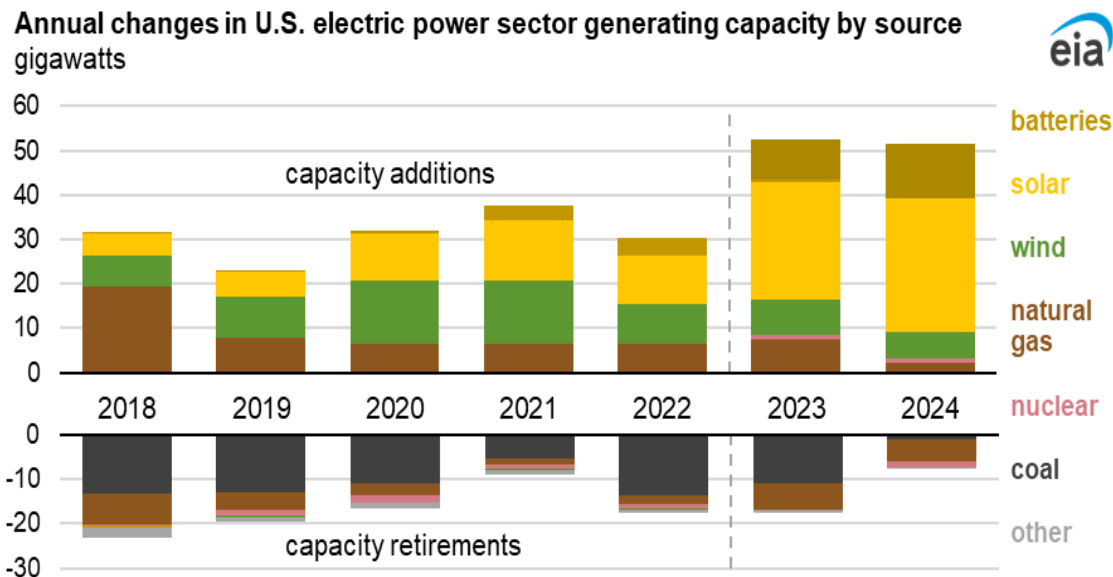


For all of 2023, we forecast 2% less sales of electricity to ultimate customers in the United States than in 2022. The increased electricity demand in July from space cooling was offset by low demand because of a relatively cool June and a mild winter in 1Q23. U.S. electricity sales in the forecast increase by 2% in 2024 based on our expectations for a hotter summer next year and growing demand for electricity in the industrial sector.

Electricity generation

The changing mix of generating capacity primarily drives which energy sources are used for electricity generation. Renewable energy capacity has been growing rapidly, and we expect this growth to continue because the electric power sector plans to add 27 gigawatts (GW) of new solar generating capacity by the end of 2023 and a further 31 GW in 2024. This new capacity leads to our forecast that renewables, other than hydropower, will account for a 16% share of total U.S. generation in 2023, up from 15% in 2022. That share grows to 18% in 2024.

In contrast, about 15 GW of [coal-fired capacity is scheduled to retire](#) by the end of 2023, so we forecast that coal’s share will fall to 16% of total U.S. generation this year and 15% in 2024 (well below its generation share of 20% in 2022). The forecast natural gas generation share rises from 39% in 2022 to 42% this year due to low natural gas prices and net natural gas-fired generating capacity additions of 3 GW. We forecast the share of natural gas-fired generation to fall back to 40% in 2024 due to significant amounts of new renewable energy capacity coming online and displacing natural gas. A new 1.1 GW [nuclear reactor in Georgia](#) came online in July, so we forecast a slight increase in the amount of U.S. nuclear generation this year and a 2% increase in 2024, although the nuclear share of U.S. generation remains at 19%.



Data source: U.S. Energy Information Administration, *Preliminary Generator Inventory*, May 2023

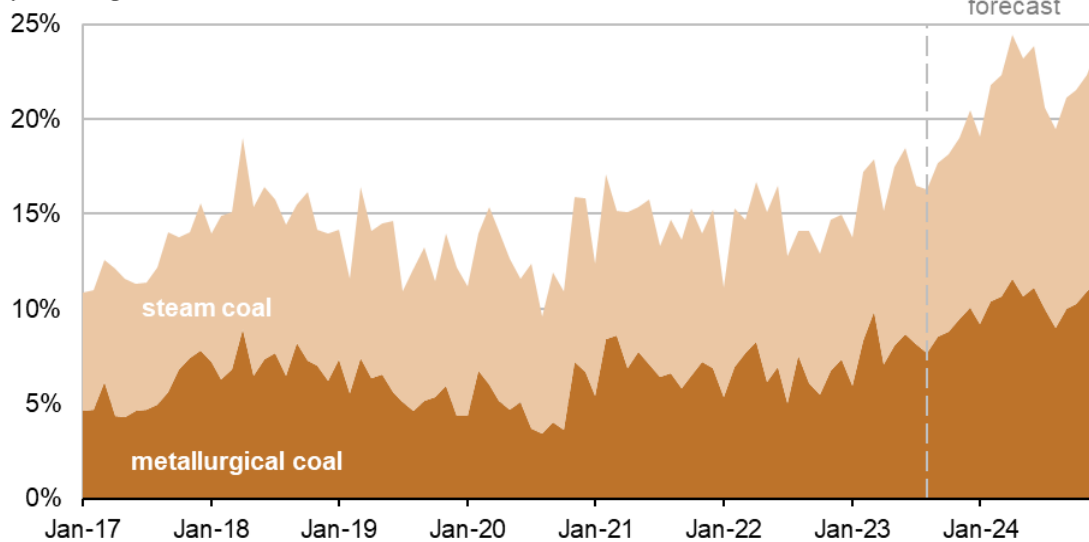
Coal markets

We expect coal production to decrease 3% from 597 million short tons (MMst) in 2022 to 578 MMst in 2023. Coal production will then fall 18% in 2024 to 472 MMst. The decreases in production reflect large decreases in coal consumption by the electric power sector because of ongoing coal plant retirements, increased natural gas-fired generation due to low natural gas prices, and difficulty competing with more generation from solar sources that have zero marginal dispatch cost.

Although most U.S. coal production is consumed domestically, 17% (50 MMst) was exported overseas in the first half of 2023 (1H23), up from 15% (44 MMst) in 1H22. We expect that share to rise further to 22% of production in 2024, with exports totaling 103 MMst for the entire year, due to a combination of much lower coal use domestically and stable demand overseas. The suspension of Europe's coal purchases from Russia beginning in August 2022 has increased U.S. exports of thermal coal to Europe, more than doubling over the past 18 months.

Stable overseas demand for metallurgical coal, which is used in steel production, supports U.S. coal production. U.S. metallurgical coals usually sell for higher prices abroad due to having the quality desired by steelmakers when making blast furnace coke. The combination allows for a certain amount of U.S. coal production to be insulated from declining domestic demand.

U.S. coal exports as a percentage of U.S. coal production



Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, August 2023



Economy, Weather, and CO₂

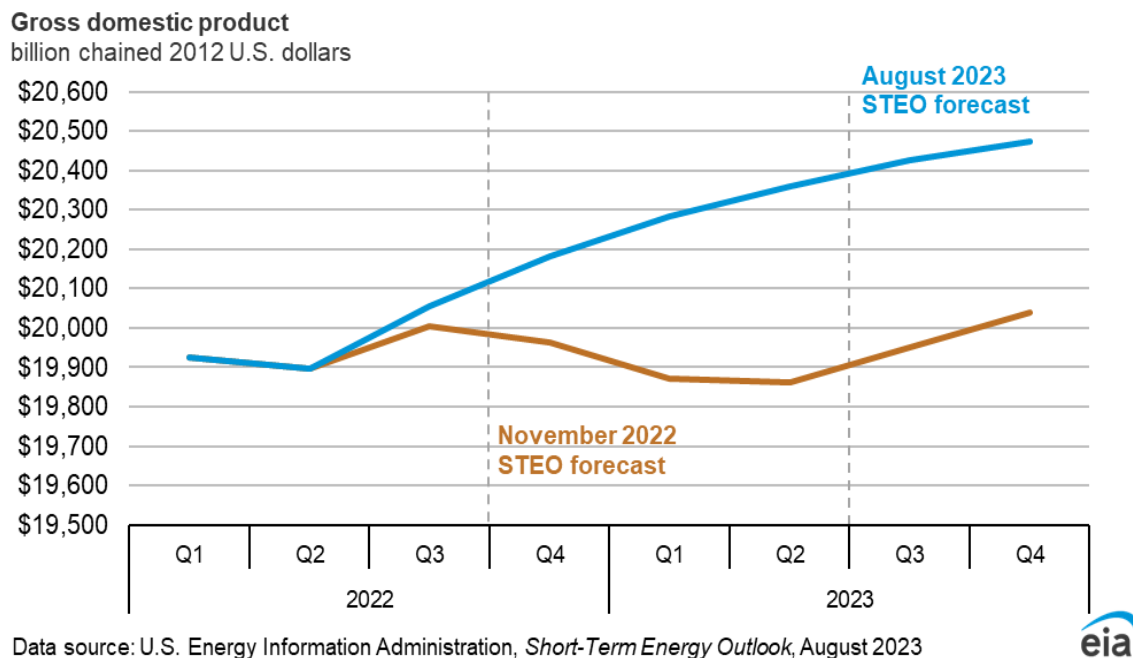
U.S. macroeconomics

Our U.S. macroeconomic forecasts are based on S&P Global's macroeconomic model. We incorporate STEO energy price forecasts into the model to obtain the final macroeconomic assumptions we use in the STEO.

Our forecast assumes real GDP growth will average 1.9% in 2023 and 1.2% in 2024. GDP is higher across the forecast compared with the July STEO. However, the upward revision to real GDP was more for 2023 than for 2024, reducing annual growth in 2024 compared with last month’s forecast, even though 2024 GDP itself was revised higher.

The Bureau of Economic Analysis’s (BEA) preliminary estimate of second-quarter 2023 (2Q23) GDP grew at an annualized rate of 2.4%. In addition, as more comprehensive data has been incorporated, the BEA’s estimate of 1Q23 GDP growth has risen from an initial estimate of 1.1% to 2.0%. Consumer spending, aggregate investment, and exports have all contributed to this rise. Although identifying the source of this unexpected rise is difficult, it is likely because of a variety of factors. Among those factors are fiscal policy that resulted in rising savings for households and an increase in mortgage refinancing activity during 2020 and 2021 that allowed homeowners to take advantage of historically low interest rates to reduce their monthly mortgage payments, improving their cash flow.

The upward revision this month is consistent with a trend that started last November, in which GDP and other macroeconomic indicators rise in the face of climbing interest rates and more restrictive monetary policy. The figure below shows the GDP forecasts for the August 2023 STEO and November 2022 STEO. Last November, the forecast called for GDP to decline starting in 4Q22, with a return to growth in 3Q23. Overall, the forecast in our November STEO was that GDP would contract by 0.1% in 2023. However, the economic contraction did not materialize, and GDP has grown each quarter since the November forecast.



Emissions

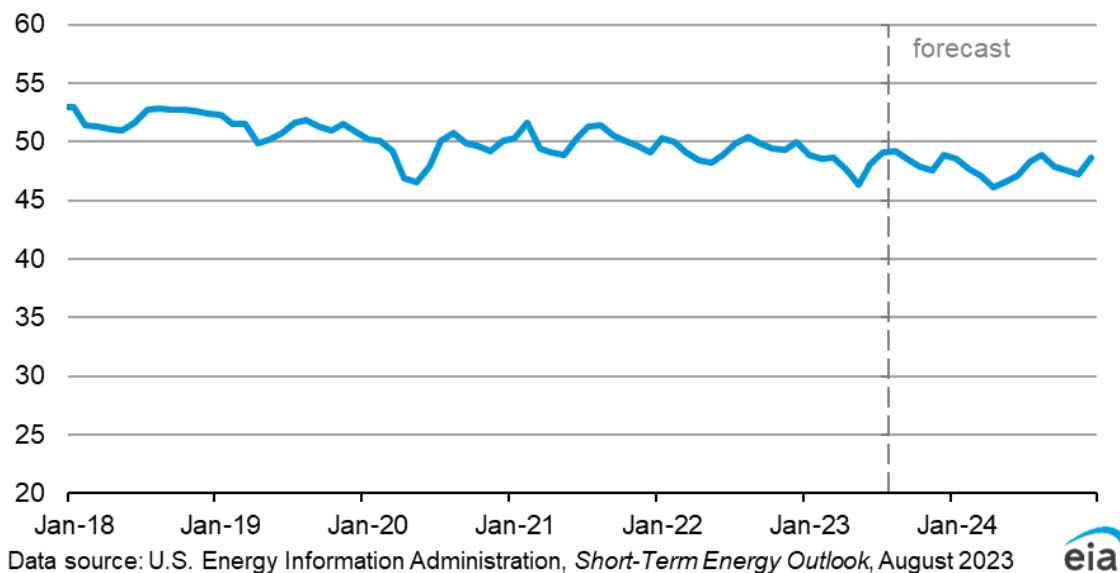
We expect total energy-related carbon dioxide (CO₂) emissions to decrease by 3% in 2023. CO₂ emissions from coal decrease 20%, the most relative to 2022, as a result of a notable decline in coal-fired electricity generation. Emissions from petroleum remain relatively unchanged, and emissions from

natural gas increase by 1%. Total CO₂ emissions in 2024 remain flat, as small increases in petroleum emissions and coal emissions balance a decrease in natural gas emissions.

We forecast the carbon intensity of the economy (total CO₂ emissions relative to total energy consumption) will continue its generally declining trend into 2023 and 2024. Carbon intensity will decline by 2% in 2023 and by 1% in 2024. The decline in 2023 comes from both the significant drop in coal emissions and an increase in non-emitting energy consumption. Although overall energy consumption declines by about 1% in 2023, the share of renewable energy in U.S. energy consumption increases from around 13% in 2022 to 14% in 2023. While emissions increase in 2024, U.S. carbon intensity continues to decrease because economic activity increases more than emissions and because the renewable energy share continues to grow, making up 15% of total energy consumption in 2024.

Carbon intensity of the economy

million metric tons of CO₂ per quadrillion British thermal units



Weather

The United States averaged 384 cooling degree days (CDDs) in July, 18 more CDDs than we estimated in our July STEO forecast due in large part to the heatwaves experienced across the South-Central United States. We expect CDDs to fall to 336 CDDs in August as the heatwaves subside. We expect 3Q23 with about 3% fewer CDDs than in 3Q22.

Short-Term Energy Outlook Chart Gallery



August 8, 2023

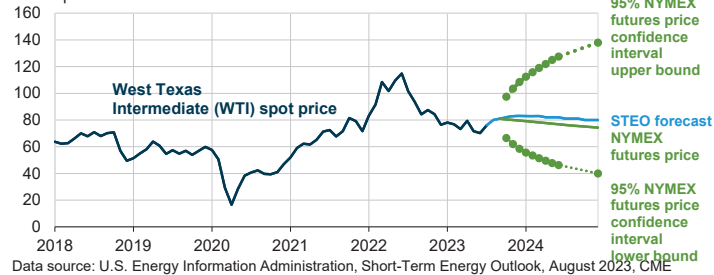


U.S. Energy Information Administration

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West Texas Intermediate (WTI) crude oil price and NYMEX confidence intervals

dollars per barrel



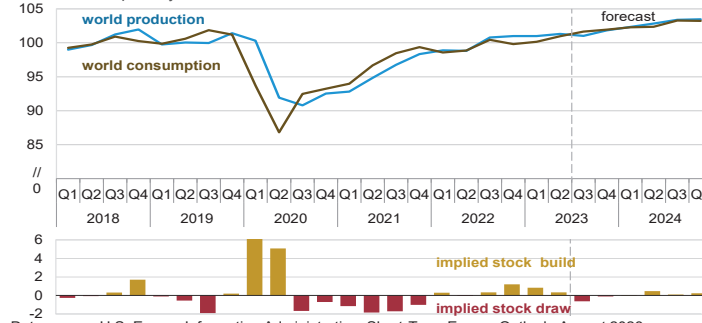
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023, CME Group, Bloomberg, L.P., and Refinitiv an LSEG Business

Note: Confidence interval derived from options market information for the five trading days ending August 3, 2023. Intervals not calculated for months with sparse trading in near-the-money options contracts.



World liquid fuels production and consumption balance

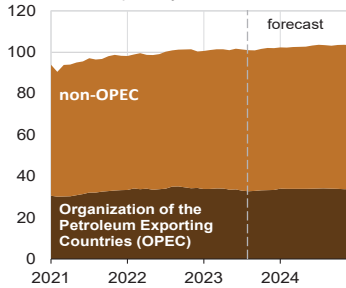
million barrels per day



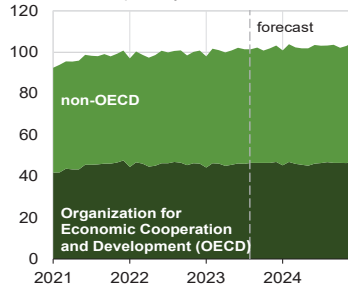
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



World liquid fuels production
million barrels per day



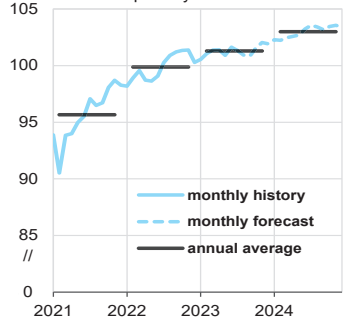
World liquid fuels consumption
million barrels per day



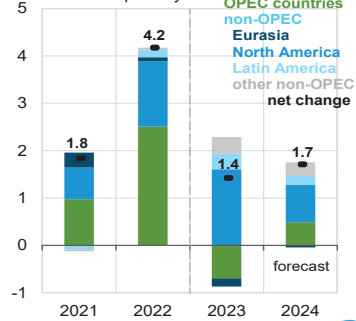
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



World crude oil and liquid fuels production
million barrels per day



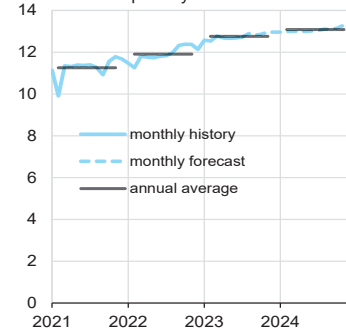
Components of annual change
million barrels per day



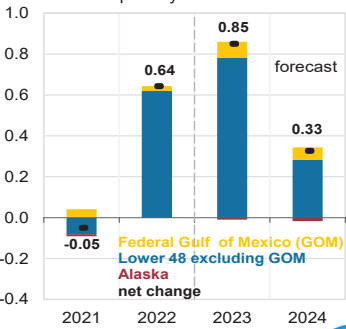
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



U.S. crude oil production
million barrels per day



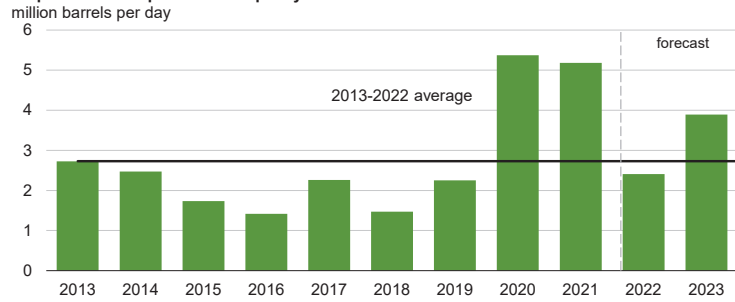
Components of annual change
million barrels per day



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



**Organization of the Petroleum Exporting Countries (OPEC)
surplus crude oil production capacity**

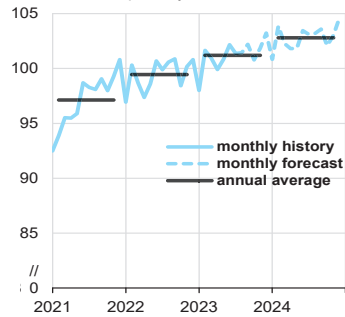


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023

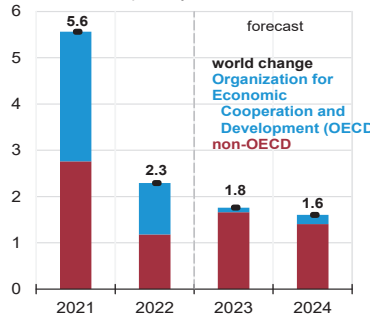
Note: Black line represents 2013-2022 average (2.7 million barrels per day).



World liquid fuels consumption
million barrels per day



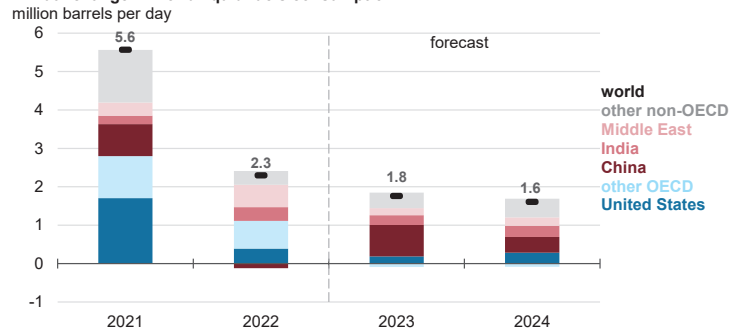
Components of annual change
million barrels per day



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



Annual change in world liquid fuels consumption

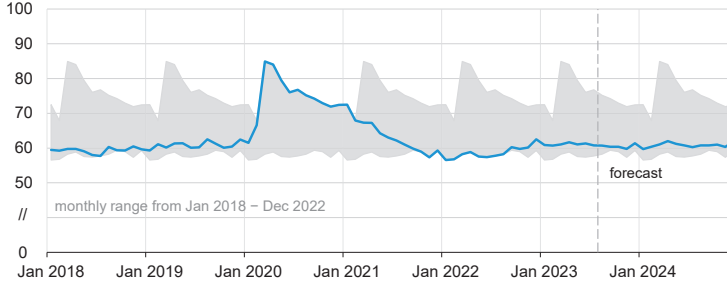


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



Organization for Economic Cooperation and Development (OECD)
commercial inventories of crude oil and other liquids

days of supply

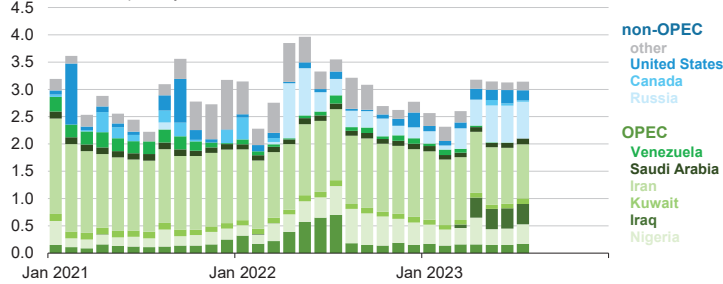


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



Estimated unplanned liquid fuels production outages among OPEC and non-OPEC producers

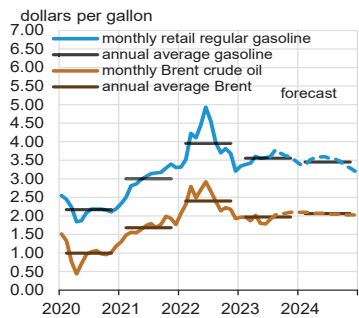
million barrels per day



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023

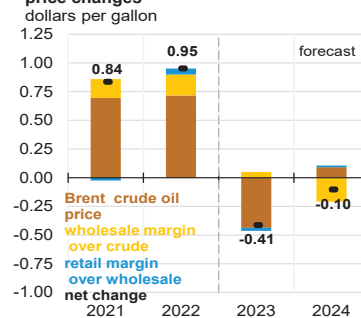


U.S. gasoline and crude oil prices

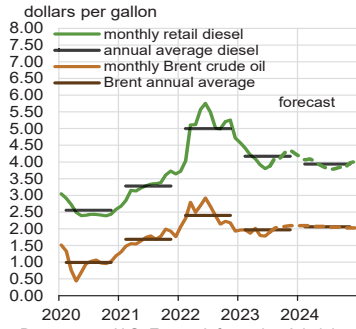


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023, and Refinitiv an LSEG Business

Components of annual gasoline price changes

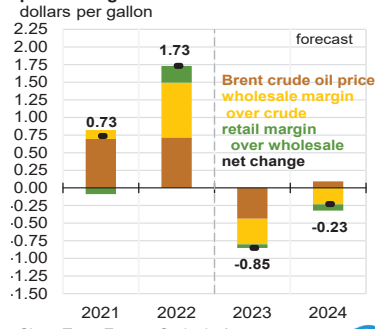


U.S. diesel and crude oil prices

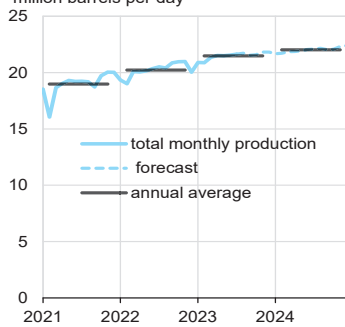


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023, and Refinitiv an LSEG Business

Components of annual diesel price changes

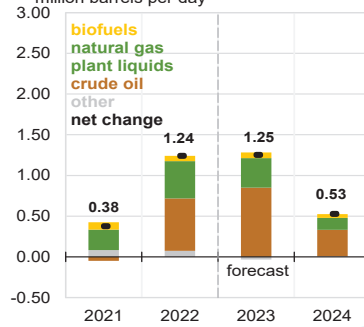


U.S. crude oil and liquid fuels production

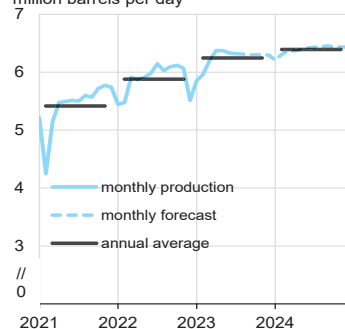


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023

Components of annual change

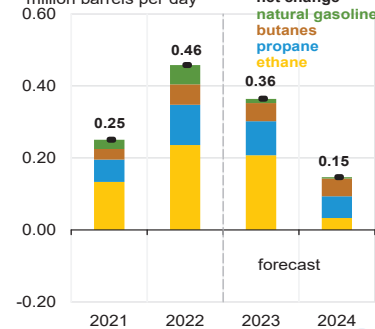


U.S. natural gas plant liquids production

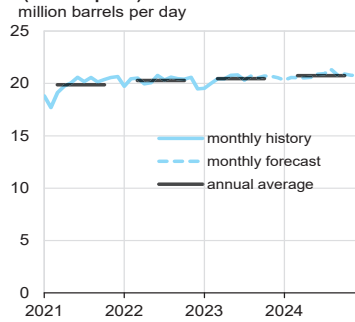


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023

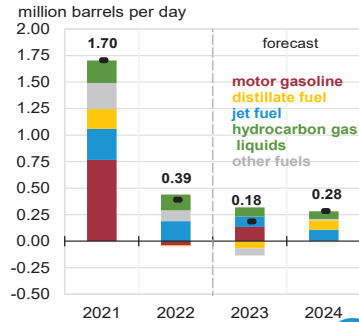
Components of annual change



U.S. liquid fuels product supplied (consumption)



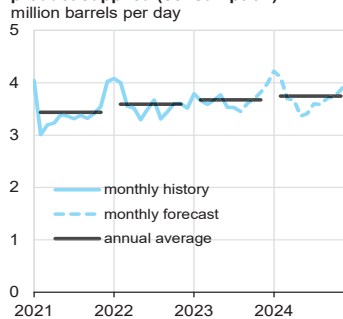
Components of annual change



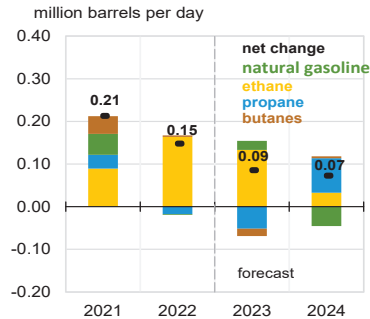
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



U.S. hydrocarbon gas liquids product supplied (consumption)



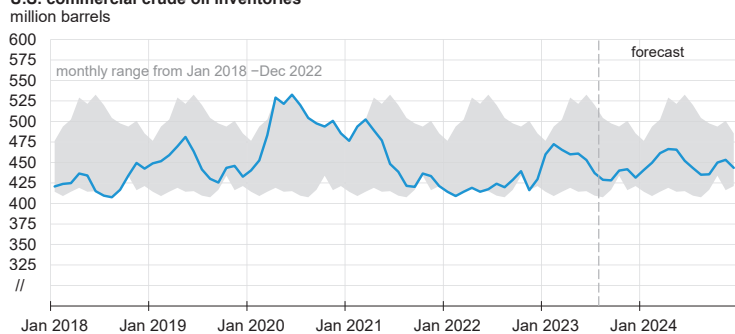
Components of annual change



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



U.S. commercial crude oil inventories

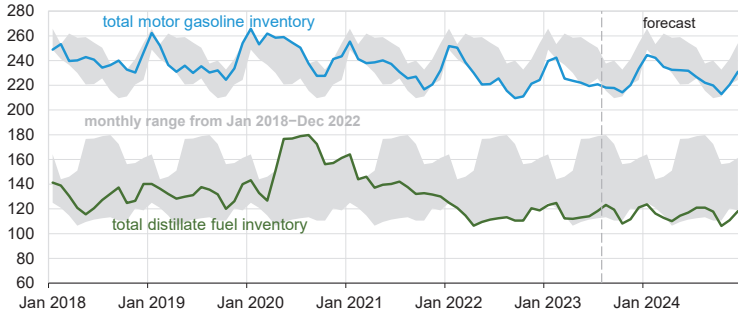


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



U.S. gasoline and distillate inventories

million barrels

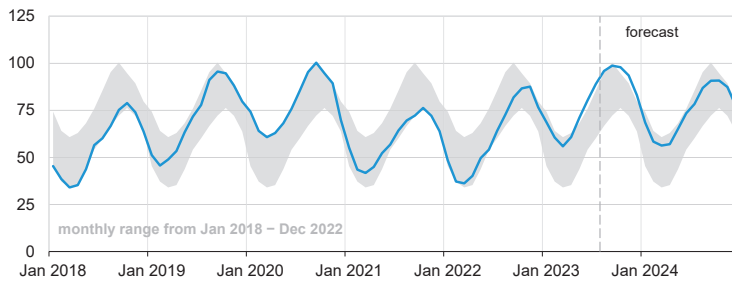


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



U.S. commercial propane inventories

million barrels



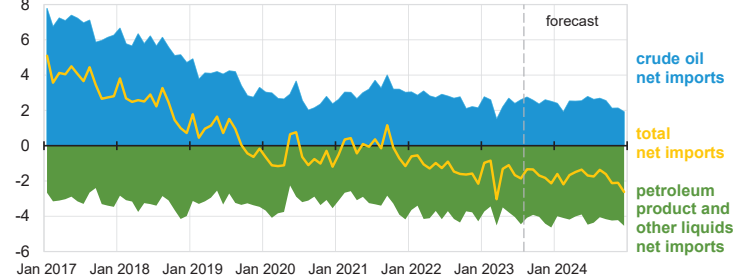
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023

Note: Excludes propylene.



U.S. net imports of crude oil and liquid fuels

million barrels per day

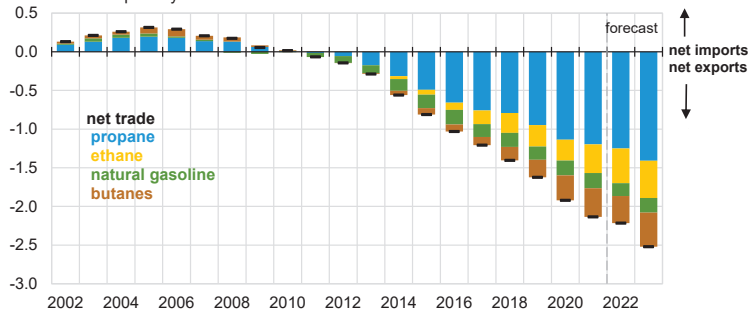


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023

Note: Petroleum product and other liquids include: gasoline, distillate fuels, hydrocarbon gas liquids, jet fuel, residual fuel oil, unfinished oils, other hydrocarbons/oxygenates, and other oils.



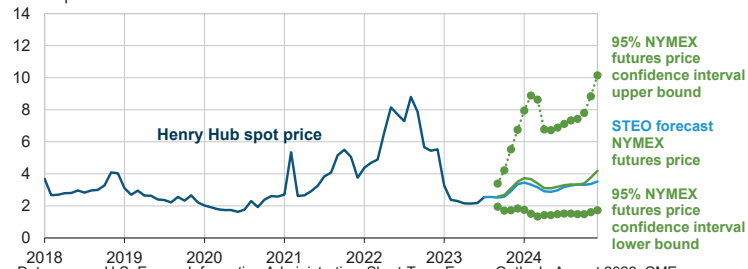
U.S. net trade of hydrocarbon gas liquids (HGL)
million barrels per day



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



Henry Hub natural gas price and NYMEX confidence intervals
dollars per million British thermal units

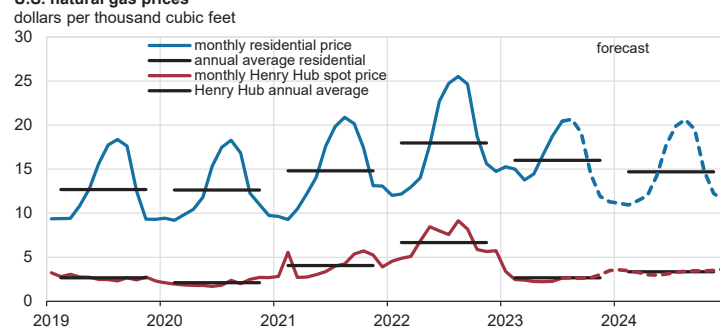


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023, CME Group, and Refinitiv an LSEG Business

Note: Confidence interval derived from options market information for the five trading days ending August 3, 2023. Intervals not calculated for months with sparse trading in near-the-money options contracts.



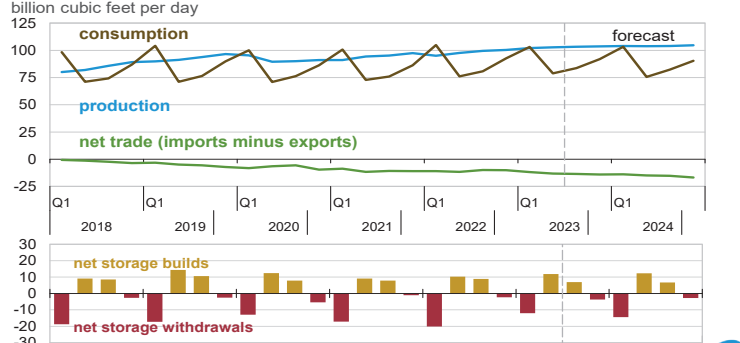
U.S. natural gas prices
dollars per thousand cubic feet



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023, and Refinitiv an LSEG Business



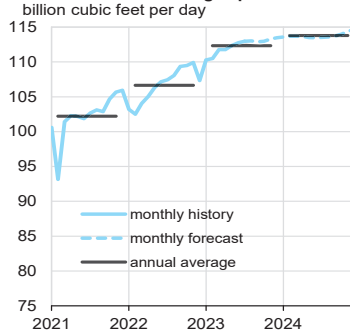
U.S. natural gas production, consumption, and net imports



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



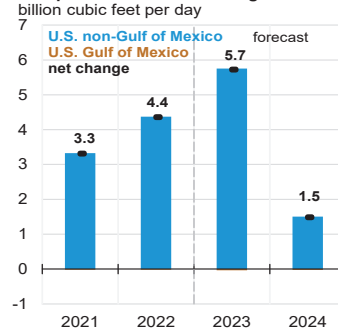
U.S. marketed natural gas production



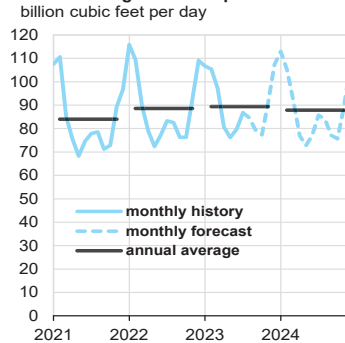
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



Components of annual change



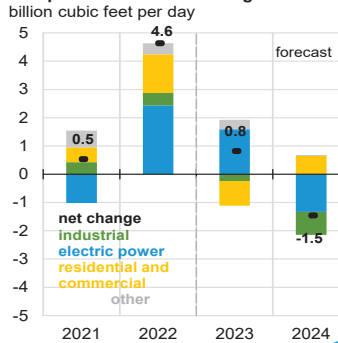
U.S. natural gas consumption



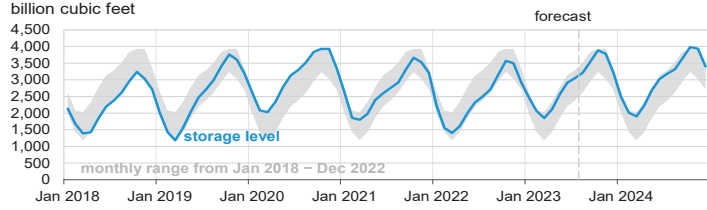
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



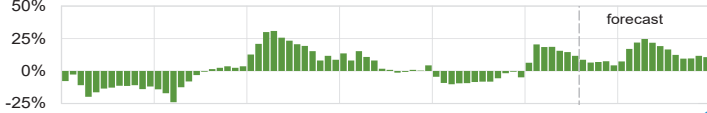
Components of annual change



U.S. working natural gas in storage



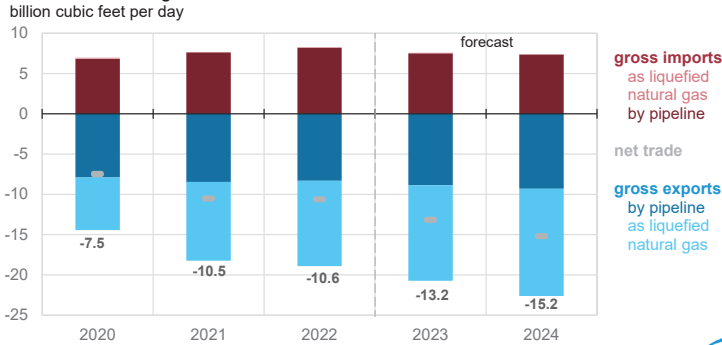
Percentage deviation from 2018 – 2022 average



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



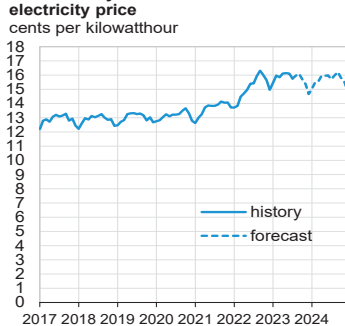
U.S. annual natural gas trade



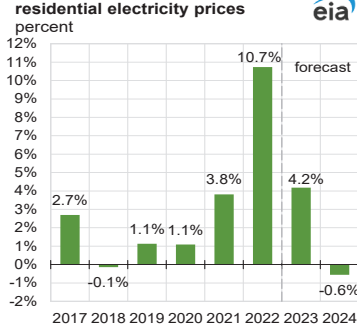
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



U.S. monthly nominal residential electricity price

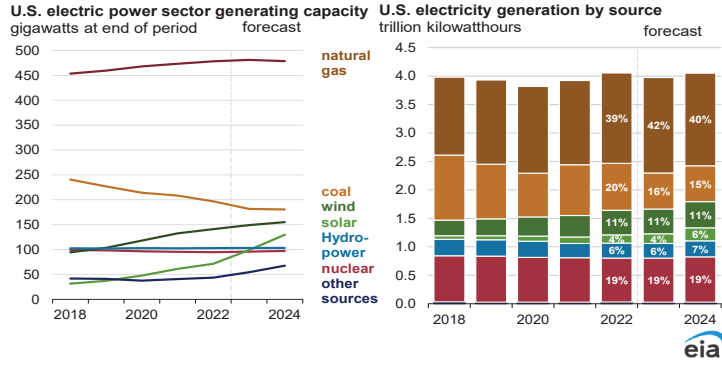


Annual growth in nominal residential electricity prices

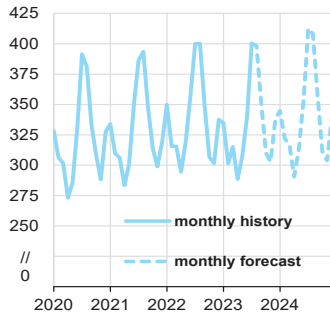


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



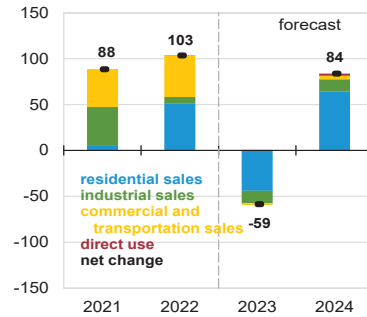


U.S. electricity consumption
billion kilowatt-hours

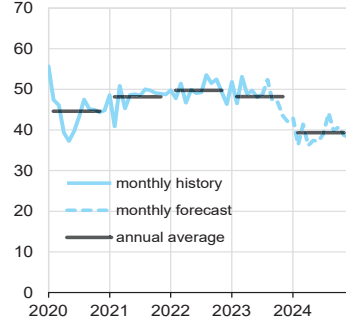


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023

Components of annual change
billion kilowatt-hours

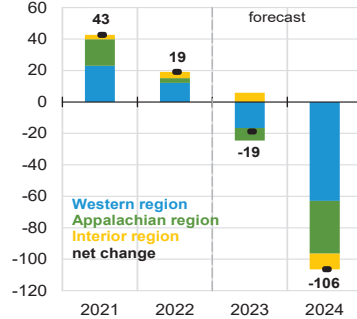


U.S. coal production
million short tons

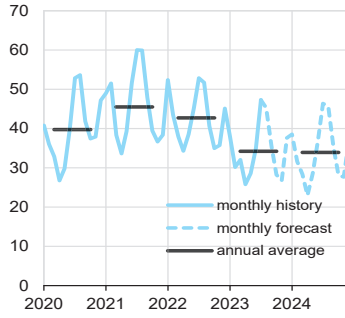


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023

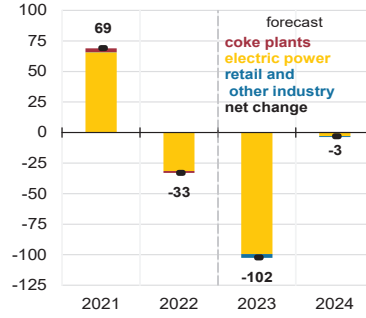
Components of annual change
million short tons



U.S. coal consumption
million short tons



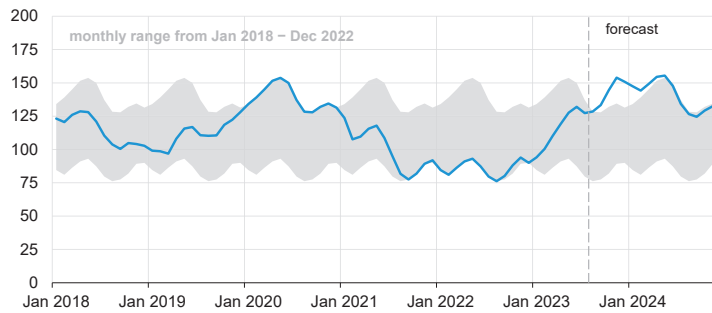
Components of annual change
million short tons



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



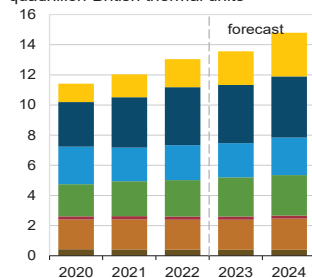
U.S. electric power coal inventories
million short tons



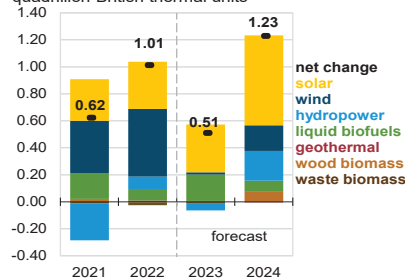
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



U.S. renewable energy supply
quadrillion British thermal units



Components of annual change
quadrillion British thermal units

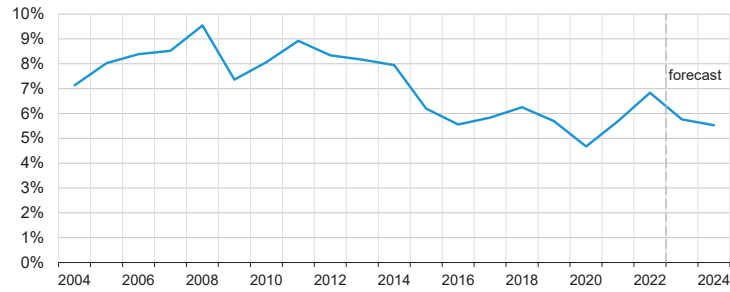


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023

Note: Hydropower excludes pumped storage generation. Liquids include ethanol, biodiesel, renewable diesel, other biofuels, and biofuel losses and coproducts. Waste biomass includes municipal waste from biogenic sources, landfill gas, and non-wood waste.



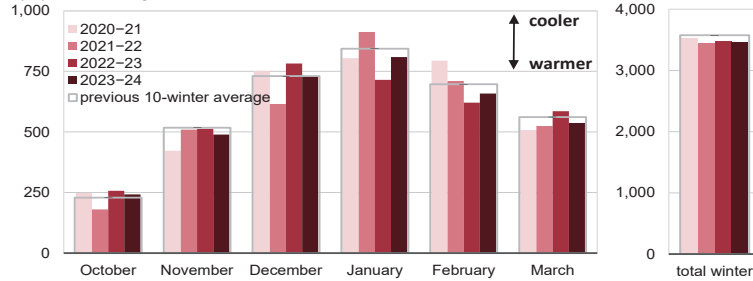
U.S. annual energy expenditures
share of gross domestic product



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



U.S. winter heating degree days
population-weighted

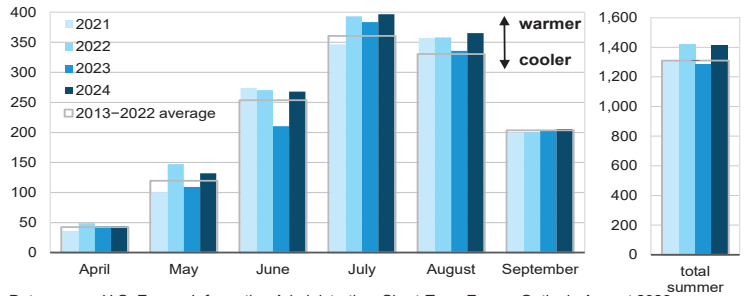


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023

Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Projections reflect NOAA's 14-16 month outlook.



U.S. summer cooling degree days
population-weighted

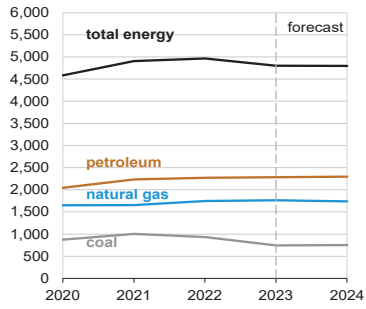


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023

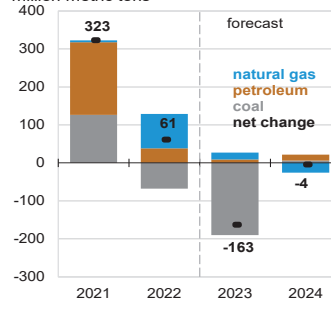
Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Projections reflect NOAA's 14-16 month outlook.



U.S. annual CO2 emissions by source
million metric tons



Components of annual change
million metric tons



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, August 2023



Table 1. U.S. Energy Markets Summary

U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Energy Production															
Crude Oil Production (a) (million barrels per day)	11.52	11.77	12.05	12.30	12.63	12.67	<i>12.81</i>	<i>12.93</i>	<i>12.98</i>	<i>13.01</i>	<i>13.08</i>	<i>13.27</i>	11.91	12.76	13.09
Dry Natural Gas Production (billion cubic feet per day)	95.09	97.59	99.46	100.29	102.13	102.78	<i>103.36</i>	<i>103.63</i>	<i>104.00</i>	<i>103.89</i>	<i>103.96</i>	<i>104.64</i>	98.13	102.98	104.13
Coal Production (million short tons)	149	146	154	148	151	147	<i>148</i>	<i>132</i>	<i>121</i>	<i>111</i>	<i>123</i>	<i>118</i>	597	578	472
Energy Consumption															
Liquid Fuels (million barrels per day)	20.22	20.27	20.47	20.16	20.00	20.68	<i>20.53</i>	<i>20.65</i>	<i>20.47</i>	<i>20.67</i>	<i>21.03</i>	<i>20.82</i>	20.28	20.47	20.75
Natural Gas (billion cubic feet per day)	104.83	76.13	80.77	92.62	103.05	78.87	<i>83.65</i>	<i>91.99</i>	<i>103.23</i>	<i>75.60</i>	<i>82.33</i>	<i>90.39</i>	88.53	89.34	87.88
Coal (b) (million short tons)	134	118	145	116	100	89	<i>128</i>	<i>93</i>	<i>98</i>	<i>88</i>	<i>127</i>	<i>93</i>	513	410	407
Electricity (billion kilowatt hours per day)	10.90	10.68	12.50	10.28	10.57	10.29	<i>12.51</i>	<i>10.33</i>	<i>10.81</i>	<i>10.53</i>	<i>12.80</i>	<i>10.37</i>	11.09	10.93	11.13
Renewables (c) (quadrillion Btu)	3.31	3.51	3.09	3.13	3.33	3.51	<i>3.31</i>	<i>3.41</i>	<i>3.68</i>	<i>3.88</i>	<i>3.61</i>	<i>3.61</i>	13.04	13.55	14.79
Total Energy Consumption (d) (quadrillion Btu)	26.48	23.81	24.86	25.14	25.53	23.75	<i>25.02</i>	<i>25.09</i>	<i>26.30</i>	<i>23.76</i>	<i>25.38</i>	<i>25.18</i>	100.29	99.38	100.62
Energy Prices															
Crude Oil West Texas Intermediate Spot (dollars per barrel)	95.18	108.93	93.07	82.69	75.96	73.49	<i>79.07</i>	<i>82.65</i>	<i>83.00</i>	<i>82.00</i>	<i>81.00</i>	<i>80.00</i>	94.91	77.79	81.48
Natural Gas Henry Hub Spot (dollars per million Btu)	4.66	7.48	7.99	5.55	2.65	2.16	<i>2.54</i>	<i>2.95</i>	<i>3.32</i>	<i>2.92</i>	<i>3.26</i>	<i>3.40</i>	6.42	2.58	3.22
Coal (dollars per million Btu)	2.18	2.26	2.50	2.55	2.57	2.49	<i>2.48</i>	<i>2.42</i>	<i>2.43</i>	<i>2.42</i>	<i>2.43</i>	<i>2.39</i>	2.37	2.49	2.42
Macroeconomic															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR)	19,924	19,895	20,055	20,182	20,283	20,359	<i>20,427</i>	<i>20,475</i>	<i>20,524</i>	<i>20,589</i>	<i>20,669</i>	<i>20,748</i>	20,014	20,386	20,633
Percent change from prior year	3.7	1.8	1.9	0.9	1.8	2.3	<i>1.9</i>	<i>1.4</i>	<i>1.2</i>	<i>1.1</i>	<i>1.2</i>	<i>1.3</i>	2.1	1.9	1.2
GDP Implicit Price Deflator (Index, 2012=100)	124.2	126.9	128.3	129.5	130.8	131.8	<i>132.6</i>	<i>133.6</i>	<i>134.6</i>	<i>135.3</i>	<i>136.1</i>	<i>137.0</i>	127.2	132.2	135.7
Percent change from prior year	6.9	7.6	7.1	6.4	5.3	3.9	<i>3.4</i>	<i>3.1</i>	<i>2.9</i>	<i>2.7</i>	<i>2.6</i>	<i>2.5</i>	7.0	3.9	2.7
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	15,109	15,022	15,141	15,236	15,550	15,626	<i>15,733</i>	<i>15,809</i>	<i>15,937</i>	<i>16,072</i>	<i>16,177</i>	<i>16,272</i>	15,127	15,679	16,114
Percent change from prior year	-12.8	-5.7	-3.8	-1.9	2.9	4.0	<i>3.9</i>	<i>3.8</i>	<i>2.5</i>	<i>2.9</i>	<i>2.8</i>	<i>2.9</i>	-6.2	3.7	2.8
Manufacturing Production Index (Index, 2017=100)	100.1	100.8	100.9	100.0	99.9	100.4	<i>100.2</i>	<i>100.2</i>	<i>100.1</i>	<i>100.1</i>	<i>100.5</i>	<i>100.9</i>	100.5	100.2	100.4
Percent change from prior year	4.5	3.6	2.8	0.7	-0.2	-0.4	<i>-0.7</i>	<i>0.2</i>	<i>0.2</i>	<i>-0.3</i>	<i>0.3</i>	<i>0.7</i>	2.9	-0.3	0.3
Weather															
U.S. Heating Degree-Days	2,147	491	54	1,552	1,921	486	<i>69</i>	<i>1,461</i>	<i>2,005</i>	<i>472</i>	<i>75</i>	<i>1,454</i>	4,243	3,938	4,006
U.S. Cooling Degree-Days	47	467	952	89	69	364	<i>923</i>	<i>104</i>	<i>50</i>	<i>444</i>	<i>968</i>	<i>105</i>	1,555	1,459	1,567

(a) Includes lease condensate.

(b) Total consumption includes Independent Power Producer (IPP) consumption.

(c) Renewable energy includes minor components of non-marketed renewable energy that is neither bought nor sold, either directly or indirectly, as inputs to marketed energy.

EIA does not estimate or project end-use consumption of non-marketed renewable energy.

(d) The conversion from physical units to Btu is calculated using a subset of conversion factors used in the calculations of gross energy consumption in EIA's Monthly Energy Review (MER). Consequently, the historical data may not precisely match those published in the MER or the Annual Energy Review (AER).

(e) Refers to the refiner average acquisition cost (RAC) of crude oil.

- = no data available

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Prices are not adjusted for inflation.

Historical data: Latest data available from Energy Information Administration databases supporting the following reports: *Petroleum Supply Monthly*, DOE/EIA-0109; *Petroleum Supply Annual*, DOE/EIA-0340/2; *Weekly Petroleum Status Report*, DOE/EIA-0208; *Petroleum Marketing Monthly*, DOE/EIA-0380; *Natural Gas Monthly*, DOE/EIA-0130; *Electric Power Monthly*, DOE/EIA-0226; *Quarterly Coal Report*, DOE/EIA-0121; and *International Petroleum Monthly*, DOE/EIA-0520.

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System. U.S. macroeconomic forecasts are based on the S&P Global model of the U.S. Economy.

Weather forecasts from National Oceanic and Atmospheric Administration and Energy Information Administration.

Table 2. Energy Prices

U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Crude Oil (dollars per barrel)															
West Texas Intermediate Spot Average	95.18	108.93	93.07	82.69	75.96	73.49	<i>79.07</i>	<i>82.65</i>	<i>83.00</i>	<i>82.00</i>	<i>81.00</i>	<i>80.00</i>	94.91	<i>77.79</i>	<i>81.48</i>
Brent Spot Average	101.17	113.84	100.53	88.44	81.04	78.02	<i>83.77</i>	<i>87.65</i>	<i>88.00</i>	<i>87.00</i>	<i>86.00</i>	<i>85.00</i>	100.94	<i>82.62</i>	<i>86.48</i>
U.S. Imported Average	89.89	107.86	91.86	78.11	69.58	70.47	<i>76.27</i>	<i>79.93</i>	<i>80.25</i>	<i>79.25</i>	<i>78.25</i>	<i>77.25</i>	92.73	<i>74.25</i>	<i>78.78</i>
U.S. Refiner Average Acquisition Cost	92.68	110.12	95.20	83.11	74.44	73.90	<i>78.47</i>	<i>82.17</i>	<i>82.50</i>	<i>81.50</i>	<i>80.50</i>	<i>79.50</i>	95.33	<i>77.29</i>	<i>80.99</i>
U.S. Liquid Fuels (cents per gallon)															
Refiner Prices for Resale															
Gasoline	278	376	311	267	262	265	<i>287</i>	<i>267</i>	<i>257</i>	<i>271</i>	<i>264</i>	<i>241</i>	309	<i>270</i>	<i>258</i>
Diesel Fuel	301	418	357	364	295	245	<i>289</i>	<i>295</i>	<i>276</i>	<i>264</i>	<i>257</i>	<i>270</i>	361	<i>281</i>	<i>267</i>
Fuel Oil	284	419	344	359	278	233	<i>267</i>	<i>284</i>	<i>267</i>	<i>250</i>	<i>241</i>	<i>263</i>	352	<i>265</i>	<i>263</i>
Refiner Prices to End Users															
Jet Fuel	283	400	340	332	305	233	<i>276</i>	<i>290</i>	<i>268</i>	<i>256</i>	<i>246</i>	<i>254</i>	340	<i>275</i>	<i>256</i>
No. 6 Residual Fuel Oil (a)	252	258	228	201	196	189	<i>198</i>	<i>209</i>	<i>213</i>	<i>208</i>	<i>207</i>	<i>205</i>	236	<i>200</i>	<i>208</i>
Retail Prices Including Taxes															
Gasoline Regular Grade (b)	371	450	408	357	338	358	<i>369</i>	<i>357</i>	<i>343</i>	<i>358</i>	<i>352</i>	<i>329</i>	397	<i>356</i>	<i>345</i>
Gasoline All Grades (b)	380	460	419	369	349	369	<i>381</i>	<i>369</i>	<i>354</i>	<i>369</i>	<i>363</i>	<i>341</i>	408	<i>367</i>	<i>357</i>
On-highway Diesel Fuel	432	549	516	508	439	394	<i>405</i>	<i>430</i>	<i>410</i>	<i>392</i>	<i>380</i>	<i>393</i>	502	<i>417</i>	<i>394</i>
Heating Oil	415	553	497	493	406	353	<i>363</i>	<i>393</i>	<i>383</i>	<i>361</i>	<i>343</i>	<i>383</i>	466	<i>389</i>	<i>376</i>
Natural Gas															
Henry Hub Spot (dollars per thousand cubic feet)	4.84	7.77	8.30	5.76	2.76	2.25	<i>2.64</i>	<i>3.06</i>	<i>3.44</i>	<i>3.04</i>	<i>3.39</i>	<i>3.53</i>	6.67	<i>2.68</i>	<i>3.35</i>
Henry Hub Spot (dollars per million Btu)	4.66	7.48	7.99	5.55	2.65	2.16	<i>2.54</i>	<i>2.95</i>	<i>3.32</i>	<i>2.92</i>	<i>3.26</i>	<i>3.40</i>	6.42	<i>2.58</i>	<i>3.22</i>
U.S. Retail Prices (dollars per thousand cubic feet)															
Industrial Sector	6.82	8.24	9.27	7.53	6.16	3.75	<i>3.65</i>	<i>4.29</i>	<i>5.02</i>	<i>4.13</i>	<i>4.25</i>	<i>4.79</i>	7.90	<i>4.54</i>	<i>4.58</i>
Commercial Sector	10.00	11.71	14.12	12.14	11.84	10.49	<i>10.17</i>	<i>8.53</i>	<i>8.41</i>	<i>9.01</i>	<i>9.83</i>	<i>8.64</i>	11.37	<i>10.39</i>	<i>8.74</i>
Residential Sector	12.32	16.57	24.95	15.63	14.73	16.10	<i>20.02</i>	<i>12.01</i>	<i>11.15</i>	<i>13.92</i>	<i>19.97</i>	<i>12.32</i>	14.82	<i>14.49</i>	<i>12.63</i>
U.S. Electricity															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	2.18	2.26	2.50	2.55	2.57	2.49	<i>2.48</i>	<i>2.42</i>	<i>2.43</i>	<i>2.42</i>	<i>2.43</i>	<i>2.39</i>	2.37	<i>2.49</i>	<i>2.42</i>
Natural Gas	5.95	7.39	8.23	6.90	4.99	2.59	<i>2.64</i>	<i>3.27</i>	<i>3.86</i>	<i>3.10</i>	<i>3.33</i>	<i>3.74</i>	7.24	<i>3.28</i>	<i>3.48</i>
Residual Fuel Oil (c)	16.81	26.17	26.53	21.27	19.24	17.85	<i>15.51</i>	<i>16.39</i>	<i>16.58</i>	<i>16.89</i>	<i>15.86</i>	<i>15.81</i>	21.80	<i>17.29</i>	<i>16.25</i>
Distillate Fuel Oil	21.23	30.71	26.79	24.48	22.84	41.50	<i>22.38</i>	<i>22.27</i>	<i>21.30</i>	<i>20.29</i>	<i>19.63</i>	<i>20.81</i>	24.89	<i>26.54</i>	<i>20.65</i>
Prices to Ultimate Customers (cents per kilowatthour)															
Industrial Sector	7.42	8.41	9.38	8.52	8.12	7.93	<i>8.87</i>	<i>8.26</i>	<i>8.32</i>	<i>8.04</i>	<i>9.02</i>	<i>8.41</i>	8.45	<i>8.31</i>	<i>8.46</i>
Commercial Sector	11.63	12.35	13.38	12.66	12.69	12.51	<i>13.09</i>	<i>12.04</i>	<i>12.11</i>	<i>12.38</i>	<i>13.42</i>	<i>12.45</i>	12.55	<i>12.61</i>	<i>12.63</i>
Residential Sector	13.98	15.07	15.85	15.48	15.74	16.12	<i>15.92</i>	<i>15.20</i>	<i>15.33</i>	<i>15.97</i>	<i>15.95</i>	<i>15.35</i>	15.12	<i>15.76</i>	<i>15.67</i>

(a) Average for all sulfur contents.

(b) Average self-service cash price.

(c) Includes fuel oils No. 4, No. 5, No. 6, and topped crude.

- = no data available

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Prices are not adjusted for inflation; prices exclude taxes unless otherwise noted.

Historical data: Latest data available from Energy Information Administration databases supporting the following reports: *Petroleum Marketing Monthly*, DOE/EIA-0380;

Weekly Petroleum Status Report, DOE/EIA-0208; *Natural Gas Monthly*, DOE/EIA-0130; *Electric Power Monthly*, DOE/EIA-0226; and *Monthly Energy Review*, DOE/EIA-0035.

Natural gas Henry Hub and WTI crude oil spot prices from Reuter's News Service (<http://www.reuters.com>).

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 3a. International Petroleum and Other Liquids Production, Consumption, and Inventories

U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Production (million barrels per day) (a)															
OECD	31.68	31.95	32.53	32.95	33.47	33.75	<i>34.08</i>	<i>34.63</i>	<i>34.79</i>	<i>34.60</i>	<i>34.83</i>	<i>35.41</i>	32.28	<i>33.99</i>	<i>34.91</i>
U.S. (50 States)	19.50	20.19	20.59	20.65	21.05	21.52	<i>21.63</i>	<i>21.74</i>	<i>21.75</i>	<i>21.95</i>	<i>22.09</i>	<i>22.26</i>	20.24	<i>21.49</i>	<i>22.01</i>
Canada	5.66	5.51	5.72	5.91	5.79	5.57	<i>5.86</i>	<i>6.12</i>	<i>6.20</i>	<i>5.92</i>	<i>6.12</i>	<i>6.34</i>	5.70	<i>5.84</i>	<i>6.15</i>
Mexico	1.91	1.89	1.90	1.90	2.07	2.16	<i>2.14</i>	<i>2.12</i>	<i>2.12</i>	<i>2.11</i>	<i>2.07</i>	<i>2.02</i>	1.90	<i>2.12</i>	<i>2.08</i>
Other OECD	4.61	4.35	4.32	4.49	4.56	4.51	<i>4.45</i>	<i>4.66</i>	<i>4.72</i>	<i>4.62</i>	<i>4.54</i>	<i>4.79</i>	4.44	<i>4.55</i>	<i>4.67</i>
Non-OECD	67.20	66.86	68.26	68.05	67.52	67.56	<i>66.95</i>	<i>67.20</i>	<i>67.54</i>	<i>68.23</i>	<i>68.55</i>	<i>68.06</i>	67.60	<i>67.31</i>	<i>68.10</i>
OPEC	33.75	33.76	34.71	34.43	33.95	33.71	<i>32.91</i>	<i>33.33</i>	<i>33.96</i>	<i>33.98</i>	<i>34.07</i>	<i>33.81</i>	34.17	<i>33.47</i>	<i>33.96</i>
Crude Oil Portion	28.19	28.33	29.23	28.92	28.46	28.37	<i>27.51</i>	<i>27.89</i>	<i>28.43</i>	<i>28.58</i>	<i>28.63</i>	<i>28.33</i>	28.67	<i>28.06</i>	<i>28.50</i>
Other Liquids (b)	5.56	5.43	5.48	5.52	5.49	5.34	<i>5.40</i>	<i>5.44</i>	<i>5.53</i>	<i>5.40</i>	<i>5.44</i>	<i>5.48</i>	5.50	<i>5.42</i>	<i>5.46</i>
Eurasia	14.39	13.39	13.56	13.90	14.00	13.56	<i>13.43</i>	<i>13.60</i>	<i>13.62</i>	<i>13.60</i>	<i>13.54</i>	<i>13.65</i>	13.81	<i>13.64</i>	<i>13.60</i>
China	5.18	5.18	5.05	5.09	5.32	5.32	<i>5.28</i>	<i>5.32</i>	<i>5.27</i>	<i>5.30</i>	<i>5.29</i>	<i>5.33</i>	5.12	<i>5.31</i>	<i>5.30</i>
Other Non-OECD	13.89	14.53	14.94	14.63	14.26	14.96	<i>15.34</i>	<i>14.95</i>	<i>14.68</i>	<i>15.35</i>	<i>15.65</i>	<i>15.26</i>	14.50	<i>14.88</i>	<i>15.24</i>
Total World Production	98.88	98.81	100.79	101.00	101.00	101.31	<i>101.03</i>	<i>101.83</i>	<i>102.33</i>	<i>102.83</i>	<i>103.38</i>	<i>103.47</i>	99.88	<i>101.30</i>	<i>103.00</i>
Non-OPEC Production	65.14	65.05	66.08	66.57	67.05	67.60	<i>68.13</i>	<i>68.50</i>	<i>68.36</i>	<i>68.85</i>	<i>69.31</i>	<i>69.66</i>	65.71	<i>67.82</i>	<i>69.05</i>
Consumption (million barrels per day) (c)															
OECD	45.76	45.38	46.58	45.95	45.53	45.59	<i>46.31</i>	<i>46.63</i>	<i>46.06</i>	<i>45.60</i>	<i>46.60</i>	<i>46.58</i>	45.92	<i>46.02</i>	<i>46.21</i>
U.S. (50 States)	20.22	20.27	20.47	20.16	20.00	20.68	<i>20.53</i>	<i>20.65</i>	<i>20.47</i>	<i>20.67</i>	<i>21.03</i>	<i>20.82</i>	20.28	<i>20.47</i>	<i>20.75</i>
U.S. Territories	0.11	0.12	0.13	0.12	0.12	0.12	<i>0.12</i>	<i>0.12</i>	<i>0.11</i>	<i>0.11</i>	<i>0.11</i>	<i>0.11</i>	0.12	<i>0.12</i>	<i>0.11</i>
Canada	2.24	2.21	2.38	2.30	2.24	2.24	<i>2.34</i>	<i>2.31</i>	<i>2.28</i>	<i>2.23</i>	<i>2.33</i>	<i>2.31</i>	2.28	<i>2.28</i>	<i>2.29</i>
Europe	13.19	13.43	14.04	13.35	13.06	13.30	<i>13.87</i>	<i>13.63</i>	<i>13.22</i>	<i>13.37</i>	<i>13.79</i>	<i>13.55</i>	13.50	<i>13.47</i>	<i>13.48</i>
Japan	3.70	3.03	3.19	3.56	3.72	3.01	<i>3.12</i>	<i>3.45</i>	<i>3.55</i>	<i>2.94</i>	<i>3.04</i>	<i>3.37</i>	3.37	<i>3.32</i>	<i>3.22</i>
Other OECD	6.30	6.33	6.37	6.45	6.39	6.24	<i>6.34</i>	<i>6.47</i>	<i>6.42</i>	<i>6.28</i>	<i>6.30</i>	<i>6.43</i>	6.36	<i>6.36</i>	<i>6.36</i>
Non-OECD	52.83	53.49	53.86	53.86	54.63	55.38	<i>55.36</i>	<i>55.32</i>	<i>56.23</i>	<i>56.75</i>	<i>56.69</i>	<i>56.65</i>	53.51	<i>55.18</i>	<i>56.58</i>
Eurasia	4.28	4.43	4.73	4.65	4.32	4.47	<i>4.79</i>	<i>4.70</i>	<i>4.45</i>	<i>4.60</i>	<i>4.92</i>	<i>4.83</i>	4.53	<i>4.57</i>	<i>4.70</i>
Europe	0.74	0.76	0.76	0.77	0.74	0.76	<i>0.77</i>	<i>0.77</i>	<i>0.75</i>	<i>0.77</i>	<i>0.77</i>	<i>0.78</i>	0.76	<i>0.76</i>	<i>0.77</i>
China	15.12	15.10	15.09	15.28	15.93	16.13	<i>15.80</i>	<i>16.02</i>	<i>16.34</i>	<i>16.54</i>	<i>16.21</i>	<i>16.43</i>	15.15	<i>15.97</i>	<i>16.38</i>
Other Asia	13.75	13.76	13.41	13.84	14.26	14.32	<i>13.74</i>	<i>14.04</i>	<i>14.85</i>	<i>14.82</i>	<i>14.22</i>	<i>14.54</i>	13.69	<i>14.09</i>	<i>14.60</i>
Other Non-OECD	18.95	19.45	19.86	19.32	19.38	19.70	<i>20.26</i>	<i>19.80</i>	<i>19.84</i>	<i>20.02</i>	<i>20.57</i>	<i>20.09</i>	19.39	<i>19.79</i>	<i>20.13</i>
Total World Consumption	98.59	98.87	100.45	99.80	100.16	100.97	<i>101.67</i>	<i>101.95</i>	<i>102.29</i>	<i>102.36</i>	<i>103.29</i>	<i>103.24</i>	99.43	<i>101.19</i>	<i>102.80</i>
Total Crude Oil and Other Liquids Inventory Net Withdrawals (million barrels per day)															
U.S. (50 States)	0.81	0.51	0.45	0.41	-0.09	-0.09	<i>-0.14</i>	<i>0.33</i>	<i>-0.03</i>	<i>-0.37</i>	<i>0.00</i>	<i>0.38</i>	0.54	<i>0.00</i>	<i>0.00</i>
Other OECD	-0.09	-0.29	-0.48	-0.26	0.32	-0.47	<i>0.25</i>	<i>-0.07</i>	<i>0.00</i>	<i>-0.03</i>	<i>-0.03</i>	<i>-0.19</i>	-0.28	<i>0.01</i>	<i>-0.06</i>
Other Stock Draws and Balance	-1.01	-0.16	-0.31	-1.34	-1.07	0.22	<i>0.53</i>	<i>-0.14</i>	<i>-0.01</i>	<i>-0.07</i>	<i>-0.07</i>	<i>-0.42</i>	-0.71	<i>-0.11</i>	<i>-0.14</i>
Total Stock Draw	-0.30	0.06	-0.34	-1.20	-0.84	-0.34	<i>0.63</i>	<i>0.12</i>	<i>-0.04</i>	<i>-0.48</i>	<i>-0.09</i>	<i>-0.23</i>	-0.45	<i>-0.10</i>	<i>-0.21</i>
End-of-period Commercial Crude Oil and Other Liquids Inventories (million barrels)															
U.S. Commercial Inventory	1,154	1,180	1,215	1,222	1,231	1,263	<i>1,270</i>	<i>1,240</i>	<i>1,242</i>	<i>1,276</i>	<i>1,276</i>	<i>1,241</i>	1,222	<i>1,240</i>	<i>1,241</i>
OECD Commercial Inventory	2,604	2,656	2,735	2,766	2,746	2,821	<i>2,805</i>	<i>2,781</i>	<i>2,784</i>	<i>2,821</i>	<i>2,823</i>	<i>2,806</i>	2,766	<i>2,781</i>	<i>2,806</i>

(a) Supply includes production of crude oil (including lease condensates), natural gas plant liquids, biofuels, other liquids, and refinery processing gains.

(b) Includes lease condensate, natural gas plant liquids, other liquids, and refinery processing gain. Includes other unaccounted-for liquids.

 (c) Consumption of petroleum by the OECD countries is synonymous with "petroleum product supplied," defined in the glossary of the EIA *Petroleum Supply Monthly*,

DOE/EIA-0109. Consumption of petroleum by the non-OECD countries is "apparent consumption," which includes internal consumption, refinery fuel and loss, and bunkering.

- = no data available

OECD = Organization for Economic Cooperation and Development: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Latvia, Lithuania, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Slovenia, South Korea, Spain, Sweden, Switzerland, Turkey, the United Kingdom, the United States.

OPEC = Organization of the Petroleum Exporting Countries: Algeria, Angola, Congo (Brazzaville), Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Saudi Arabia, the United Arab Emirates, Venezuela.

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Historical data: Latest data available from Energy Information Administration international energy statistics.

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 3b. Non-OPEC Petroleum and Other Liquids Production (million barrels per day)
U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
North America	27.07	27.60	28.21	28.47	28.91	29.24	<i>29.64</i>	<i>29.97</i>	<i>30.07</i>	<i>29.97</i>	<i>30.29</i>	<i>30.62</i>	27.84	<i>29.44</i>	<i>30.24</i>
Canada	5.66	5.51	5.72	5.91	5.79	5.57	<i>5.86</i>	<i>6.12</i>	<i>6.20</i>	<i>5.92</i>	<i>6.12</i>	<i>6.34</i>	5.70	<i>5.84</i>	<i>6.15</i>
Mexico	1.91	1.89	1.90	1.90	2.07	2.16	<i>2.14</i>	<i>2.12</i>	<i>2.12</i>	<i>2.11</i>	<i>2.07</i>	<i>2.02</i>	1.90	<i>2.12</i>	<i>2.08</i>
United States	19.50	20.19	20.59	20.65	21.05	21.52	<i>21.63</i>	<i>21.74</i>	<i>21.75</i>	<i>21.95</i>	<i>22.09</i>	<i>22.26</i>	20.24	<i>21.49</i>	<i>22.01</i>
Central and South America	5.83	6.41	6.86	6.58	6.31	6.94	<i>7.30</i>	<i>6.92</i>	<i>6.68</i>	<i>7.38</i>	<i>7.68</i>	<i>7.30</i>	6.42	<i>6.87</i>	<i>7.26</i>
Argentina	0.77	0.78	0.79	0.82	0.81	0.81	<i>0.84</i>	<i>0.87</i>	<i>0.85</i>	<i>0.87</i>	<i>0.89</i>	<i>0.92</i>	0.79	<i>0.83</i>	<i>0.88</i>
Brazil	3.33	3.79	4.15	3.78	3.55	4.14	<i>4.47</i>	<i>4.04</i>	<i>3.76</i>	<i>4.32</i>	<i>4.61</i>	<i>4.20</i>	3.76	<i>4.05</i>	<i>4.22</i>
Colombia	0.77	0.77	0.78	0.79	0.79	0.81	<i>0.80</i>	<i>0.79</i>	<i>0.78</i>	<i>0.78</i>	<i>0.77</i>	<i>0.78</i>	0.78	<i>0.80</i>	<i>0.78</i>
Ecuador	0.48	0.47	0.49	0.49	0.46	0.48	<i>0.48</i>	<i>0.49</i>	<i>0.49</i>	<i>0.49</i>	<i>0.49</i>	<i>0.50</i>	0.48	<i>0.48</i>	<i>0.49</i>
Guyana	0.12	0.24	0.32	0.35	0.35	0.37	<i>0.38</i>	<i>0.41</i>	<i>0.48</i>	<i>0.60</i>	<i>0.60</i>	<i>0.60</i>	0.26	<i>0.38</i>	<i>0.57</i>
Europe	4.04	3.76	3.81	3.93	4.01	3.98	<i>3.91</i>	<i>4.13</i>	<i>4.17</i>	<i>4.08</i>	<i>3.99</i>	<i>4.26</i>	3.89	<i>4.01</i>	<i>4.12</i>
Norway	1.97	1.74	1.91	1.99	2.03	2.02	<i>1.95</i>	<i>2.06</i>	<i>2.09</i>	<i>2.02</i>	<i>2.03</i>	<i>2.20</i>	1.90	<i>2.01</i>	<i>2.09</i>
United Kingdom	0.97	0.91	0.80	0.84	0.87	0.85	<i>0.84</i>	<i>0.94</i>	<i>0.94</i>	<i>0.92</i>	<i>0.83</i>	<i>0.91</i>	0.88	<i>0.88</i>	<i>0.90</i>
Eurasia	14.39	13.39	13.56	13.90	14.00	13.56	<i>13.43</i>	<i>13.60</i>	<i>13.62</i>	<i>13.60</i>	<i>13.54</i>	<i>13.65</i>	13.81	<i>13.64</i>	<i>13.60</i>
Azerbaijan	0.70	0.67	0.65	0.67	0.65	0.62	<i>0.64</i>	<i>0.65</i>	<i>0.65</i>	<i>0.65</i>	<i>0.65</i>	<i>0.66</i>	0.67	<i>0.64</i>	<i>0.65</i>
Kazakhstan	2.01	1.77	1.62	1.92	2.02	1.97	<i>1.90</i>	<i>1.97</i>	<i>1.96</i>	<i>1.94</i>	<i>1.91</i>	<i>1.99</i>	1.83	<i>1.96</i>	<i>1.95</i>
Russia	11.30	10.59	10.92	10.95	10.95	10.57	<i>10.48</i>	<i>10.58</i>	<i>10.61</i>	<i>10.61</i>	<i>10.58</i>	<i>10.61</i>	10.94	<i>10.64</i>	<i>10.60</i>
Turkmenistan	0.26	0.26	0.26	0.26	0.27	0.27	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	0.26	<i>0.27</i>	<i>0.27</i>
Middle East	3.23	3.29	3.34	3.28	3.22	3.21	<i>3.17</i>	<i>3.19</i>	<i>3.22</i>	<i>3.22</i>	<i>3.21</i>	<i>3.21</i>	3.28	<i>3.20</i>	<i>3.21</i>
Oman	1.05	1.07	1.10	1.08	1.07	1.06	<i>1.03</i>	<i>1.03</i>	<i>1.03</i>	<i>1.03</i>	<i>1.03</i>	<i>1.03</i>	1.07	<i>1.05</i>	<i>1.03</i>
Qatar	1.85	1.86	1.86	1.86	1.86	1.86	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	1.86	<i>1.86</i>	<i>1.86</i>
Asia and Oceania	9.16	9.17	8.87	8.98	9.21	9.27	<i>9.28</i>	<i>9.30</i>	<i>9.26</i>	<i>9.26</i>	<i>9.25</i>	<i>9.28</i>	9.04	<i>9.27</i>	<i>9.26</i>
Australia	0.44	0.47	0.39	0.43	0.41	0.41	<i>0.43</i>	<i>0.42</i>	<i>0.41</i>	<i>0.41</i>	<i>0.40</i>	<i>0.40</i>	0.43	<i>0.42</i>	<i>0.40</i>
China	5.18	5.18	5.05	5.09	5.32	5.32	<i>5.28</i>	<i>5.32</i>	<i>5.27</i>	<i>5.30</i>	<i>5.29</i>	<i>5.33</i>	5.12	<i>5.31</i>	<i>5.30</i>
India	0.88	0.89	0.87	0.85	0.85	0.89	<i>0.90</i>	<i>0.89</i>	<i>0.91</i>	<i>0.91</i>	<i>0.90</i>	<i>0.90</i>	0.87	<i>0.88</i>	<i>0.91</i>
Indonesia	0.84	0.83	0.81	0.83	0.82	0.86	<i>0.85</i>	<i>0.84</i>	<i>0.83</i>	<i>0.83</i>	<i>0.82</i>	<i>0.82</i>	0.83	<i>0.84</i>	<i>0.82</i>
Malaysia	0.61	0.60	0.58	0.61	0.61	0.60	<i>0.60</i>	<i>0.59</i>	<i>0.59</i>	<i>0.58</i>	<i>0.58</i>	<i>0.57</i>	0.60	<i>0.60</i>	<i>0.58</i>
Africa	1.40	1.43	1.44	1.44	1.38	1.39	<i>1.41</i>	<i>1.40</i>	<i>1.34</i>	<i>1.34</i>	<i>1.34</i>	<i>1.33</i>	1.43	<i>1.39</i>	<i>1.34</i>
Egypt	0.66	0.68	0.67	0.67	0.66	0.67	<i>0.67</i>	<i>0.67</i>	<i>0.61</i>	<i>0.61</i>	<i>0.61</i>	<i>0.61</i>	0.67	<i>0.67</i>	<i>0.61</i>
South Sudan	0.15	0.15	0.16	0.15	0.13	0.13	<i>0.16</i>	<i>0.16</i>	<i>0.17</i>	<i>0.17</i>	<i>0.17</i>	<i>0.17</i>	0.16	<i>0.15</i>	<i>0.17</i>
Total non-OPEC liquids	65.14	65.05	66.08	66.57	67.05	67.60	<i>68.13</i>	<i>68.50</i>	<i>68.36</i>	<i>68.85</i>	<i>69.31</i>	<i>69.66</i>	65.71	<i>67.82</i>	<i>69.05</i>
OPEC non-crude liquids	5.56	5.43	5.48	5.52	5.49	5.34	<i>5.40</i>	<i>5.44</i>	<i>5.53</i>	<i>5.40</i>	<i>5.44</i>	<i>5.48</i>	5.50	<i>5.42</i>	<i>5.46</i>
Non-OPEC + OPEC non-crude	70.69	70.48	71.56	72.08	72.54	72.94	<i>73.52</i>	<i>73.94</i>	<i>73.89</i>	<i>74.25</i>	<i>74.75</i>	<i>75.14</i>	71.21	<i>73.24</i>	<i>74.51</i>
Unplanned non-OPEC Production Outages	0.76	1.31	0.78	0.56	0.56	1.02	-	-	-	-	-	-	0.85	-	-

- = no data available

OPEC = Organization of the Petroleum Exporting Countries: Algeria, Angola, Congo (Brazzaville), Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Saudi Arabia, the United Arab Emirates, Venezuela.

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Supply includes production of crude oil (including lease condensates), natural gas plant liquids, biofuels, other liquids, and refinery processing gains.

Not all countries are shown in each region and sum of reported country volumes may not equal regional volumes.

Historical data: Latest data available from Energy Information Administration international energy statistics.

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 3c. OPEC Crude Oil (excluding condensates) Production (million barrels per day)

U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Crude Oil															
Algeria	0.97	1.00	1.02	1.02	1.01	0.98	-	-	-	-	-	-	1.00	-	-
Angola	1.15	1.19	1.16	1.10	1.08	1.14	-	-	-	-	-	-	1.15	-	-
Congo (Brazzaville)	0.27	0.29	0.28	0.26	0.27	0.25	-	-	-	-	-	-	0.27	-	-
Equatorial Guinea	0.09	0.09	0.09	0.07	0.06	0.06	-	-	-	-	-	-	0.09	-	-
Gabon	0.19	0.19	0.20	0.21	0.20	0.21	-	-	-	-	-	-	0.20	-	-
Iran	2.55	2.53	2.53	2.56	2.60	2.74	-	-	-	-	-	-	2.54	-	-
Iraq	4.30	4.42	4.55	4.51	4.41	4.19	-	-	-	-	-	-	4.45	-	-
Kuwait	2.61	2.69	2.80	2.72	2.68	2.58	-	-	-	-	-	-	2.71	-	-
Libya	1.06	0.76	0.95	1.14	1.14	1.15	-	-	-	-	-	-	0.98	-	-
Nigeria	1.27	1.11	0.97	1.07	1.24	1.19	-	-	-	-	-	-	1.10	-	-
Saudi Arabia	10.08	10.30	10.85	10.50	10.02	10.18	-	-	-	-	-	-	10.43	-	-
United Arab Emirates	2.94	3.04	3.17	3.09	3.06	2.94	-	-	-	-	-	-	3.06	-	-
Venezuela	0.70	0.72	0.66	0.69	0.70	0.75	-	-	-	-	-	-	0.69	-	-
OPEC Total	28.19	28.33	29.23	28.92	28.46	28.37	<i>27.51</i>	<i>27.89</i>	<i>28.43</i>	<i>28.58</i>	<i>28.63</i>	<i>28.33</i>	28.67	<i>28.06</i>	<i>28.50</i>
Other Liquids (a)	5.56	5.43	5.48	5.52	5.49	5.34	<i>5.40</i>	<i>5.44</i>	<i>5.53</i>	<i>5.40</i>	<i>5.44</i>	<i>5.48</i>	5.50	<i>5.42</i>	<i>5.46</i>
Total OPEC Production	33.75	33.76	34.71	34.43	33.95	33.71	<i>32.91</i>	<i>33.33</i>	<i>33.96</i>	<i>33.98</i>	<i>34.07</i>	<i>33.81</i>	34.17	<i>33.47</i>	<i>33.96</i>
Crude Oil Production Capacity															
Middle East	25.48	25.46	25.55	25.66	25.90	26.17	<i>26.25</i>	<i>26.30</i>	<i>26.78</i>	<i>26.88</i>	<i>26.93</i>	<i>26.93</i>	25.54	<i>26.16</i>	<i>26.88</i>
Other	5.83	5.45	5.35	5.55	5.71	5.78	<i>5.89</i>	<i>5.79</i>	<i>5.83</i>	<i>5.78</i>	<i>5.74</i>	<i>5.71</i>	5.54	<i>5.79</i>	<i>5.76</i>
OPEC Total	31.31	30.91	30.89	31.21	31.61	31.95	<i>32.14</i>	<i>32.09</i>	<i>32.61</i>	<i>32.66</i>	<i>32.67</i>	<i>32.64</i>	31.08	<i>31.95</i>	<i>32.64</i>
Surplus Crude Oil Production Capacity															
Middle East	3.00	2.47	1.65	2.28	3.13	3.53	<i>4.55</i>	<i>4.13</i>	<i>4.10</i>	<i>4.02</i>	<i>3.98</i>	<i>4.25</i>	2.35	<i>3.84</i>	<i>4.09</i>
Other	0.12	0.11	0.01	0.01	0.02	0.05	<i>0.08</i>	<i>0.07</i>	<i>0.08</i>	<i>0.06</i>	<i>0.06</i>	<i>0.06</i>	0.06	<i>0.06</i>	<i>0.06</i>
OPEC Total	3.12	2.58	1.67	2.29	3.15	3.58	<i>4.63</i>	<i>4.20</i>	<i>4.17</i>	<i>4.08</i>	<i>4.04</i>	<i>4.31</i>	2.41	<i>3.90</i>	<i>4.15</i>
Unplanned OPEC Production Outages	1.98	2.42	2.50	2.14	1.94	2.13	-	-	-	-	-	-	2.26	-	-

(a) Includes lease condensate, natural gas plant liquids, other liquids, refinery processing gain, and other unaccounted-for liquids.

OPEC = Organization of the Petroleum Exporting Countries: Iran, Iraq, Kuwait, Saudi Arabia, and the United Arab Emirates (Middle East); Algeria, Angola, Congo (Brazzaville), Equatorial Guinea, Gabon, Libya, Nigeria, and Venezuela (Other).

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Forecasts are not published for individual OPEC countries.

Historical data: Latest data available from Energy Information Administration international energy statistics.

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 3d. World Petroleum and Other Liquids Consumption (million barrels per day)

U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				2022	2023	2024
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
North America	24.22	24.47	24.82	24.43	24.12	24.81	24.80	24.91	24.64	24.81	25.27	25.05	24.49	24.66	24.94
Canada	2.24	2.21	2.38	2.30	2.24	2.24	2.34	2.31	2.28	2.23	2.33	2.31	2.28	2.28	2.29
Mexico	1.76	1.99	1.96	1.95	1.87	1.88	1.92	1.94	1.88	1.90	1.90	1.92	1.92	1.90	1.90
United States	20.22	20.27	20.47	20.16	20.00	20.68	20.53	20.65	20.47	20.67	21.03	20.82	20.28	20.47	20.75
Central and South America	6.27	6.43	6.57	6.54	6.40	6.56	6.65	6.59	6.43	6.57	6.68	6.61	6.45	6.55	6.57
Brazil	2.85	2.93	3.02	3.02	2.97	3.03	3.10	3.09	2.97	3.03	3.11	3.09	2.96	3.05	3.05
Europe	13.93	14.19	14.80	14.11	13.81	14.06	14.64	14.40	13.97	14.14	14.56	14.32	14.26	14.23	14.25
Eurasia	4.28	4.43	4.73	4.65	4.32	4.47	4.79	4.70	4.45	4.60	4.92	4.83	4.53	4.57	4.70
Russia	3.27	3.36	3.64	3.50	3.29	3.38	3.67	3.52	3.37	3.46	3.75	3.61	3.44	3.47	3.55
Middle East	8.92	9.28	9.67	9.02	9.16	9.31	9.87	9.28	9.50	9.52	10.06	9.45	9.23	9.41	9.63
Asia and Oceania	36.51	35.62	35.50	36.58	37.82	37.21	36.47	37.46	38.68	38.07	37.25	38.26	36.05	37.24	38.07
China	15.12	15.10	15.09	15.28	15.93	16.13	15.80	16.02	16.34	16.54	16.21	16.43	15.15	15.97	16.38
Japan	3.70	3.03	3.19	3.56	3.72	3.01	3.12	3.45	3.55	2.94	3.04	3.37	3.37	3.32	3.22
India	5.08	5.07	4.84	5.18	5.27	5.43	5.07	5.39	5.63	5.71	5.33	5.67	5.04	5.29	5.58
Africa	4.45	4.45	4.34	4.48	4.52	4.54	4.46	4.62	4.62	4.64	4.55	4.72	4.43	4.53	4.63
Total OECD Liquid Fuels Consumption	45.76	45.38	46.58	45.95	45.53	45.59	46.31	46.63	46.06	45.60	46.60	46.58	45.92	46.02	46.21
Total non-OECD Liquid Fuels Consumption	52.83	53.49	53.86	53.86	54.63	55.38	55.36	55.32	56.23	56.75	56.69	56.65	53.51	55.18	56.58
Total World Liquid Fuels Consumption	98.59	98.87	100.45	99.80	100.16	100.97	101.67	101.95	102.29	102.36	103.29	103.24	99.43	101.19	102.80
Real Gross Domestic Product (a)															
World Index, 2015 Q1 = 100	121.9	122.2	123.4	123.9	125.2	126.0	126.7	127.2	128.0	129.0	130.1	131.3	122.9	126.3	129.6
Percent change from prior year	4.4	3.4	3.3	2.2	2.7	3.1	2.6	2.7	2.2	2.4	2.7	3.2	3.3	2.8	2.6
OECD Index, 2015 = 100	113.3	114.7	115.5	113.3	114.7	115.5	113.3	114.7	115.5	113.3	114.7	115.5	113.3	114.7	115.5
Percent change from prior year	2.9	1.2	0.7	2.9	1.2	0.7	2.9	1.2	0.7	2.9	1.2	0.7	2.9	1.2	0.7
Non-OECD Index, 2015 = 100	129.0	134.2	139.7	129.0	134.2	139.7	129.0	134.2	139.7	129.0	134.2	139.7	129.0	134.2	139.7
Percent change from prior year	3.6	4.0	4.1	3.6	4.0	4.1	3.6	4.0	4.1	3.6	4.0	4.1	3.6	4.0	4.1
Nominal U.S. Dollar Index (b)															
Index, 2015 Q1 = 100	109.5	112.8	117.1	118.4	114.1	113.5	113.9	114.9	115.4	115.5	115.1	114.5	114.5	114.1	115.1
Percent change from prior year	2.8	6.4	9.0	8.6	4.2	0.6	-2.7	-2.9	1.1	1.7	1.1	-0.3	6.7	-0.3	0.9

(a) GDP values for the individual countries in the indexes are converted to U.S. dollars at purchasing power parity and then summed to create values for the world, OECD, and non-OECD. Historical and forecast data are from Oxford Economics, and quarterly values are reindexed to 2015 Q1 by EIA.

(b) Data source is the Board of Governors of the U.S. Federal Reserve System Nominal Broad Trade-Weighted Dollar Index. An increase in the index indicates an appreciation of the U.S. dollar against a basket of currencies and a decrease in the index indicates a depreciation of the U.S. dollar against a basket of currencies. Historical and forecast data are from Oxford Economics, and quarterly values are reindexed to 2015 Q1 by EIA.

- = no data available

OECD = Organization for Economic Cooperation and Development: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Latvia, Lithuania, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Slovenia, South Korea, Spain, Sweden, Switzerland, Turkey, the United Kingdom, the United States.

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Historical data: Latest data available from Energy Information Administration international energy statistics.

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 4a. U.S. Petroleum and Other Liquids Supply, Consumption, and Inventories
U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Supply (million barrels per day)															
Crude Oil Supply															
Domestic Production (a)	11.52	11.77	12.05	12.30	12.63	12.67	12.81	12.93	12.98	13.01	13.08	13.27	11.91	12.76	13.09
Alaska	0.45	0.44	0.42	0.44	0.44	0.43	0.41	0.43	0.43	0.40	0.40	0.41	0.44	0.43	0.41
Federal Gulf of Mexico (b)	1.66	1.70	1.77	1.79	1.87	1.71	1.79	1.87	1.91	1.89	1.82	1.86	1.73	1.81	1.87
Lower 48 States (excl GOM)	9.42	9.63	9.85	10.06	10.31	10.53	10.61	10.63	10.64	10.71	10.87	11.00	9.74	10.52	10.81
Crude Oil Net Imports (c)	3.00	2.81	2.75	2.14	2.27	2.42	2.64	2.48	2.28	2.61	2.62	2.05	2.67	2.45	2.39
SPR Net Withdrawals	0.31	0.80	0.84	0.48	0.01	0.26	-0.06	0.00	0.00	0.00	0.00	0.00	0.61	0.05	0.00
Commercial Inventory Net Withdrawals	0.08	-0.03	-0.12	-0.01	-0.40	0.14	0.27	-0.04	-0.33	0.10	0.18	-0.09	-0.02	-0.01	-0.03
Crude Oil Adjustment (d)	0.65	0.74	0.75	0.89	0.68	0.61	0.55	0.46	0.56	0.60	0.51	0.47	0.76	0.57	0.53
Total Crude Oil Input to Refineries	15.56	16.09	16.26	15.80	15.19	16.10	16.21	15.83	15.50	16.33	16.39	15.71	15.93	15.84	15.98
Other Supply															
Refinery Processing Gain	0.95	1.07	1.05	1.01	0.97	0.99	1.01	1.02	0.98	1.01	1.02	1.00	1.02	1.00	1.00
Natural Gas Plant Liquids Production	5.61	5.92	6.09	5.90	6.01	6.36	6.31	6.30	6.30	6.40	6.44	6.44	5.88	6.25	6.39
Renewables and Oxygenate Production (e)	1.20	1.20	1.18	1.23	1.24	1.28	1.28	1.27	1.28	1.32	1.33	1.33	1.20	1.27	1.31
Fuel Ethanol Production	1.02	1.01	0.97	1.01	1.00	1.00	1.01	0.99	1.00	1.01	1.02	1.01	1.00	1.00	1.01
Petroleum Products Adjustment (f)	0.21	0.23	0.22	0.22	0.20	0.22	0.22	0.22	0.21	0.22	0.22	0.22	0.22	0.21	0.22
Product Net Imports (c)	-3.74	-3.99	-4.07	-3.93	-3.91	-3.77	-4.15	-4.36	-4.09	-4.13	-4.19	-4.34	-3.93	-4.05	-4.19
Hydrocarbon Gas Liquids	-2.14	-2.31	-2.16	-2.26	-2.47	-2.45	-2.57	-2.60	-2.61	-2.74	-2.62	-2.69	-2.22	-2.52	-2.66
Unfinished Oils	0.09	0.25	0.28	0.30	0.28	0.23	0.37	0.24	0.20	0.27	0.31	0.21	0.23	0.28	0.25
Other HC/Oxygenates	-0.09	-0.10	-0.07	-0.02	-0.05	-0.06	-0.03	-0.04	-0.06	-0.05	-0.04	-0.05	-0.07	-0.04	-0.05
Motor Gasoline Blend Comp.	0.40	0.60	0.48	0.40	0.45	0.61	0.53	0.39	0.50	0.66	0.51	0.32	0.47	0.50	0.50
Finished Motor Gasoline	-0.76	-0.73	-0.81	-0.83	-0.75	-0.52	-0.60	-0.68	-0.82	-0.69	-0.71	-0.67	-0.78	-0.64	-0.72
Jet Fuel	-0.04	-0.06	-0.11	-0.03	-0.05	0.01	-0.04	0.04	0.12	0.19	0.18	0.17	-0.06	-0.01	0.16
Distillate Fuel Oil	-0.81	-1.15	-1.29	-1.05	-0.76	-1.02	-1.21	-1.09	-0.86	-1.13	-1.23	-1.04	-1.07	-1.02	-1.07
Residual Fuel Oil	0.14	0.10	0.10	0.09	0.01	-0.04	0.01	0.08	0.04	0.05	0.06	0.13	0.11	0.02	0.07
Other Oils (g)	-0.54	-0.59	-0.49	-0.53	-0.58	-0.55	-0.61	-0.69	-0.59	-0.68	-0.66	-0.71	-0.54	-0.61	-0.66
Product Inventory Net Withdrawals	0.42	-0.25	-0.26	-0.06	0.30	-0.49	-0.34	0.36	0.30	-0.48	-0.18	0.46	-0.04	-0.04	0.03
Total Supply	20.22	20.27	20.47	20.16	20.00	20.68	20.53	20.65	20.47	20.67	21.03	20.82	20.28	20.47	20.75
Consumption (million barrels per day)															
Hydrocarbon Gas Liquids	3.87	3.43	3.48	3.57	3.68	3.66	3.53	3.83	4.00	3.48	3.63	3.87	3.59	3.67	3.75
Other HC/Oxygenates	0.13	0.17	0.17	0.19	0.22	0.27	0.22	0.24	0.23	0.25	0.25	0.27	0.16	0.24	0.25
Unfinished Oils	0.13	0.04	0.11	0.10	0.05	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.09	0.02	0.00
Motor Gasoline	8.47	9.00	8.88	8.75	8.67	9.15	9.00	8.82	8.60	9.08	9.13	8.84	8.78	8.91	8.91
Fuel Ethanol blended into Motor Gasoline	0.87	0.93	0.92	0.93	0.90	0.95	0.96	0.92	0.89	0.95	0.96	0.92	0.91	0.93	0.93
Jet Fuel	1.45	1.61	1.60	1.58	1.55	1.68	1.70	1.70	1.67	1.79	1.83	1.77	1.56	1.66	1.76
Distillate Fuel Oil	4.14	3.89	3.86	3.96	4.01	3.84	3.75	3.98	4.07	3.96	3.89	4.02	3.96	3.89	3.98
Residual Fuel Oil	0.38	0.31	0.39	0.30	0.29	0.20	0.32	0.35	0.27	0.27	0.32	0.34	0.34	0.29	0.30
Other Oils (g)	1.65	1.82	1.99	1.71	1.53	1.86	2.00	1.73	1.62	1.84	1.98	1.71	1.79	1.78	1.79
Total Consumption	20.22	20.27	20.47	20.16	20.00	20.68	20.53	20.65	20.47	20.67	21.03	20.82	20.28	20.47	20.75
Total Petroleum and Other Liquids Net Imports	-0.74	-1.18	-1.32	-1.79	-1.64	-1.36	-1.51	-1.88	-1.81	-1.51	-1.57	-2.28	-1.26	-1.60	-1.80
End-of-period Inventories (million barrels)															
Commercial Inventory															
Crude Oil (excluding SPR)	414.4	417.5	428.8	429.6	465.4	453.0	428.3	431.5	461.3	452.0	435.5	443.4	429.6	431.5	443.4
Hydrocarbon Gas Liquids	142.0	186.7	243.6	211.1	174.3	225.8	267.2	223.7	181.4	228.7	267.0	222.7	211.1	223.7	222.7
Unfinished Oils	87.9	88.8	82.3	86.1	88.6	88.1	88.6	81.1	91.0	87.9	87.1	79.4	86.1	81.1	79.4
Other HC/Oxygenates	34.1	29.4	27.3	31.7	34.3	30.5	30.9	31.2	33.3	32.0	31.7	32.0	31.7	31.2	32.0
Total Motor Gasoline	238.5	221.0	209.6	224.3	225.3	219.5	217.8	233.5	234.9	231.7	219.9	230.9	224.3	233.5	230.9
Finished Motor Gasoline	17.3	17.1	17.6	17.4	14.7	17.5	21.2	21.7	19.0	19.3	20.4	22.6	17.4	21.7	22.6
Motor Gasoline Blend Comp.	221.2	203.8	192.0	206.9	210.6	201.9	196.6	211.7	216.0	212.4	199.4	208.3	206.9	211.7	208.3
Jet Fuel	35.6	39.3	36.2	35.0	37.7	41.4	41.0	39.7	38.7	40.5	41.5	38.6	35.0	39.7	38.6
Distillate Fuel Oil	114.6	111.4	110.5	118.8	112.3	114.1	119.4	121.2	112.8	117.1	117.9	118.1	118.8	121.2	118.1
Residual Fuel Oil	27.9	29.2	27.3	30.7	29.6	30.9	26.3	26.1	27.8	27.3	25.6	25.0	30.7	26.1	25.0
Other Oils (g)	58.5	56.4	49.5	54.2	63.3	59.8	50.5	51.8	60.8	58.7	49.4	50.7	54.2	51.8	50.7
Total Commercial Inventory	1153.6	1179.7	1215.1	1221.6	1230.8	1263.2	1270.0	1239.8	1242.0	1275.9	1275.7	1240.9	1221.6	1239.8	1240.9
Crude Oil in SPR	566.1	493.3	416.4	372.0	371.2	347.1	353.1	353.1	353.1	353.1	353.1	353.1	372.0	353.1	353.1

(a) Includes lease condensate.

(b) Crude oil production from U.S. Federal leases in the Gulf of Mexico (GOM).

(c) Net imports equals gross imports minus gross exports.

(d) Crude oil adjustment balances supply and consumption and was previously referred to as "Unaccounted for Crude Oil."

(e) Renewables and oxygenate production includes pentanes plus, oxygenates (excluding fuel ethanol), and renewable fuels. Beginning in January 2021, renewable fuels includes biodiesel, renewable diesel, renewable jet fuel, renewable heating oil, renewable naphtha and gasoline, and other renewable fuels. For December 2020 and prior, renewable fuels includes only biodiesel.

(f) Petroleum products adjustment includes hydrogen/oxygenates/renewables/other hydrocarbons, motor gasoline blend components, and finished motor gasoline.

(g) "Other Oils" includes aviation gasoline blend components, finished aviation gasoline, kerosene, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt and road oil, still gas, and miscellaneous products.

- = no data available

SPR: Strategic Petroleum Reserve

HC: Hydrocarbons

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Historical data: Latest data available from Energy Information Administration databases supporting the following reports: *Petroleum Supply Monthly*, DOE/EIA-0109;

Petroleum Supply Annual, DOE/EIA-0340/2; and *Weekly Petroleum Status Report*, DOE/EIA-0208.

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 4b. U.S. Hydrocarbon Gas Liquids (HGL) and Petroleum Refinery Balances (million barrels per day, except inventories and utilization factor)

U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
HGL Production															
Natural Gas Processing Plants															
Ethane	2.33	2.43	2.41	2.37	2.49	2.64	2.62	2.62	2.57	2.63	2.64	2.66	2.39	2.59	2.63
Propane	1.77	1.85	1.92	1.88	1.89	1.97	1.97	1.98	2.00	2.01	2.01	2.02	1.86	1.95	2.01
Butanes	0.93	0.98	1.02	0.99	0.99	1.04	1.04	1.05	1.07	1.07	1.09	1.09	0.98	1.03	1.08
Natural Gasoline (Pentanes Plus)	0.59	0.67	0.74	0.66	0.64	0.71	0.68	0.66	0.65	0.68	0.70	0.67	0.66	0.67	0.68
Refinery and Blender Net Production															
Ethane/Ethylene	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Propane	0.27	0.29	0.29	0.27	0.27	0.29	0.28	0.27	0.27	0.28	0.29	0.27	0.28	0.28	0.28
Propylene (refinery-grade)	0.28	0.28	0.26	0.23	0.24	0.27	0.27	0.28	0.28	0.28	0.28	0.28	0.26	0.26	0.28
Butanes/Butylenes	-0.07	0.25	0.19	-0.15	-0.05	0.28	0.20	-0.19	-0.08	0.26	0.19	-0.19	0.06	0.06	0.05
Renewable Fuels and Oxygenate Plant Net Production															
Natural Gasoline (Pentanes Plus)	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
HGL Net Imports															
Ethane	-0.50	-0.40	-0.43	-0.46	-0.50	-0.47	-0.48	-0.47	-0.49	-0.50	-0.49	-0.52	-0.45	-0.48	-0.50
Propane/Propylene	-1.18	-1.33	-1.21	-1.29	-1.40	-1.41	-1.41	-1.43	-1.40	-1.48	-1.40	-1.47	-1.25	-1.41	-1.44
Butanes/Butylenes	-0.28	-0.41	-0.34	-0.36	-0.42	-0.43	-0.46	-0.46	-0.45	-0.50	-0.50	-0.47	-0.35	-0.44	-0.48
Natural Gasoline (Pentanes Plus)	-0.17	-0.17	-0.19	-0.15	-0.15	-0.13	-0.23	-0.25	-0.28	-0.27	-0.24	-0.23	-0.17	-0.19	-0.25
HGL Refinery and Blender Net Inputs															
Butanes/Butylenes	0.44	0.31	0.35	0.56	0.50	0.30	0.32	0.50	0.43	0.30	0.33	0.53	0.42	0.41	0.40
Natural Gasoline (Pentanes Plus)	0.20	0.20	0.22	0.20	0.22	0.20	0.19	0.18	0.17	0.17	0.19	0.18	0.20	0.20	0.18
HGL Consumption															
Ethane/Ethylene	1.98	2.03	1.97	1.91	1.99	2.17	2.13	2.13	2.13	2.13	2.14	2.16	1.97	2.10	2.14
Propane	1.16	0.60	0.69	0.91	0.98	0.56	0.63	0.98	1.15	0.61	0.69	0.95	0.84	0.79	0.85
Propylene (refinery-grade)	0.30	0.29	0.28	0.24	0.25	0.28	0.29	0.29	0.30	0.30	0.29	0.29	0.28	0.28	0.30
Butanes/Butylenes	0.23	0.26	0.29	0.20	0.18	0.28	0.25	0.21	0.21	0.24	0.26	0.21	0.24	0.23	0.23
Natural Gasoline (Pentanes Plus)	0.21	0.24	0.26	0.31	0.28	0.37	0.24	0.22	0.21	0.20	0.25	0.26	0.26	0.28	0.23
HGL Inventories (million barrels)															
Ethane	51.1	51.7	49.9	54.3	53.0	55.2	55.8	58.0	55.0	55.7	57.7	57.9	51.8	55.5	56.6
Propane	36.3	54.1	81.9	76.6	55.8	80.3	98.7	83.1	56.3	73.5	90.7	77.5	76.6	83.1	77.5
Propylene (at refineries only)	1.0	1.2	1.1	1.3	1.1	1.2	1.6	1.5	1.4	1.7	1.9	1.7	1.3	1.5	1.7
Butanes/Butylenes	35.7	58.8	81.2	54.5	40.2	68.5	88.7	59.8	50.7	78.1	96.0	67.0	54.5	59.8	67.0
Natural Gasoline (Pentanes Plus)	19.4	22.7	27.2	25.2	22.9	21.0	21.7	20.8	18.2	19.3	20.1	19.3	25.2	20.8	19.3
Refinery and Blender Net Inputs															
Crude Oil	15.56	16.09	16.26	15.80	15.19	16.10	16.21	15.83	15.50	16.33	16.39	15.71	15.93	15.84	15.98
Hydrocarbon Gas Liquids	0.64	0.50	0.57	0.76	0.72	0.50	0.51	0.69	0.60	0.47	0.52	0.71	0.62	0.60	0.57
Other Hydrocarbons/Oxygenates	1.12	1.20	1.19	1.17	1.13	1.20	1.22	1.18	1.16	1.23	1.24	1.19	1.17	1.18	1.20
Unfinished Oils	-0.12	0.21	0.24	0.15	0.19	0.22	0.35	0.32	0.09	0.31	0.32	0.29	0.12	0.27	0.25
Motor Gasoline Blend Components	0.33	0.84	0.66	0.29	0.34	0.82	0.75	0.45	0.57	0.80	0.75	0.45	0.53	0.59	0.64
Aviation Gasoline Blend Components	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Refinery and Blender Net Inputs	17.53	18.84	18.92	18.17	17.58	18.84	19.03	18.47	17.92	19.13	19.22	18.34	18.37	18.48	18.65
Refinery Processing Gain	0.95	1.07	1.05	1.01	0.97	0.99	1.01	1.02	0.98	1.01	1.02	1.00	1.02	1.00	1.00
Refinery and Blender Net Production															
Hydrocarbon Gas Liquids	0.49	0.84	0.75	0.36	0.47	0.84	0.76	0.36	0.47	0.83	0.76	0.37	0.61	0.61	0.61
Finished Motor Gasoline	9.22	9.74	9.73	9.58	9.28	9.77	9.75	9.68	9.48	9.84	9.90	9.70	9.57	9.62	9.73
Jet Fuel	1.48	1.71	1.67	1.60	1.62	1.71	1.74	1.65	1.54	1.62	1.65	1.57	1.62	1.68	1.60
Distillate Fuel	4.77	5.00	5.15	5.09	4.69	4.89	5.02	5.09	4.84	5.14	5.13	5.06	5.01	4.92	5.04
Residual Fuel	0.26	0.22	0.26	0.25	0.27	0.25	0.26	0.27	0.24	0.22	0.25	0.21	0.25	0.26	0.23
Other Oils (a)	2.26	2.39	2.40	2.30	2.21	2.37	2.51	2.44	2.31	2.50	2.54	2.44	2.34	2.38	2.45
Total Refinery and Blender Net Production	18.49	19.90	19.97	19.18	18.54	19.83	20.04	19.49	18.89	20.14	20.24	19.35	19.39	19.48	19.66
Refinery Distillation Inputs	16.07	16.61	16.82	16.34	15.78	16.72	16.66	16.22	15.90	16.71	16.82	16.10	16.46	16.34	16.38
Refinery Operable Distillation Capacity	17.94	17.94	17.98	18.01	18.12	18.27	18.31	18.31	18.31	18.31	18.32	18.33	17.97	18.25	18.32
Refinery Distillation Utilization Factor	0.90	0.93	0.94	0.91	0.87	0.91	0.91	0.89	0.87	0.91	0.92	0.88	0.92	0.90	0.89

(a) "Other Oils" includes aviation gasoline blend components, finished aviation gasoline, kerosene, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt and road oil, still gas, and miscellaneous products.

- = no data available

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Historical data: Latest data available from Energy Information Administration databases supporting the following reports: *Petroleum Supply Monthly*, DOE/EIA-0109; *Petroleum Supply Annual*, DOE/EIA-0340/2; *Weekly Petroleum Status Report*, DOE/EIA-0208.

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 4c. U.S. Regional Motor Gasoline Prices and Inventories
 U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Prices (cents per gallon)															
Refiner Wholesale Price	278	376	311	267	262	265	287	267	257	271	264	241	309	270	258
Gasoline Regular Grade Retail Prices Including Taxes															
PADD 1	364	438	393	341	330	344	357	350	335	346	340	321	385	345	336
PADD 2	352	436	397	345	324	348	353	341	330	349	342	314	383	342	334
PADD 3	340	414	357	300	302	315	332	317	304	317	309	288	353	317	304
PADD 4	360	446	434	358	357	358	383	366	339	359	357	335	401	366	348
PADD 5	452	543	511	478	418	452	458	434	417	437	429	406	497	441	422
U.S. Average	371	450	408	357	338	358	369	357	343	358	352	329	397	356	345
Gasoline All Grades Including Taxes	380	460	419	369	349	369	381	369	354	369	363	341	408	367	357
End-of-period Inventories (million barrels)															
Total Gasoline Inventories															
PADD 1	56.9	53.6	54.4	56.4	52.7	56.3	56.1	61.3	60.3	63.0	57.0	59.3	56.4	61.3	59.3
PADD 2	56.5	46.7	44.1	46.6	49.5	45.0	46.4	50.0	48.9	43.9	44.2	51.8	46.6	50.0	51.8
PADD 3	87.1	83.9	80.2	81.4	84.1	83.9	79.6	83.8	87.6	88.1	82.1	81.7	81.4	83.8	81.7
PADD 4	8.1	6.4	6.4	7.4	7.8	6.2	7.1	8.1	8.4	7.0	7.0	7.6	7.4	8.1	7.6
PADD 5	29.9	30.3	24.5	32.6	31.2	28.1	28.6	30.2	29.8	29.8	29.7	30.5	32.6	30.2	30.5
U.S. Total	238.5	221.0	209.6	224.3	225.3	219.5	217.8	233.5	234.9	231.7	219.9	230.9	224.3	233.5	230.9
Finished Gasoline Inventories															
U.S. Total	17.3	17.1	17.6	17.4	14.7	17.5	21.2	21.7	19.0	19.3	20.4	22.6	17.4	21.7	22.6
Gasoline Blending Components Inventories															
U.S. Total	221.2	203.8	192.0	206.9	210.6	201.9	196.6	211.7	216.0	212.4	199.4	208.3	206.9	211.7	208.3

- = no data available

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Prices are not adjusted for inflation.

Regions refer to Petroleum Administration for Defense Districts (PADD).

See "Petroleum for Administration Defense District" in EIA's Energy Glossary (<http://www.eia.doe.gov/glossary/index.html>) for a list of States in each region.

Historical data: Latest data available from Energy Information Administration databases supporting the following reports: *Petroleum Marketing Monthly*, DOE/EIA-0380;

Petroleum Supply Monthly, DOE/EIA-0109; *Petroleum Supply Annual*, DOE/EIA-0340/2; and *Weekly Petroleum Status Report*, DOE/EIA-0208.

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 5a. U.S. Natural Gas Supply, Consumption, and Inventories
 U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Supply (billion cubic feet per day)															
Total Marketed Production	103.27	106.18	108.27	108.90	110.87	112.30	<i>112.96</i>	<i>113.25</i>	<i>113.65</i>	<i>113.54</i>	<i>113.61</i>	<i>114.35</i>	106.67	<i>112.35</i>	<i>113.79</i>
Alaska	1.06	1.00	0.96	1.07	1.08	1.00	<i>0.87</i>	<i>0.98</i>	<i>1.00</i>	<i>0.92</i>	<i>0.84</i>	<i>0.98</i>	1.02	<i>0.98</i>	<i>0.94</i>
Federal GOM (a)	2.05	2.11	2.19	2.12	2.14	1.95	<i>2.10</i>	<i>2.14</i>	<i>2.16</i>	<i>2.10</i>	<i>1.98</i>	<i>2.00</i>	2.12	<i>2.08</i>	<i>2.06</i>
Lower 48 States (excl GOM)	100.16	103.07	105.12	105.71	107.65	109.36	<i>109.98</i>	<i>110.12</i>	<i>110.50</i>	<i>110.51</i>	<i>110.79</i>	<i>111.37</i>	103.53	<i>109.29</i>	<i>110.79</i>
Total Dry Gas Production	95.09	97.59	99.46	100.29	102.13	102.78	<i>103.36</i>	<i>103.63</i>	<i>104.00</i>	<i>103.89</i>	<i>103.96</i>	<i>104.64</i>	98.13	<i>102.98</i>	<i>104.13</i>
LNG Gross Imports	0.15	0.01	0.07	0.05	0.09	0.03	<i>0.04</i>	<i>0.06</i>	<i>0.10</i>	<i>0.04</i>	<i>0.04</i>	<i>0.06</i>	0.07	<i>0.06</i>	<i>0.06</i>
LNG Gross Exports	11.50	10.80	9.74	10.35	11.45	11.85	<i>11.80</i>	<i>12.34</i>	<i>12.72</i>	<i>12.82</i>	<i>13.09</i>	<i>14.61</i>	10.59	<i>11.86</i>	<i>13.31</i>
Pipeline Gross Imports	8.89	7.73	7.84	8.41	8.45	7.10	<i>7.10</i>	<i>7.45</i>	<i>8.18</i>	<i>6.81</i>	<i>7.04</i>	<i>7.44</i>	8.22	<i>7.52</i>	<i>7.36</i>
Pipeline Gross Exports	8.46	8.52	8.13	8.19	8.88	8.49	<i>8.89</i>	<i>9.23</i>	<i>9.50</i>	<i>8.88</i>	<i>9.21</i>	<i>9.64</i>	8.32	<i>8.87</i>	<i>9.31</i>
Supplemental Gaseous Fuels	0.21	0.17	0.18	0.16	0.19	0.17	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	0.18	<i>0.18</i>	<i>0.18</i>
Net Inventory Withdrawals	20.14	-10.25	-8.94	2.35	11.95	-11.84	<i>-6.94</i>	<i>3.70</i>	<i>14.34</i>	<i>-12.34</i>	<i>-6.78</i>	<i>2.71</i>	0.75	<i>-0.82</i>	<i>-0.53</i>
Total Supply	104.52	75.94	80.72	92.73	102.48	77.90	<i>83.06</i>	<i>93.45</i>	<i>104.58</i>	<i>76.87</i>	<i>82.15</i>	<i>90.78</i>	88.43	<i>89.18</i>	<i>88.58</i>
Balancing Item (b)	0.30	0.19	0.05	-0.11	0.57	0.97	<i>0.59</i>	<i>-1.46</i>	<i>-1.35</i>	<i>-1.26</i>	<i>0.18</i>	<i>-0.38</i>	0.10	<i>0.16</i>	<i>-0.70</i>
Total Primary Supply	104.83	76.13	80.77	92.62	103.05	78.87	<i>83.65</i>	<i>91.99</i>	<i>103.23</i>	<i>75.60</i>	<i>82.33</i>	<i>90.39</i>	88.53	<i>89.34</i>	<i>87.88</i>
Consumption (billion cubic feet per day)															
Residential	26.09	7.86	3.57	17.37	23.48	7.86	<i>4.21</i>	<i>16.64</i>	<i>24.82</i>	<i>7.86</i>	<i>4.32</i>	<i>16.64</i>	13.67	<i>13.01</i>	<i>13.39</i>
Commercial	15.61	6.67	4.74	11.69	14.53	6.65	<i>5.11</i>	<i>11.59</i>	<i>15.19</i>	<i>6.87</i>	<i>5.17</i>	<i>11.63</i>	9.66	<i>9.45</i>	<i>9.71</i>
Industrial	25.46	22.25	21.47	23.51	24.68	22.28	<i>21.43</i>	<i>23.33</i>	<i>23.93</i>	<i>20.86</i>	<i>20.71</i>	<i>22.93</i>	23.16	<i>22.92</i>	<i>22.11</i>
Electric Power (c)	28.39	30.99	42.36	30.94	30.78	33.30	<i>43.89</i>	<i>31.09</i>	<i>29.48</i>	<i>31.31</i>	<i>43.14</i>	<i>29.84</i>	33.20	<i>34.79</i>	<i>33.46</i>
Lease and Plant Fuel	5.26	5.41	5.51	5.55	5.65	5.69	<i>5.71</i>	<i>5.73</i>	<i>5.75</i>	<i>5.74</i>	<i>5.75</i>	<i>5.78</i>	5.43	<i>5.69</i>	<i>5.75</i>
Pipeline and Distribution Use	3.86	2.80	2.98	3.41	3.80	2.93	<i>3.14</i>	<i>3.47</i>	<i>3.91</i>	<i>2.82</i>	<i>3.09</i>	<i>3.42</i>	3.26	<i>3.33</i>	<i>3.31</i>
Vehicle Use	0.15	0.15	0.15	0.15	0.15	0.15	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	0.15	<i>0.15</i>	<i>0.15</i>
Total Consumption	104.83	76.13	80.77	92.62	103.05	78.87	<i>83.65</i>	<i>91.99</i>	<i>103.23</i>	<i>75.60</i>	<i>82.33</i>	<i>90.39</i>	88.53	<i>89.34</i>	<i>87.88</i>
End-of-period Inventories (billion cubic feet)															
Working Gas Inventory	1,401	2,325	3,146	2,927	1,850	2,912	<i>3,550</i>	<i>3,210</i>	<i>1,904</i>	<i>3,028</i>	<i>3,651</i>	<i>3,402</i>	2,927	<i>3,210</i>	<i>3,402</i>
East Region (d)	242	482	759	698	334	643	<i>848</i>	<i>743</i>	<i>354</i>	<i>667</i>	<i>860</i>	<i>776</i>	698	<i>743</i>	<i>776</i>
Midwest Region (d)	296	557	917	831	417	705	<i>1,026</i>	<i>883</i>	<i>429</i>	<i>729</i>	<i>1,014</i>	<i>920</i>	831	<i>883</i>	<i>920</i>
South Central Region (d)	587	885	1,006	1,042	919	1,144	<i>1,165</i>	<i>1,132</i>	<i>815</i>	<i>1,168</i>	<i>1,213</i>	<i>1,198</i>	1,042	<i>1,132</i>	<i>1,198</i>
Mountain Region (d)	90	137	184	158	79	173	<i>224</i>	<i>186</i>	<i>119</i>	<i>161</i>	<i>223</i>	<i>193</i>	158	<i>186</i>	<i>193</i>
Pacific Region (d)	165	240	247	169	74	216	<i>253</i>	<i>234</i>	<i>161</i>	<i>274</i>	<i>308</i>	<i>286</i>	169	<i>234</i>	<i>286</i>
Alaska	21	25	32	30	27	31	<i>34</i>	<i>31</i>	<i>25</i>	<i>28</i>	<i>33</i>	<i>29</i>	30	<i>31</i>	<i>29</i>

(a) Marketed production from U.S. Federal leases in the Gulf of Mexico.

(b) The balancing item represents the difference between the sum of the components of natural gas supply and the sum of components of natural gas demand.

(c) Natural gas used for electricity generation and (a limited amount of) useful thermal output by electric utilities and independent power producers.

(d) For a list of States in each inventory region refer to *Weekly Natural Gas Storage Report, Notes and Definitions* (<http://ir.eia.gov/hgs/notes.html>).

- = no data available

LNG: liquefied natural gas.

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Historical data: Latest data available from Energy Information Administration databases supporting the following reports: *Natural Gas Monthly*, DOE/EIA-0130; and *Electric Power Monthly*, Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 5b. U.S. Regional Natural Gas Prices (dollars per thousand cubic feet)
 U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Wholesale/Spot															
Henry Hub Spot Price	4.84	7.77	8.30	5.76	2.76	2.25	<i>2.64</i>	<i>3.06</i>	<i>3.44</i>	<i>3.04</i>	<i>3.39</i>	<i>3.53</i>	6.67	<i>2.68</i>	<i>3.35</i>
Residential Retail															
New England	17.69	20.93	26.83	21.72	21.06	20.67	<i>23.31</i>	<i>17.59</i>	<i>17.32</i>	<i>18.48</i>	<i>22.82</i>	<i>18.05</i>	19.87	<i>20.03</i>	<i>18.10</i>
Middle Atlantic	12.79	15.55	23.86	16.89	15.61	15.98	<i>20.73</i>	<i>13.90</i>	<i>12.85</i>	<i>14.69</i>	<i>21.64</i>	<i>14.56</i>	15.17	<i>15.49</i>	<i>14.24</i>
E. N. Central	9.81	14.81	25.79	13.17	11.06	13.22	<i>20.92</i>	<i>9.38</i>	<i>8.38</i>	<i>11.80</i>	<i>20.66</i>	<i>9.62</i>	12.45	<i>11.37</i>	<i>10.01</i>
W. N. Central	11.40	15.25	25.08	13.42	13.34	15.64	<i>22.43</i>	<i>10.37</i>	<i>9.05</i>	<i>11.60</i>	<i>19.41</i>	<i>9.94</i>	13.23	<i>13.19</i>	<i>10.26</i>
S. Atlantic	13.91	22.11	32.99	17.69	17.32	20.18	<i>25.01</i>	<i>13.89</i>	<i>13.12</i>	<i>17.64</i>	<i>25.73</i>	<i>14.37</i>	17.48	<i>17.08</i>	<i>15.10</i>
E. S. Central	11.80	17.16	26.38	15.45	13.80	16.48	<i>22.03</i>	<i>12.05</i>	<i>10.79</i>	<i>14.74</i>	<i>22.68</i>	<i>12.21</i>	14.32	<i>14.01</i>	<i>12.45</i>
W. S. Central	12.61	20.91	30.98	17.56	14.59	19.13	<i>21.85</i>	<i>11.93</i>	<i>9.68</i>	<i>14.65</i>	<i>21.76</i>	<i>12.44</i>	16.35	<i>14.95</i>	<i>12.10</i>
Mountain	10.31	12.85	19.38	13.44	12.50	12.84	<i>13.42</i>	<i>8.96</i>	<i>8.48</i>	<i>9.94</i>	<i>14.11</i>	<i>9.20</i>	12.39	<i>11.58</i>	<i>9.36</i>
Pacific	17.07	17.80	20.54	18.95	20.22	17.09	<i>16.42</i>	<i>14.69</i>	<i>15.38</i>	<i>15.13</i>	<i>15.98</i>	<i>14.89</i>	18.20	<i>17.65</i>	<i>15.26</i>
U.S. Average	12.32	16.57	24.95	15.63	14.73	16.10	<i>20.02</i>	<i>12.01</i>	<i>11.15</i>	<i>13.92</i>	<i>19.97</i>	<i>12.32</i>	14.82	<i>14.49</i>	<i>12.63</i>
Commercial Retail															
New England	12.62	14.46	16.23	15.81	15.20	13.75	<i>12.41</i>	<i>10.73</i>	<i>10.89</i>	<i>11.39</i>	<i>11.71</i>	<i>10.81</i>	14.21	<i>13.25</i>	<i>11.03</i>
Middle Atlantic	10.36	10.78	12.01	11.99	11.95	9.19	<i>7.47</i>	<i>7.65</i>	<i>8.36</i>	<i>7.83</i>	<i>7.59</i>	<i>8.10</i>	11.11	<i>9.59</i>	<i>8.11</i>
E. N. Central	8.12	10.46	14.23	10.32	9.17	8.57	<i>9.58</i>	<i>6.63</i>	<i>6.59</i>	<i>7.83</i>	<i>9.59</i>	<i>6.94</i>	9.59	<i>8.29</i>	<i>7.11</i>
W. N. Central	10.22	11.73	15.07	11.32	11.69	11.63	<i>11.87</i>	<i>8.62</i>	<i>8.22</i>	<i>8.57</i>	<i>9.96</i>	<i>8.04</i>	11.12	<i>10.77</i>	<i>8.35</i>
S. Atlantic	10.52	12.22	14.21	13.08	13.00	11.32	<i>10.71</i>	<i>9.45</i>	<i>9.17</i>	<i>9.94</i>	<i>10.30</i>	<i>9.56</i>	12.06	<i>11.24</i>	<i>9.57</i>
E. S. Central	10.41	12.80	15.56	13.49	11.93	10.81	<i>10.69</i>	<i>9.04</i>	<i>8.74</i>	<i>9.91</i>	<i>10.97</i>	<i>9.56</i>	12.26	<i>10.61</i>	<i>9.43</i>
W. S. Central	10.09	12.86	15.00	12.73	11.11	9.91	<i>9.72</i>	<i>8.36</i>	<i>7.64</i>	<i>8.58</i>	<i>9.44</i>	<i>8.58</i>	12.01	<i>9.85</i>	<i>8.32</i>
Mountain	8.78	9.98	12.60	11.31	10.77	10.67	<i>10.49</i>	<i>8.41</i>	<i>8.08</i>	<i>8.37</i>	<i>8.91</i>	<i>7.59</i>	10.19	<i>10.02</i>	<i>8.07</i>
Pacific	13.08	13.67	15.58	14.47	16.91	12.61	<i>12.48</i>	<i>11.90</i>	<i>12.14</i>	<i>11.72</i>	<i>12.29</i>	<i>12.04</i>	14.00	<i>13.91</i>	<i>12.05</i>
U.S. Average	10.00	11.71	14.12	12.14	11.84	10.49	<i>10.17</i>	<i>8.53</i>	<i>8.41</i>	<i>9.01</i>	<i>9.83</i>	<i>8.64</i>	11.37	<i>10.39</i>	<i>8.74</i>
Industrial Retail															
New England	11.11	12.09	12.17	13.47	13.53	9.80	<i>7.27</i>	<i>7.95</i>	<i>8.85</i>	<i>8.18</i>	<i>7.22</i>	<i>8.34</i>	12.11	<i>9.91</i>	<i>8.30</i>
Middle Atlantic	10.80	10.15	11.91	12.72	5.65	5.14	<i>7.63</i>	<i>7.63</i>	<i>8.09</i>	<i>7.56</i>	<i>7.39</i>	<i>7.89</i>	11.26	<i>6.05</i>	<i>7.89</i>
E. N. Central	7.66	8.72	10.75	10.31	9.24	6.32	<i>5.68</i>	<i>5.54</i>	<i>6.06</i>	<i>6.12</i>	<i>6.01</i>	<i>6.05</i>	8.88	<i>7.05</i>	<i>6.06</i>
W. N. Central	7.96	8.58	9.59	8.62	8.80	4.87	<i>4.03</i>	<i>4.60</i>	<i>5.37</i>	<i>4.53</i>	<i>4.55</i>	<i>5.23</i>	8.64	<i>5.66</i>	<i>4.96</i>
S. Atlantic	7.46	8.84	11.14	9.09	7.00	4.81	<i>4.37</i>	<i>4.78</i>	<i>5.49</i>	<i>4.85</i>	<i>5.02</i>	<i>5.43</i>	9.05	<i>5.32</i>	<i>5.22</i>
E. S. Central	6.53	8.70	10.63	8.03	5.70	3.90	<i>3.80</i>	<i>4.38</i>	<i>5.07</i>	<i>4.50</i>	<i>4.58</i>	<i>5.05</i>	8.34	<i>4.49</i>	<i>4.82</i>
W. S. Central	5.58	7.69	8.45	5.87	3.59	2.25	<i>2.77</i>	<i>3.27</i>	<i>3.69</i>	<i>3.15</i>	<i>3.54</i>	<i>3.77</i>	6.92	<i>2.96</i>	<i>3.54</i>
Mountain	7.11	8.39	10.45	9.79	9.39	7.66	<i>6.66</i>	<i>5.91</i>	<i>5.89</i>	<i>5.63</i>	<i>5.84</i>	<i>5.80</i>	8.83	<i>7.65</i>	<i>5.80</i>
Pacific	8.82	9.02	9.60	9.42	10.75	8.09	<i>7.11</i>	<i>6.95</i>	<i>7.32</i>	<i>6.68</i>	<i>6.75</i>	<i>7.03</i>	9.19	<i>8.25</i>	<i>6.99</i>
U.S. Average	6.82	8.24	9.27	7.53	6.16	3.75	<i>3.65</i>	<i>4.29</i>	<i>5.02</i>	<i>4.13</i>	<i>4.25</i>	<i>4.79</i>	7.90	<i>4.54</i>	<i>4.58</i>

- = no data available

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Prices are not adjusted for inflation.

Regions refer to U.S. Census divisions.

See "Census division" in EIA's Energy Glossary (<http://www.eia.doe.gov/glossary/index.html>) for a list of States in each region.

Historical data: Latest data available from Energy Information Administration databases supporting the *Natural Gas Monthly*, DOE/EIA-0130.

Natural gas Henry Hub spot price from Reuter's News Service (<http://www.reuters.com>).

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 6. U.S. Coal Supply, Consumption, and Inventories

U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Supply (million short tons)															
Production	149.0	145.7	154.3	148.3	151.5	146.6	147.9	132.4	120.6	110.7	123.0	117.6	597.2	578.4	472.0
Appalachia	40.2	40.2	40.0	38.4	41.1	40.6	35.9	33.2	32.4	30.6	27.1	27.1	158.8	150.8	117.2
Interior	23.8	26.0	24.7	22.9	25.5	26.1	26.7	24.9	24.6	22.6	23.8	22.3	97.4	103.2	93.3
Western	85.0	79.5	89.5	86.9	84.9	79.9	85.3	74.3	63.6	57.5	72.1	68.2	340.9	324.4	261.5
Primary Inventory Withdrawals	-1.9	0.0	3.4	-0.3	-2.0	0.0	3.5	0.0	-1.7	0.2	3.6	0.1	1.2	1.5	2.2
Imports	1.3	1.6	2.0	1.4	1.0	1.1	1.5	1.1	0.6	0.8	1.1	0.8	6.3	4.7	3.3
Exports	20.4	23.4	21.1	21.0	24.6	25.0	24.9	25.4	25.3	26.4	25.1	26.5	86.0	99.9	103.3
Metallurgical Coal	10.5	13.1	11.5	11.4	12.4	13.4	12.9	12.9	13.2	14.1	13.2	13.7	46.5	51.7	54.3
Steam Coal	9.9	10.3	9.6	9.6	12.2	11.6	12.0	12.5	12.1	12.3	11.9	12.8	39.5	48.2	49.0
Total Primary Supply	128.0	123.9	138.5	128.4	125.9	122.8	128.0	108.1	94.3	85.3	102.6	91.9	518.8	484.7	374.2
Secondary Inventory Withdrawals	5.9	-1.0	7.0	-9.8	-20.1	-22.5	-1.6	-17.4	2.3	1.3	22.9	-0.8	2.1	-61.5	25.7
Waste Coal (a)	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	7.5	7.2	7.2
Total Supply	135.7	124.8	147.4	120.5	107.6	102.1	128.2	92.5	98.4	88.4	127.4	92.9	528.4	430.4	407.1
Consumption (million short tons)															
Coke Plants	4.2	3.9	3.9	4.0	4.0	4.0	4.1	4.1	4.1	4.1	4.2	4.3	16.0	16.2	16.7
Electric Power Sector (b)	122.7	107.3	134.8	105.3	89.8	79.9	118.7	82.2	88.1	79.1	117.9	82.5	469.9	370.5	367.6
Retail and Other Industry	6.9	6.7	6.5	6.6	6.5	5.5	5.4	6.2	6.3	5.2	5.3	6.1	26.7	23.6	22.9
Residential and Commercial	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.8	0.7	0.9
Other Industrial	6.7	6.6	6.3	6.3	6.3	5.3	5.3	6.0	5.9	5.1	5.2	5.8	25.9	22.9	22.0
Total Consumption	133.7	117.9	145.2	115.8	100.3	89.3	128.2	92.5	98.4	88.4	127.4	92.9	512.6	410.3	407.1
Discrepancy (c)	2.0	6.9	2.3	4.6	7.3	12.7	0.0	0.0	0.0	0.0	0.0	0.0	15.8	20.0	0.0
End-of-period Inventories (million short tons)															
Primary Inventories (d)	21.0	20.9	17.5	17.8	19.8	19.7	16.3	16.3	18.0	17.8	14.2	14.1	17.8	16.3	14.1
Secondary Inventories	90.5	91.5	84.5	94.3	114.3	136.8	138.5	155.8	153.5	152.2	129.2	130.1	94.3	155.8	130.1
Electric Power Sector	86.3	87.3	80.1	90.0	110.1	132.0	133.4	150.8	149.2	147.7	124.5	125.3	90.0	150.8	125.3
Retail and General Industry	2.4	2.4	2.5	2.5	2.5	3.0	3.2	3.2	2.7	2.8	3.0	3.1	2.5	3.2	3.1
Coke Plants	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.6	1.4	1.6	1.6	1.5	1.6	1.6	1.5
Commercial & Institutional	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1
Coal Market Indicators															
Coal Miner Productivity															
(Tons per hour)	6.05	6.05	6.05	6.05	5.98	5.98	5.98	5.98	5.80	5.80	5.80	5.80	6.05	5.98	5.80
Total Raw Steel Production															
(Million short tons per day)	0.253	0.253	0.247	0.235	0.236	0.244	0.251	0.249	0.244	0.243	0.252	0.252	0.247	0.245	0.248
Cost of Coal to Electric Utilities															
(Dollars per million Btu)	2.18	2.26	2.50	2.55	2.57	2.49	2.48	2.42	2.43	2.42	2.43	2.39	2.37	2.49	2.42

(a) Waste coal includes waste coal and coal slurry reprocessed into briquettes.

(b) Coal used for electricity generation and (a limited amount of) useful thermal output by electric utilities and independent power producers.

(c) The discrepancy reflects an unaccounted-for shipper and receiver reporting difference, assumed to be zero in the forecast period.

(d) Primary stocks are held at the mines and distribution points.

- = no data available

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Historical data: Latest data available from Energy Information Administration databases supporting the following reports: *Quarterly Coal Report*, DOE/EIA-0121; and *Electric Power Monthly*,

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 7a. U.S. Electricity Industry Overview

U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Electricity Supply (billion kilowatthours)															
Electricity generation (a)	1,029	1,026	1,187	1,001	987	990	1,194	989	1,016	1,014	1,219	991	4,243	4,160	4,240
Electric power sector	990	989	1,148	963	950	953	1,153	950	977	976	1,178	953	4,090	4,006	4,084
Industrial sector	36	34	36	35	35	33	36	35	35	34	37	35	140	139	140
Commercial sector	3	3	3	3	3	4	4	4	4	4	4	4	13	15	16
Net imports	7	10	15	10	8	11	14	11	12	12	15	11	41	43	49
Total utility-scale power supply	1,036	1,036	1,203	1,010	995	1,001	1,208	999	1,027	1,026	1,233	1,002	4,284	4,203	4,289
Losses and Unaccounted for (b)	55	64	53	64	44	65	57	48	44	68	56	48	236	214	216
Small-scale solar generation (c)	12	17	17	12	15	22	22	15	17	26	26	18	59	74	87
Residential sector	7	11	11	8	10	15	15	10	11	17	17	12	37	49	58
Commercial sector	4	5	5	3	4	6	6	4	5	7	7	5	17	20	24
Industrial sector	1	1	1	1	1	1	1	1	1	1	1	1	4	4	5
Electricity Consumption (billion kilowatthours unless noted)															
Sales to Ultimate Customers	945	938	1,114	911	917	903	1,114	916	948	924	1,140	919	3,909	3,850	3,931
Residential Sector	380	347	458	338	357	325	456	340	379	341	478	344	1,522	1,478	1,542
Commercial Sector	322	335	389	327	321	329	393	329	327	331	392	325	1,373	1,371	1,375
Industrial Sector	242	255	266	245	238	248	264	244	241	251	268	248	1,008	994	1,007
Transportation Sector	2	2	2	2	2	2	2	2	2	2	2	2	7	7	7
Direct Use (d)	35	34	36	35	35	33	37	35	35	34	37	35	139	140	142
Total Consumption	981	972	1,150	946	952	936	1,151	951	984	959	1,177	954	4,048	3,990	4,073
Average residential electricity usage per customer (kWh)	2,711	2,476	3,268	2,411	2,522	2,294	3,224	2,406	2,653	2,384	3,349	2,410	10,866	10,447	10,795
End-of-period Fuel Inventories Held by Electric Power Sector															
Coal (mmst)	86.3	87.3	80.1	90.0	110.1	132.0	133.4	150.8	149.2	147.7	124.5	125.3	90.0	150.8	125.3
Residual Fuel (mmb)	5.6	5.9	5.7	5.4	5.7	5.1	3.0	3.6	2.4	2.7	0.9	1.7	5.4	3.6	1.7
Distillate Fuel (mmb)	17.6	17.7	16.7	15.9	17.0	16.9	16.7	16.9	16.7	16.5	16.4	16.7	15.9	16.9	16.7
Prices															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	2.18	2.26	2.50	2.55	2.57	2.49	2.48	2.42	2.43	2.42	2.43	2.39	2.37	2.49	2.42
Natural Gas	5.95	7.39	8.23	6.90	4.99	2.59	2.64	3.27	3.86	3.10	3.33	3.74	7.24	3.28	3.48
Residual Fuel Oil	16.81	26.17	26.53	21.27	19.24	17.85	15.51	16.39	16.58	16.89	15.86	15.81	21.80	17.29	16.25
Distillate Fuel Oil	21.23	30.71	26.79	24.48	22.84	41.50	22.38	22.27	21.30	20.29	19.63	20.81	24.89	26.54	20.65
Prices to Ultimate Customers (cents per kilowatthour)															
Residential Sector	13.98	15.07	15.85	15.48	15.74	16.12	15.92	15.20	15.33	15.97	15.95	15.35	15.12	15.76	15.67
Commercial Sector	11.63	12.35	13.38	12.66	12.69	12.51	13.09	12.04	12.11	12.38	13.42	12.45	12.55	12.61	12.63
Industrial Sector	7.42	8.41	9.38	8.52	8.12	7.93	8.87	8.26	8.32	8.04	9.02	8.41	8.45	8.31	8.46
Wholesale Electricity Prices (dollars per megawatthour)															
ERCOT North hub	42.73	83.19	130.71	53.01	28.05	57.27	79.84	37.09	28.71	30.83	54.32	32.15	77.41	50.56	36.50
CAISO SP15 zone	45.20	60.34	110.03	135.13	92.54	30.00	86.63	54.79	62.71	40.07	111.68	57.20	87.67	65.99	67.92
ISO-NE Internal hub	116.48	73.28	99.14	80.77	52.63	32.55	46.13	49.21	76.84	38.49	65.59	49.99	92.42	45.13	57.73
NYISO Hudson Valley zone	100.10	79.72	104.71	77.17	44.65	31.38	45.40	44.30	63.80	39.09	66.82	45.78	90.42	41.43	53.88
PJM Western hub	58.33	93.00	110.99	71.60	36.49	35.41	44.15	39.19	47.43	39.00	47.01	42.62	83.48	38.81	44.02
Midcontinent ISO Illinois hub	47.88	89.21	101.80	57.87	31.39	32.13	39.02	36.12	41.46	36.31	42.99	39.04	74.19	34.66	39.95
SPP ISO South hub	37.25	72.85	109.97	55.87	28.96	34.56	39.50	35.69	38.69	37.69	45.30	39.98	68.98	34.68	40.41
SERC index, Into Southern	42.45	84.96	94.82	59.33	30.53	31.66	34.47	32.22	36.86	32.28	37.33	34.84	70.39	32.22	35.33
FRCC index, Florida Reliability	41.11	78.70	92.71	58.54	30.31	33.06	34.10	32.18	33.48	32.70	35.84	34.11	67.77	32.41	34.03
Northwest index, Mid-Columbia	39.85	59.39	137.82	151.39	105.99	58.61	93.93	66.37	84.11	60.96	108.56	63.82	97.11	81.23	79.36
Southwest index, Palo Verde	39.02	60.50	128.25	130.12	84.19	31.60	94.99	54.62	58.83	49.67	116.56	54.04	89.47	66.35	69.77

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

kWh = kilowatthours. Btu = British thermal units.

Prices are not adjusted for inflation.

(a) Generation supplied by power plants with capacity of at least one megawatt.

(b) Includes transmission and distribution losses, data collection time-frame differences, and estimation error.

(c) Solar photovoltaic systems smaller than one megawatt such as those installed on rooftops.

(d) Direct use represents commercial and industrial facility use of onsite net electricity generation; and electrical sales or transfers to adjacent or collocated facilities for which revenue information is not available. See Table 7.6 of the EIA *Monthly Energy Review*.

Historical data sources:

(1) Electricity supply, consumption, fuel costs, and retail electricity prices: Latest data available from U.S. Energy Information Administration databases supporting the following reports: Electric Power Monthly, DOE/EIA-0226; and Electric Power Annual, DOE/EIA-0348

(2) Wholesale electricity prices (except for PJM RTO price): S&P Global Market Intelligence, SNL Energy Data

(3) PJM ISO Western Hub wholesale electricity prices: PJM Data Miner website

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 7b. U.S. Regional Electricity Sales to Ultimate Customers (billion kilowatthours)

U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Residential Sector															
New England	13.1	10.5	13.9	10.9	12.2	9.8	13.0	11.0	13.1	10.2	13.6	11.2	48.4	46.0	48.1
Middle Atlantic	36.1	30.0	42.6	30.3	33.2	28.1	40.3	30.3	35.4	29.4	42.4	30.3	138.9	131.9	137.6
E. N. Central	50.8	43.8	54.8	43.1	46.5	40.2	54.9	43.9	50.8	42.9	58.4	44.3	192.5	185.5	196.4
W. N. Central	30.6	24.7	31.3	25.7	29.4	24.4	31.8	25.9	30.7	24.7	33.7	26.5	112.3	111.6	115.6
S. Atlantic	96.0	91.5	116.3	87.7	88.4	85.4	117.6	89.1	96.8	92.2	125.7	90.3	391.4	380.5	405.0
E. S. Central	32.6	27.7	37.0	26.5	29.2	25.6	37.5	26.9	32.9	26.7	39.2	27.1	123.8	119.3	125.9
W. S. Central	56.9	58.8	81.3	51.3	52.0	54.3	82.3	52.7	56.3	55.6	82.9	53.6	248.3	241.2	248.5
Mountain	24.1	26.2	36.1	24.3	25.2	24.8	36.1	24.0	24.5	26.4	37.8	24.2	110.7	110.1	112.9
Pacific contiguous	38.4	32.4	43.2	36.8	39.4	31.0	41.4	35.4	37.2	31.3	43.5	35.3	150.7	147.1	147.3
AK and HI	1.3	1.1	1.2	1.3	1.2	1.1	1.2	1.3	1.3	1.1	1.2	1.3	4.8	4.8	4.8
Total	379.8	346.7	457.7	337.7	356.8	324.6	456.1	340.4	378.9	340.5	478.4	344.2	1,521.9	1,478.0	1,542.0
Commercial Sector															
New England	12.1	11.8	13.9	11.7	11.9	11.5	13.5	11.7	12.1	11.6	13.5	11.6	49.4	48.6	48.7
Middle Atlantic	36.0	34.3	40.5	34.6	35.0	33.1	39.3	34.2	35.4	33.4	39.9	34.1	145.3	141.6	142.8
E. N. Central	43.3	42.9	48.8	42.2	42.4	41.7	48.9	42.1	43.2	42.2	49.4	41.8	177.1	175.0	176.5
W. N. Central	25.1	24.5	28.0	24.7	25.0	24.8	28.4	24.9	25.5	24.8	28.7	24.8	102.4	103.1	103.8
S. Atlantic	75.1	82.5	93.5	78.9	75.5	82.0	95.5	80.3	78.0	84.5	96.8	79.9	330.0	333.1	339.2
E. S. Central	21.0	22.4	26.8	21.0	20.5	21.6	27.3	21.5	21.2	21.8	27.3	21.1	91.3	90.9	91.4
W. S. Central	47.0	52.1	61.2	48.6	46.7	51.1	62.3	48.9	47.1	49.5	59.1	46.6	208.9	208.9	202.2
Mountain	23.2	25.4	29.6	24.3	23.7	25.1	30.3	24.5	23.8	25.7	30.6	24.4	102.6	103.6	104.4
Pacific contiguous	37.7	37.9	45.4	39.7	38.8	36.7	45.7	39.5	38.9	36.7	45.7	39.0	160.7	160.7	160.3
AK and HI	1.3	1.3	1.4	1.4	1.3	1.3	1.4	1.4	1.4	1.3	1.4	1.4	5.4	5.4	5.5
Total	321.8	335.2	389.0	327.0	320.8	328.8	392.6	328.9	326.6	331.3	392.4	324.6	1,373.0	1,371.1	1,374.8
Industrial Sector															
New England	3.9	3.9	4.1	3.8	3.7	3.6	4.0	3.8	3.7	3.6	3.9	3.7	15.7	15.1	14.9
Middle Atlantic	17.5	18.2	19.4	18.2	17.3	18.0	19.1	18.1	17.8	18.2	19.3	18.3	73.3	72.5	73.7
E. N. Central	45.9	47.0	48.8	45.3	44.9	45.6	47.9	45.2	45.1	45.4	48.2	45.6	187.1	183.6	184.3
W. N. Central	24.0	24.8	26.9	25.0	24.4	25.3	26.2	24.9	24.7	25.6	26.9	25.6	100.7	100.8	102.8
S. Atlantic	36.3	37.5	38.7	36.4	34.6	35.8	37.6	36.1	34.9	36.1	38.2	36.7	148.9	144.0	145.9
E. S. Central	24.7	25.8	25.6	23.4	23.3	23.7	24.3	22.8	23.1	23.4	24.2	22.8	99.5	94.1	93.5
W. S. Central	49.8	53.3	53.8	50.6	50.3	53.4	55.4	51.8	52.4	55.9	57.7	53.6	207.6	210.9	219.7
Mountain	19.9	21.7	24.0	20.9	19.8	21.9	24.8	21.3	20.4	22.3	25.2	21.6	86.5	87.9	89.6
Pacific contiguous	19.0	21.0	23.4	20.0	18.4	19.6	23.1	19.2	17.8	19.0	22.6	18.9	83.4	80.3	78.2
AK and HI	1.1	1.2	1.3	1.2	1.1	1.2	1.3	1.2	1.2	1.2	1.3	1.2	4.8	4.8	4.8
Total	242.2	254.5	265.9	244.9	237.7	248.1	263.7	244.4	241.1	250.7	267.5	248.1	1,007.5	993.9	1,007.5
Total All Sectors (a)															
New England	29.2	26.3	32.0	26.5	27.9	25.0	30.6	26.7	29.0	25.5	31.1	26.6	114.0	110.2	112.1
Middle Atlantic	90.4	83.3	103.3	84.0	86.4	80.0	99.6	83.5	89.6	82.0	102.5	83.6	360.9	349.4	357.6
E. N. Central	140.2	133.8	152.5	130.7	133.9	127.5	151.9	131.3	139.2	130.6	156.1	131.8	557.2	544.6	557.7
W. N. Central	79.7	74.1	86.3	75.4	78.8	74.5	86.5	75.8	81.0	75.0	89.3	76.9	315.4	315.5	322.3
S. Atlantic	207.7	211.8	248.7	203.2	198.7	203.4	250.9	205.7	210.1	213.0	261.0	207.2	871.3	858.7	891.2
E. S. Central	78.4	76.0	89.4	70.9	73.0	70.8	89.2	71.3	77.2	71.8	90.8	71.1	314.6	304.3	310.9
W. S. Central	153.7	164.2	196.4	150.5	149.0	158.9	200.0	153.4	155.9	161.0	199.8	153.9	664.9	661.3	670.6
Mountain	67.2	73.4	89.8	69.5	68.8	71.8	91.2	69.8	68.8	74.4	93.6	70.3	299.9	301.7	307.2
Pacific contiguous	95.3	91.6	112.2	96.6	96.8	87.5	110.4	94.3	94.0	87.2	112.0	93.4	395.7	389.1	386.6
AK and HI	3.7	3.6	3.8	3.9	3.7	3.6	3.8	3.9	3.8	3.6	3.8	3.9	15.0	15.0	15.1
Total	945.5	938.0	1,114.3	911.2	917.1	903.0	1,114.2	915.5	948.5	924.2	1,140.0	918.6	3,909.1	3,849.8	3,931.4

(a) Total retail sales to all sectors includes residential, commercial, industrial, and transportation sector sales.

- = no data available

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Retail Sales represents total retail electricity sales by electric utilities and power marketers.

Regions refer to U.S. Census divisions.

See "Census division" in EIA's Energy Glossary (<http://www.eia.doe.gov/glossary/index.html>) for a list of States in each region.

Historical data: Latest data available from Energy Information Administration databases supporting the following reports: *Electric Power Monthly*, DOE/EIA-0226; and *Electric*

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 7c. U.S. Regional Electricity Prices to Ultimate Customers (Cents per Kilowatthour)

U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Residential Sector															
New England	23.96	24.31	24.76	26.39	30.63	29.75	<i>27.54</i>	<i>27.52</i>	<i>30.60</i>	<i>29.00</i>	<i>26.85</i>	<i>27.39</i>	24.81	<i>28.82</i>	<i>28.45</i>
Middle Atlantic	17.20	18.29	18.95	19.50	19.68	18.90	<i>18.58</i>	<i>18.78</i>	<i>19.51</i>	<i>19.20</i>	<i>19.15</i>	<i>19.50</i>	18.47	<i>18.97</i>	<i>19.33</i>
E. N. Central	14.21	15.50	16.18	16.13	16.12	16.78	<i>16.52</i>	<i>15.72</i>	<i>15.38</i>	<i>16.23</i>	<i>16.27</i>	<i>15.92</i>	15.49	<i>16.29</i>	<i>15.95</i>
W. N. Central	11.28	13.26	14.36	12.39	11.85	13.41	<i>13.86</i>	<i>12.02</i>	<i>11.63</i>	<i>13.49</i>	<i>13.79</i>	<i>12.00</i>	12.83	<i>12.81</i>	<i>12.74</i>
S. Atlantic	12.68	13.61	14.27	13.85	14.34	14.71	<i>14.29</i>	<i>13.25</i>	<i>13.39</i>	<i>13.98</i>	<i>13.84</i>	<i>13.07</i>	13.63	<i>14.15</i>	<i>13.59</i>
E. S. Central	11.97	13.08	13.78	13.40	13.17	13.18	<i>13.09</i>	<i>12.79</i>	<i>13.02</i>	<i>13.48</i>	<i>13.31</i>	<i>13.17</i>	13.06	<i>13.06</i>	<i>13.24</i>
W. S. Central	11.86	12.97	13.84	13.97	13.57	13.62	<i>14.05</i>	<i>14.03</i>	<i>13.60</i>	<i>13.80</i>	<i>14.23</i>	<i>14.13</i>	13.21	<i>13.85</i>	<i>13.97</i>
Mountain	12.14	12.85	13.23	12.98	12.96	13.85	<i>14.13</i>	<i>13.58</i>	<i>13.20</i>	<i>13.81</i>	<i>13.97</i>	<i>13.64</i>	12.85	<i>13.68</i>	<i>13.69</i>
Pacific	18.12	20.60	22.03	18.82	19.40	22.41	<i>22.45</i>	<i>18.93</i>	<i>19.51</i>	<i>23.28</i>	<i>23.61</i>	<i>19.70</i>	19.95	<i>20.78</i>	<i>21.57</i>
U.S. Average	13.98	15.07	15.85	15.48	15.74	16.12	<i>15.92</i>	<i>15.20</i>	<i>15.33</i>	<i>15.97</i>	<i>15.95</i>	<i>15.35</i>	15.12	<i>15.76</i>	<i>15.67</i>
Commercial Sector															
New England	18.47	17.46	18.32	18.55	20.55	18.70	<i>18.75</i>	<i>18.18</i>	<i>19.73</i>	<i>18.06</i>	<i>18.58</i>	<i>18.58</i>	18.21	<i>19.04</i>	<i>18.74</i>
Middle Atlantic	14.05	14.96	16.60	15.26	14.84	14.76	<i>15.38</i>	<i>13.72</i>	<i>13.73</i>	<i>14.63</i>	<i>15.93</i>	<i>14.29</i>	15.26	<i>14.70</i>	<i>14.69</i>
E. N. Central	11.06	11.84	12.12	11.87	12.01	12.09	<i>11.60</i>	<i>11.01</i>	<i>11.24</i>	<i>11.84</i>	<i>11.79</i>	<i>11.38</i>	11.73	<i>11.67</i>	<i>11.57</i>
W. N. Central	9.65	10.71	11.70	10.15	10.02	10.75	<i>11.23</i>	<i>9.54</i>	<i>9.68</i>	<i>10.93</i>	<i>11.53</i>	<i>9.68</i>	10.59	<i>10.41</i>	<i>10.49</i>
S. Atlantic	10.30	10.87	11.52	11.23	11.37	10.91	<i>10.91</i>	<i>10.21</i>	<i>10.25</i>	<i>10.23</i>	<i>10.60</i>	<i>10.08</i>	11.01	<i>10.84</i>	<i>10.30</i>
E. S. Central	11.69	12.20	13.02	12.59	12.60	12.16	<i>12.67</i>	<i>12.23</i>	<i>12.50</i>	<i>12.49</i>	<i>13.16</i>	<i>12.61</i>	12.41	<i>12.43</i>	<i>12.72</i>
W. S. Central	8.68	9.63	10.47	9.91	9.51	9.00	<i>9.54</i>	<i>8.95</i>	<i>9.09</i>	<i>9.59</i>	<i>10.83</i>	<i>9.93</i>	9.73	<i>9.27</i>	<i>9.91</i>
Mountain	9.57	10.32	10.97	10.42	10.35	11.10	<i>11.55</i>	<i>10.72</i>	<i>10.37</i>	<i>10.92</i>	<i>11.47</i>	<i>10.83</i>	10.36	<i>10.97</i>	<i>10.93</i>
Pacific	16.13	17.81	20.34	18.00	18.07	19.15	<i>22.32</i>	<i>19.12</i>	<i>18.50</i>	<i>19.16</i>	<i>22.87</i>	<i>20.11</i>	18.18	<i>19.79</i>	<i>20.29</i>
U.S. Average	11.63	12.35	13.38	12.66	12.69	12.51	<i>13.09</i>	<i>12.04</i>	<i>12.11</i>	<i>12.38</i>	<i>13.42</i>	<i>12.45</i>	12.55	<i>12.61</i>	<i>12.63</i>
Industrial Sector															
New England	15.12	15.17	15.93	15.36	16.21	15.42	<i>15.90</i>	<i>14.88</i>	<i>15.45</i>	<i>14.77</i>	<i>15.63</i>	<i>15.09</i>	15.40	<i>15.61</i>	<i>15.25</i>
Middle Atlantic	7.88	8.29	9.30	8.46	8.31	8.02	<i>8.85</i>	<i>8.16</i>	<i>8.52</i>	<i>8.11</i>	<i>9.00</i>	<i>8.19</i>	8.51	<i>8.34</i>	<i>8.46</i>
E. N. Central	7.72	8.55	8.99	8.50	8.33	8.06	<i>8.41</i>	<i>8.24</i>	<i>8.62</i>	<i>8.26</i>	<i>8.61</i>	<i>8.43</i>	8.45	<i>8.26</i>	<i>8.48</i>
W. N. Central	7.17	8.00	8.70	7.46	7.39	7.71	<i>8.35</i>	<i>7.38</i>	<i>7.65</i>	<i>7.87</i>	<i>8.52</i>	<i>7.52</i>	7.85	<i>7.72</i>	<i>7.90</i>
S. Atlantic	6.85	8.10	9.11	8.05	7.70	7.58	<i>8.26</i>	<i>7.61</i>	<i>7.97</i>	<i>7.67</i>	<i>8.40</i>	<i>7.74</i>	8.04	<i>7.79</i>	<i>7.95</i>
E. S. Central	6.35	7.36	8.41	7.53	6.98	6.81	<i>7.77</i>	<i>7.21</i>	<i>7.24</i>	<i>6.93</i>	<i>7.95</i>	<i>7.38</i>	7.42	<i>7.20</i>	<i>7.38</i>
W. S. Central	6.19	7.28	8.08	7.37	6.71	6.13	<i>6.91</i>	<i>6.90</i>	<i>6.81</i>	<i>5.96</i>	<i>6.86</i>	<i>6.94</i>	7.25	<i>6.66</i>	<i>6.64</i>
Mountain	6.58	7.27	8.41	7.88	7.66	7.57	<i>8.78</i>	<i>8.00</i>	<i>7.84</i>	<i>7.96</i>	<i>9.08</i>	<i>8.21</i>	7.57	<i>8.03</i>	<i>8.31</i>
Pacific	10.37	11.98	14.16	12.65	11.78	12.45	<i>14.90</i>	<i>13.04</i>	<i>12.22</i>	<i>13.16</i>	<i>15.61</i>	<i>13.63</i>	12.38	<i>13.14</i>	<i>13.77</i>
U.S. Average	7.42	8.41	9.38	8.52	8.12	7.93	<i>8.87</i>	<i>8.26</i>	<i>8.32</i>	<i>8.04</i>	<i>9.02</i>	<i>8.41</i>	8.45	<i>8.31</i>	<i>8.46</i>
All Sectors (a)															
New England	20.46	19.83	20.79	21.27	24.35	22.50	<i>22.08</i>	<i>21.55</i>	<i>24.04</i>	<i>21.95</i>	<i>21.79</i>	<i>21.76</i>	20.59	<i>22.62</i>	<i>22.40</i>
Middle Atlantic	14.09	14.68	16.17	15.29	15.39	14.69	<i>15.41</i>	<i>14.34</i>	<i>14.96</i>	<i>14.80</i>	<i>15.94</i>	<i>14.83</i>	15.10	<i>14.99</i>	<i>15.17</i>
E. N. Central	11.10	11.88	12.57	12.10	12.20	12.12	<i>12.37</i>	<i>11.63</i>	<i>11.90</i>	<i>12.03</i>	<i>12.48</i>	<i>11.88</i>	11.93	<i>12.09</i>	<i>12.09</i>
W. N. Central	9.53	10.65	11.73	10.02	9.89	10.59	<i>11.32</i>	<i>9.68</i>	<i>9.80</i>	<i>10.73</i>	<i>11.48</i>	<i>9.76</i>	10.51	<i>10.40</i>	<i>10.47</i>
S. Atlantic	10.79	11.56	12.43	11.79	12.05	11.91	<i>12.10</i>	<i>11.07</i>	<i>11.32</i>	<i>11.42</i>	<i>11.83</i>	<i>10.97</i>	11.68	<i>11.80</i>	<i>11.41</i>
E. S. Central	10.12	10.88	12.01	11.22	11.04	10.74	<i>11.51</i>	<i>10.83</i>	<i>11.15</i>	<i>11.05</i>	<i>11.83</i>	<i>11.15</i>	11.09	<i>11.06</i>	<i>11.32</i>
W. S. Central	9.05	10.06	11.21	10.44	9.98	9.62	<i>10.67</i>	<i>10.00</i>	<i>9.95</i>	<i>9.78</i>	<i>11.10</i>	<i>10.35</i>	10.25	<i>10.11</i>	<i>10.34</i>
Mountain	9.60	10.32	11.19	10.55	10.53	10.98	<i>11.81</i>	<i>10.87</i>	<i>10.63</i>	<i>11.06</i>	<i>11.84</i>	<i>10.99</i>	10.47	<i>11.10</i>	<i>11.18</i>
Pacific	15.77	17.45	19.69	17.19	17.41	18.79	<i>20.80</i>	<i>17.79</i>	<i>17.69</i>	<i>19.31</i>	<i>21.67</i>	<i>18.62</i>	17.62	<i>18.77</i>	<i>19.43</i>
U.S. Average	11.49	12.28	13.44	12.59	12.69	12.55	<i>13.25</i>	<i>12.21</i>	<i>12.43</i>	<i>12.52</i>	<i>13.44</i>	<i>12.44</i>	12.49	<i>12.70</i>	<i>12.75</i>

(a) Volume-weighted average of retail prices to residential, commercial, industrial, and transportation sectors.

- = no data available

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Prices are not adjusted for inflation.

Regions refer to U.S. Census divisions.

See "Census division" in EIA's Energy Glossary (<http://www.eia.doe.gov/glossary/index.html>) for a list of States in each region.

Historical data: Latest data available from Energy Information Administration databases supporting the following reports: *Electric Power Monthly*, DOE/EIA-0226; and *Electric*

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 7d part 1. U.S. Regional Electricity Generation, Electric Power Sector (billion kilowatthours), continues on Table 7d part 2

U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
United States															
Natural Gas	336.4	365.3	509.3	375.2	368.1	394.6	532.3	380.2	359.3	373.9	527.0	367.3	1,586.2	1,675.3	1,627.6
Coal	217.6	189.1	234.6	182.1	155.1	136.2	202.0	139.6	153.2	135.8	202.2	140.7	823.4	632.9	631.8
Nuclear	195.6	184.4	201.5	190.1	194.5	182.9	204.8	195.2	199.8	193.1	208.6	193.9	771.5	777.4	795.4
Renewable Energy Sources:	233.0	245.1	197.8	207.2	227.5	235.5	209.0	228.4	259.3	269.7	235.6	244.7	883.1	900.4	1,009.3
Conventional Hydropower	74.2	69.2	62.4	55.0	62.6	69.8	61.3	61.1	73.5	80.4	65.7	60.6	260.8	254.7	280.2
Wind	119.0	121.0	80.6	113.9	125.4	105.6	84.0	121.5	133.7	110.5	86.9	126.7	434.5	436.5	457.9
Solar (a)	29.2	44.4	43.4	27.6	29.6	50.6	53.1	35.6	41.7	69.7	72.3	47.2	144.6	168.9	230.8
Biomass	6.6	6.5	7.1	6.5	6.0	5.7	6.6	6.1	6.3	6.0	6.7	6.2	26.7	24.5	25.1
Geothermal	4.1	3.9	4.2	4.2	3.9	3.9	4.0	4.0	4.2	3.1	4.0	4.0	16.5	15.8	15.3
Pumped Storage Hydropower	-1.2	-1.3	-2.0	-1.5	-1.6	-1.5	-2.0	-1.4	-1.6	-1.5	-2.1	-1.5	-6.0	-6.5	-6.7
Petroleum (b)	6.4	4.1	4.5	7.4	3.8	3.7	4.6	5.5	5.2	3.7	4.6	5.9	22.4	17.7	19.4
Other Gases	0.8	0.9	1.0	0.8	0.8	0.7	0.9	0.8	0.8	0.8	0.9	0.8	3.5	3.2	3.3
Other Nonrenewable Fuels (c)	1.6	1.6	1.6	1.5	1.3	1.3	1.6	1.5	1.0	1.0	1.0	0.8	6.2	5.7	3.8
Total Generation	990.0	989.3	1,148.2	962.7	949.6	953.5	1,153.3	949.8	977.1	976.4	1,177.9	952.5	4,090.3	4,006.1	4,083.9
New England (ISO-NE)															
Natural Gas	12.1	12.6	17.4	11.4	11.7	12.5	16.1	11.7	11.8	10.5	16.6	11.8	53.4	52.1	50.7
Coal	0.3	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.3	0.1	0.4	0.1	0.3	0.4	0.8
Nuclear	7.1	5.6	7.3	7.4	7.1	3.4	7.1	6.1	7.1	7.1	7.2	5.6	27.4	23.8	27.1
Conventional hydropower	1.7	1.5	1.0	1.3	1.7	1.3	1.0	1.7	2.0	2.2	1.2	1.7	5.5	5.8	7.1
Nonhydro renewables (d)	3.2	3.2	3.0	3.0	2.9	3.1	3.2	3.0	2.8	3.5	3.6	3.8	12.4	12.2	13.7
Other energy sources (e)	1.4	0.3	0.3	0.8	0.4	0.3	0.2	0.5	0.7	0.3	0.2	0.6	2.8	1.5	1.8
Total generation	25.7	23.1	29.2	23.9	24.0	20.7	27.9	23.2	24.8	23.6	29.1	23.6	101.8	95.8	101.1
Net energy for load (f)	30.6	26.8	33.5	28.0	29.0	25.6	32.6	28.4	30.4	27.6	33.8	29.0	118.9	115.5	120.9
New York (NYISO)															
Natural Gas	14.1	15.5	21.2	14.3	13.3	13.7	19.3	12.8	13.4	13.2	20.1	13.4	65.0	59.1	60.1
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nuclear	6.4	7.0	6.4	7.0	6.8	6.6	7.3	7.2	6.5	7.1	7.1	6.7	26.8	27.9	27.3
Conventional hydropower	7.3	6.9	6.6	6.6	7.1	6.7	6.8	7.1	6.9	6.9	6.9	7.1	27.4	27.7	27.8
Nonhydro renewables (d)	2.2	2.1	1.8	2.2	2.2	2.2	2.3	2.8	2.9	2.9	2.6	3.2	8.2	9.6	11.6
Other energy sources (e)	1.1	0.1	0.1	0.8	0.3	0.1	0.2	0.4	0.7	0.1	0.3	0.5	2.2	1.0	1.5
Total generation	31.0	31.6	36.1	30.9	29.7	29.4	35.9	30.3	30.4	30.2	36.9	30.8	129.6	125.4	128.3
Net energy for load (f)	38.1	35.0	44.0	35.6	36.1	33.3	42.7	35.4	37.6	36.2	45.0	36.5	152.7	147.5	155.2
Mid-Atlantic (PJM)															
Natural Gas	76.8	74.3	103.8	79.9	86.0	81.0	107.1	85.3	86.6	80.4	105.6	80.8	334.8	359.3	353.5
Coal	48.6	35.3	42.2	30.7	27.9	22.5	36.2	23.9	31.6	24.1	33.9	22.4	156.8	110.6	112.0
Nuclear	69.0	65.1	69.7	66.8	67.6	65.6	71.7	68.5	69.0	64.7	71.9	68.5	270.6	273.5	274.1
Conventional hydropower	2.7	2.4	1.4	2.0	2.7	2.1	1.6	2.1	2.7	2.6	1.7	2.1	8.6	8.5	9.0
Nonhydro renewables (d)	13.2	13.0	9.7	12.5	12.9	12.4	10.8	14.0	16.2	15.5	13.4	15.6	48.4	50.0	60.7
Other energy sources (e)	0.7	0.4	0.2	1.3	0.3	0.2	0.1	0.9	0.5	0.3	0.1	0.9	2.6	1.4	1.8
Total generation	211.1	190.3	227.1	193.3	197.4	183.7	227.5	194.6	206.5	187.6	226.6	190.4	821.8	803.3	811.1
Net energy for load (f)	203.4	185.4	216.7	189.7	192.5	176.3	212.4	183.5	198.2	180.7	217.9	183.5	795.1	764.7	780.2
Southeast (SERC)															
Natural Gas	63.0	66.9	86.2	64.5	64.1	66.2	83.5	67.3	68.6	67.2	91.0	68.0	280.6	281.0	294.8
Coal	32.3	32.8	32.0	28.1	23.6	25.3	35.4	19.4	24.6	25.9	34.8	20.9	125.1	103.7	106.2
Nuclear	51.4	51.1	55.4	51.1	51.7	52.5	56.6	56.5	55.8	57.5	59.4	55.3	209.0	217.3	228.1
Conventional hydropower	10.3	8.3	6.1	8.0	10.3	7.7	7.6	9.0	11.5	9.0	8.0	9.1	32.7	34.5	37.7
Nonhydro renewables (d)	5.0	7.0	6.6	4.7	5.0	7.5	7.3	5.5	5.6	8.9	8.6	6.3	23.3	25.3	29.4
Other energy sources (e)	-0.2	-0.3	-0.6	-0.1	-0.3	-0.4	-0.6	-0.3	-0.2	-0.4	-0.6	-0.3	-1.2	-1.6	-1.5
Total generation	161.8	165.8	185.7	156.3	154.4	158.8	189.8	157.3	166.0	168.0	201.2	159.5	669.6	660.4	694.7
Net energy for load (f)	157.0	158.2	170.6	151.0	149.1	149.2	180.7	151.0	158.3	157.3	187.9	151.7	636.7	630.0	655.2
Florida (FRCC)															
Natural Gas	38.7	47.8	57.3	41.3	37.9	49.8	59.2	41.8	37.6	46.3	56.0	40.9	185.0	188.8	180.8
Coal	3.5	4.2	3.7	4.1	2.8	2.6	3.1	2.6	2.0	1.6	2.3	2.3	15.5	11.0	8.3
Nuclear	7.3	7.9	7.5	8.1	7.4	7.5	7.6	7.8	7.3	7.9	8.0	6.8	30.8	30.2	30.0
Conventional hydropower	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.2
Nonhydro renewables (d)	2.9	3.8	3.5	2.7	3.5	4.4	4.0	3.2	4.8	5.7	5.2	4.1	12.9	15.1	19.8
Other energy sources (e)	0.7	0.6	0.7	0.7	0.7	0.6	0.7	0.6	0.7	0.6	0.7	0.6	2.6	2.6	2.6
Total generation	53.2	64.2	72.7	56.8	52.3	64.9	74.7	56.1	52.5	62.2	72.1	54.7	247.0	248.0	241.6
Net energy for load (f)	52.2	63.6	73.9	57.8	54.4	65.5	74.0	56.1	51.9	63.1	73.6	55.1	247.5	250.1	243.6

(a) Solar generation from large-scale power plants with more than 1 megawatt of capacity. Excludes generation from small-scale solar photovoltaic systems.

(b) Residual fuel oil, distillate fuel oil, petroleum coke, and other petroleum liquids.

(c) Batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, nonrenewable waste, and miscellaneous technologies.

(d) Wind, large-scale solar, biomass, and geothermal

(e) Pumped storage hydroelectric, petroleum, other gases, batteries, and other nonrenewable fuels. See notes (b) and (c).

(f) Regional generation from generating units operated by electric power sector, plus energy receipts from minus energy deliveries to U.S. balancing authorities outside region.

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Data reflect generation supplied by power plants with a combined capacity of at least 1 megawatt operated by electric utilities and independent power producers.

Historical data: Latest data available from U.S. Energy Information Administration databases supporting the following reports: *Electric Power Monthly*, DOE/EIA-0226; and *Electric Power Annual*, DOE/EIA-0348.

Table 7d part 2. U.S. Regional Electricity Generation, Electric Power Sector (billion kilowatthours), continued from Table 7d part 1
 U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Midwest (MISO)															
Natural Gas	39.4	45.6	57.3	41.8	45.4	52.6	63.8	48.2	49.1	50.2	65.5	45.1	184.1	210.0	209.8
Coal	60.4	51.0	65.0	49.3	43.0	35.8	52.4	38.9	43.4	38.7	56.6	40.9	225.8	170.1	179.6
Nuclear	23.8	19.6	24.3	23.7	23.4	21.1	23.5	20.6	23.3	22.5	24.4	23.3	91.4	88.6	93.5
Conventional hydropower	2.8	2.7	2.5	2.3	2.5	2.5	2.3	2.2	2.5	2.9	2.4	2.2	10.3	9.5	10.0
Nonhydro renewables (d)	31.2	28.0	19.8	30.4	29.9	28.1	21.6	33.2	33.5	31.4	25.2	36.2	109.4	112.8	126.5
Other energy sources (e)	1.4	1.6	1.3	1.8	0.9	1.0	1.4	1.6	1.4	1.2	1.4	1.7	6.1	4.9	5.6
Total generation	159.0	148.5	170.2	149.3	145.0	141.2	165.2	144.6	153.2	147.0	175.4	149.5	627.0	596.0	625.0
Net energy for load (f)	167.1	163.4	182.5	158.8	158.6	157.9	185.2	158.6	164.3	159.7	188.4	158.8	671.8	660.3	671.2
Central (Southwest Power Pool)															
Natural Gas	12.5	15.3	24.8	16.4	15.4	20.7	24.6	12.1	13.1	17.7	23.3	12.4	69.0	72.7	66.4
Coal	26.2	23.5	33.8	22.8	20.4	17.4	28.3	19.1	19.5	17.9	29.6	18.5	106.3	85.1	85.4
Nuclear	4.3	4.3	3.9	2.1	4.3	4.3	4.3	4.3	4.3	3.0	4.3	3.5	14.6	17.2	15.1
Conventional hydropower	4.3	3.9	3.2	3.1	3.5	3.7	3.6	3.0	3.6	4.2	3.7	3.1	14.6	13.8	14.5
Nonhydro renewables (d)	29.5	30.4	21.8	28.5	31.1	26.4	23.0	30.0	31.3	28.0	23.7	31.0	110.2	110.6	114.1
Other energy sources (e)	0.3	0.4	0.2	0.4	0.2	0.3	0.2	0.3	0.3	0.2	0.2	0.3	1.3	0.9	1.0
Total generation	77.0	77.7	87.7	73.5	74.8	72.6	84.1	68.9	72.0	70.9	84.8	68.6	316.0	300.4	296.4
Net energy for load (f)	67.4	67.7	81.7	66.0	66.6	66.6	77.7	62.0	64.7	65.1	79.4	62.6	282.8	272.8	271.8
Texas (ERCOT)															
Natural Gas	33.4	42.8	64.7	40.9	36.2	50.8	70.2	43.0	33.8	46.5	64.7	40.4	181.9	200.2	185.4
Coal	17.7	16.8	20.2	16.6	10.5	15.1	17.2	11.4	9.8	11.2	15.9	11.1	71.2	54.2	48.0
Nuclear	11.0	9.9	10.7	10.0	10.5	9.1	11.0	10.1	10.9	9.8	10.6	9.5	41.6	40.7	40.8
Conventional hydropower	0.2	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.5	0.5	0.6
Nonhydro renewables (d)	30.8	39.2	28.1	29.3	36.5	33.5	31.0	32.6	41.4	40.2	36.7	37.6	127.4	133.6	155.9
Other energy sources (e)	0.4	0.5	0.4	0.3	0.2	0.4	0.4	0.5	0.3	0.2	0.3	0.1	1.5	1.5	1.0
Total generation	93.5	109.3	124.1	97.2	94.1	108.9	130.0	97.7	96.4	108.1	128.3	98.8	424.1	430.7	431.6
Net energy for load (f)	95.1	111.3	126.4	97.1	94.1	109.3	130.0	97.7	96.4	108.1	128.3	98.8	429.9	431.1	431.6
Northwest															
Natural Gas	20.2	15.9	27.3	24.6	25.6	18.4	34.8	21.0	19.9	12.3	32.2	19.0	88.1	99.8	83.4
Coal	21.7	18.1	26.9	22.1	20.0	13.9	20.9	18.0	16.4	11.8	20.0	18.3	88.8	72.8	66.5
Nuclear	2.5	2.3	2.5	2.6	2.4	1.1	2.5	2.4	2.4	2.4	2.4	2.4	9.9	8.4	9.7
Conventional hydropower	38.7	35.7	34.0	26.9	26.4	31.7	24.5	26.9	33.9	40.1	30.5	28.3	135.2	109.4	132.8
Nonhydro renewables (d)	19.2	20.4	16.0	18.0	19.1	20.5	18.8	20.8	21.6	22.9	21.1	22.0	73.6	79.2	87.7
Other energy sources (e)	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.8	0.6	0.6
Total generation	102.5	92.6	106.9	94.4	93.7	85.7	101.7	89.2	94.5	89.6	106.4	90.2	396.3	370.3	380.7
Net energy for load (f)	85.2	76.8	87.4	86.8	88.7	76.7	87.1	81.6	84.0	76.2	88.7	81.3	336.1	334.1	330.3
Southwest															
Natural Gas	9.7	13.2	19.0	13.9	11.5	16.0	24.8	15.6	10.7	14.6	24.7	14.9	55.8	67.9	64.9
Coal	6.1	6.3	8.1	6.2	5.5	3.1	5.6	4.2	3.7	4.2	6.0	4.1	26.7	18.3	18.0
Nuclear	8.2	7.5	8.7	7.6	8.6	6.8	8.6	7.4	8.5	7.4	8.6	7.5	31.9	31.4	32.0
Conventional hydropower	2.0	2.1	1.8	1.4	1.5	2.5	2.3	2.0	1.7	2.1	1.9	1.5	7.4	8.2	7.2
Nonhydro renewables (d)	5.8	7.0	5.2	5.6	6.4	7.0	5.8	7.0	8.5	8.5	6.9	7.6	23.6	26.1	31.4
Other energy sources (e)	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.3	0.2
Total generation	31.8	36.0	43.0	34.7	33.6	35.4	47.1	36.2	33.1	36.9	48.1	35.6	145.5	152.2	153.6
Net energy for load (f)	27.4	34.2	42.0	28.8	28.2	32.9	45.6	29.1	27.9	34.6	46.6	29.1	132.4	135.9	138.1
California															
Natural Gas	15.7	15.2	29.4	25.5	20.4	12.4	28.0	20.7	14.0	14.4	26.9	19.7	85.9	81.5	75.1
Coal	0.5	0.7	2.4	1.9	1.1	0.4	2.3	1.6	1.5	0.0	2.4	1.6	5.5	5.4	5.4
Nuclear	4.6	4.2	5.0	3.8	4.7	4.9	4.7	4.1	4.7	3.6	4.7	4.7	17.6	18.3	17.8
Conventional hydropower	3.6	5.2	5.2	2.8	6.4	11.0	10.9	6.7	8.0	9.8	9.0	5.0	16.9	35.0	31.9
Nonhydro renewables (d)	15.4	21.5	19.4	14.8	14.9	20.1	19.4	14.8	16.7	21.2	22.2	16.1	71.2	69.2	76.2
Other energy sources (e)	0.0	-0.2	0.1	-0.2	-0.6	-0.2	0.3	0.0	-0.6	-0.4	0.0	-0.3	-0.2	-0.5	-1.3
Total generation	39.8	46.6	61.6	48.7	46.9	48.6	65.6	47.9	44.3	48.6	65.2	46.9	196.7	208.9	205.0
Net energy for load (f)	59.2	64.4	81.3	63.6	60.5	59.9	81.6	62.5	59.9	64.3	84.4	62.3	268.4	264.5	270.9

(a) Large-scale solar generation from power plants with more than 1 megawatt of capacity. Excludes generation from small-scale solar photovoltaic systems.

(b) Residual fuel oil, distillate fuel oil, petroleum coke, and other petroleum liquids.

(c) Batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, nonrenewable waste, and miscellaneous technologies.

(d) Wind, large-scale solar, biomass, and geothermal

(e) Pumped storage hydroelectric, petroleum, other gases, batteries, and other nonrenewable fuels. See notes (b) and (c).

(f) Regional generation from generating units operated by electric power sector, plus energy receipts from minus energy deliveries to U.S. balancing authorities outside region.

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Data reflect generation supplied by power plants with a combined capacity of at least 1 megawatt operated by electric utilities and independent power producers.

Historical data: Latest data available from U.S. Energy Information Administration databases supporting the following reports: *Electric Power Monthly*, DOE/EIA-0226; and *Electric Power Annual*, DOE/EIA-0348.

Table 7e. U.S. Electric Generating Capacity (gigawatts at end of period)

U.S. Energy Information Administration | Short-Term Energy Outlook - March 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Electric power sector (power plants larger than one megawatt)															
Fossil fuel energy sources															
Natural gas	473.6	476.7	478.7	476.5	<i>481.6</i>	<i>482.8</i>	<i>482.8</i>	<i>479.9</i>	<i>480.8</i>	<i>478.7</i>	<i>478.7</i>	<i>477.8</i>	476.5	<i>479.9</i>	<i>477.8</i>
Coal	206.2	201.5	199.8	196.8	<i>195.4</i>	<i>189.8</i>	<i>189.8</i>	<i>187.9</i>	<i>187.6</i>	<i>186.5</i>	<i>186.5</i>	<i>185.7</i>	196.8	<i>187.9</i>	<i>185.7</i>
Petroleum	26.7	25.7	25.7	25.5	<i>25.5</i>	<i>25.3</i>	<i>25.3</i>	<i>25.1</i>	<i>25.1</i>	<i>25.1</i>	<i>25.1</i>	<i>25.1</i>	25.5	<i>25.1</i>	<i>25.1</i>
Other gases	0.4	0.4	0.4	0.4	<i>0.4</i>	<i>0.4</i>	<i>0.4</i>	<i>0.4</i>	<i>0.4</i>	<i>0.4</i>	<i>0.4</i>	<i>0.4</i>	0.4	<i>0.4</i>	<i>0.4</i>
Renewable energy sources															
Wind	134.8	137.3	138.0	140.8	<i>144.3</i>	<i>145.0</i>	<i>145.6</i>	<i>148.2</i>	<i>148.2</i>	<i>150.5</i>	<i>150.7</i>	<i>155.7</i>	140.8	<i>148.2</i>	<i>155.7</i>
Solar photovoltaic	61.7	63.8	65.7	70.3	<i>76.4</i>	<i>81.3</i>	<i>86.0</i>	<i>98.9</i>	<i>106.8</i>	<i>116.1</i>	<i>119.3</i>	<i>133.6</i>	70.3	<i>98.9</i>	<i>133.6</i>
Solar thermal	1.5	1.5	1.5	1.5	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	1.5	<i>1.5</i>	<i>1.5</i>
Geothermal	2.5	2.5	2.6	2.6	<i>2.6</i>	<i>2.6</i>	<i>2.6</i>	<i>2.6</i>	<i>2.6</i>	<i>2.6</i>	<i>2.6</i>	<i>2.6</i>	2.6	<i>2.6</i>	<i>2.6</i>
Waste biomass	3.6	3.6	3.6	3.5	<i>3.6</i>	<i>3.6</i>	<i>3.6</i>	<i>3.6</i>	<i>3.6</i>	<i>3.6</i>	<i>3.6</i>	<i>3.6</i>	3.5	<i>3.6</i>	<i>3.6</i>
Wood biomass	2.4	2.4	2.4	2.4	<i>2.4</i>	<i>2.4</i>	<i>2.4</i>	<i>2.4</i>	<i>2.4</i>	<i>2.4</i>	<i>2.4</i>	<i>2.4</i>	2.4	<i>2.4</i>	<i>2.4</i>
Conventional hydroelectric	79.6	79.6	79.6	79.7	<i>79.6</i>	<i>79.8</i>	<i>79.8</i>	<i>79.8</i>	<i>79.8</i>	<i>79.8</i>	<i>79.8</i>	<i>79.8</i>	79.7	<i>79.8</i>	<i>79.8</i>
Pumped storage hydroelectric	23.0	23.0	23.0	22.7	<i>23.0</i>	<i>23.2</i>	<i>22.9</i>	<i>23.3</i>	<i>23.3</i>	<i>23.3</i>	<i>23.3</i>	<i>23.2</i>	22.7	<i>23.3</i>	<i>23.2</i>
Nuclear	95.5	94.8	94.8	94.8	<i>94.8</i>	<i>94.8</i>	<i>95.9</i>	<i>93.3</i>	<i>97.1</i>	<i>97.1</i>	<i>97.1</i>	<i>95.9</i>	94.8	<i>93.3</i>	<i>95.9</i>
Battery storage	5.1	6.1	7.1	8.9	<i>10.9</i>	<i>14.2</i>	<i>15.6</i>	<i>18.3</i>	<i>20.7</i>	<i>24.6</i>	<i>24.8</i>	<i>28.2</i>	8.9	<i>18.3</i>	<i>28.2</i>
Other nonrenewable sources (a)	0.2	0.2	0.2	0.2	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>	0.2	<i>0.2</i>	<i>0.2</i>
Industrial and commercial sectors (combined heat and power plants larger than one megawatt)															
Fossil fuel energy sources															
Natural gas	18.5	18.5	18.5	18.5	<i>18.7</i>	<i>18.8</i>	<i>18.8</i>	<i>18.8</i>	<i>18.7</i>	<i>18.7</i>	<i>18.7</i>	<i>18.7</i>	18.5	<i>18.8</i>	<i>18.7</i>
Coal	1.5	1.5	1.5	1.5	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	1.5	<i>1.5</i>	<i>1.5</i>
Petroleum	1.4	1.4	1.4	1.4	<i>1.4</i>	<i>1.4</i>	<i>1.4</i>	<i>1.4</i>	<i>1.4</i>	<i>1.4</i>	<i>1.4</i>	<i>1.4</i>	1.4	<i>1.4</i>	<i>1.4</i>
Other gases	1.5	1.5	1.5	1.5	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	1.5	<i>1.5</i>	<i>1.5</i>
Renewable energy sources															
Wood biomass	5.5	5.5	5.5	5.5	<i>5.6</i>	<i>5.6</i>	<i>5.6</i>	<i>5.6</i>	<i>5.6</i>	<i>5.6</i>	<i>5.6</i>	<i>5.6</i>	5.5	<i>5.6</i>	<i>5.6</i>
Waste biomass	0.8	0.8	0.8	0.8	<i>0.8</i>	<i>0.8</i>	<i>0.8</i>	<i>0.8</i>	<i>0.8</i>	<i>0.8</i>	<i>0.8</i>	<i>0.8</i>	0.8	<i>0.8</i>	<i>0.8</i>
Solar	0.6	0.6	0.6	0.6	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	0.6	<i>0.6</i>	<i>0.6</i>
Wind	0.1	0.1	0.1	0.1	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	0.1	<i>0.1</i>	<i>0.1</i>
Geothermal	0.1	0.1	0.1	0.1	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	0.1	<i>0.1</i>	<i>0.1</i>
Conventional hydroelectric	0.3	0.3	0.3	0.3	<i>0.3</i>	<i>0.3</i>	<i>0.3</i>	<i>0.3</i>	<i>0.3</i>	<i>0.3</i>	<i>0.3</i>	<i>0.3</i>	0.3	<i>0.3</i>	<i>0.3</i>
Battery storage	0.0	0.0	0.0	0.0	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	0.0	<i>0.1</i>	<i>0.1</i>
Other nonrenewable sources (a)	1.3	1.3	1.3	1.2	<i>1.3</i>	<i>1.3</i>	<i>1.3</i>	<i>1.3</i>	<i>1.3</i>	<i>1.3</i>	<i>1.3</i>	<i>1.3</i>	1.2	<i>1.3</i>	<i>1.3</i>
Small-scale solar photovoltaic capacity (systems smaller than one megawatt)															
Residential sector	22.3	23.6	25.0	26.8	<i>28.7</i>	<i>30.7</i>	<i>32.9</i>	<i>35.1</i>	<i>37.5</i>	<i>40.0</i>	<i>42.6</i>	<i>45.4</i>	26.8	<i>35.1</i>	<i>45.4</i>
Commercial sector	10.2	10.5	10.8	11.0	<i>11.5</i>	<i>12.0</i>	<i>12.6</i>	<i>13.1</i>	<i>13.7</i>	<i>14.4</i>	<i>15.0</i>	<i>15.7</i>	11.0	<i>13.1</i>	<i>15.7</i>
Industrial sector	2.2	2.3	2.3	2.4	<i>2.4</i>	<i>2.5</i>	<i>2.6</i>	<i>2.6</i>	<i>2.7</i>	<i>2.7</i>	<i>2.8</i>	<i>2.9</i>	2.4	<i>2.6</i>	<i>2.9</i>
All sectors total	34.7	36.3	38.1	40.2	<i>42.7</i>	<i>45.3</i>	<i>48.0</i>	<i>50.9</i>	<i>53.9</i>	<i>57.1</i>	<i>60.4</i>	<i>63.9</i>	40.2	<i>50.9</i>	<i>63.9</i>

Notes:

(a) Chemicals, hydrogen, pitch, purchased steam, sulfur, nonrenewable waste, and miscellaneous technologies.

EIA completed modeling and analysis for this data on March 2, 2023.

Data sources:

- Historical data: EIA Preliminary Monthly Electric Generator Inventory (Form EIA-860M/EIA-860A surveys), December 2022; and Form EIA-861M (small-scale solar)
- Forecasts: EIA Preliminary Monthly Electric Generator Inventory and Short-Term Integrated Forecasting System.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Minor discrepancies with historical data in other EIA publications may occur due to frequent updates to the Preliminary Electric Generator Inventory.

Table 8a. U.S. Renewable Energy Consumption (Quadrillion Btu)

U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Electric Power Sector															
Geothermal	0.036	0.035	0.037	0.037	0.035	0.034	0.035	0.036	0.037	0.027	0.036	0.036	0.146	0.140	0.135
Hydroelectric Power (a)	0.656	0.612	0.552	0.486	0.554	0.622	0.542	0.540	0.650	0.711	0.581	0.536	2.307	2.258	2.478
Solar (b)	0.258	0.393	0.384	0.244	0.262	0.447	0.470	0.315	0.369	0.616	0.639	0.417	1.279	1.494	2.041
Waste Biomass (c)	0.055	0.053	0.053	0.052	0.051	0.048	0.051	0.050	0.051	0.050	0.051	0.050	0.213	0.201	0.202
Wood Biomass	0.051	0.046	0.055	0.047	0.045	0.040	0.052	0.045	0.047	0.043	0.053	0.046	0.200	0.183	0.190
Wind	1.052	1.070	0.713	1.007	1.109	0.934	0.743	1.074	1.182	0.978	0.769	1.120	3.842	3.860	4.049
Subtotal	2.109	2.210	1.794	1.874	2.055	2.126	1.893	2.061	2.336	2.425	2.129	2.206	7.987	8.135	9.096
Industrial Sector															
Biofuel Losses and Co-products (d)	0.203	0.203	0.197	0.206	0.199	0.205	0.203	0.202	0.201	0.203	0.207	0.206	0.808	0.809	0.817
Geothermal	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.004	0.004	0.004
Hydroelectric Power (a)	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.008	0.008	0.008
Solar (b)	0.008	0.011	0.011	0.008	0.008	0.012	0.013	0.009	0.009	0.013	0.014	0.010	0.038	0.042	0.046
Waste Biomass (c)	0.042	0.040	0.037	0.042	0.042	0.040	0.039	0.042	0.042	0.040	0.040	0.042	0.161	0.163	0.163
Wood Biomass	0.319	0.324	0.322	0.314	0.309	0.302	0.337	0.345	0.335	0.333	0.345	0.347	1.278	1.293	1.359
Subtotal (e)	0.580	0.586	0.576	0.578	0.566	0.569	0.600	0.605	0.595	0.598	0.612	0.611	2.318	2.340	2.416
Commercial Sector															
Geothermal	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.024	0.025	0.025
Solar (b)	0.032	0.047	0.047	0.031	0.036	0.054	0.056	0.039	0.045	0.066	0.067	0.047	0.157	0.186	0.224
Waste Biomass (c)	0.009	0.009	0.009	0.009	0.010	0.010	0.009	0.009	0.010	0.010	0.009	0.009	0.037	0.038	0.038
Wood Biomass	0.020	0.021	0.021	0.021	0.020	0.021	0.021	0.021	0.020	0.021	0.021	0.021	0.083	0.083	0.082
Subtotal (e)	0.076	0.091	0.091	0.075	0.080	0.099	0.100	0.082	0.089	0.110	0.111	0.090	0.333	0.362	0.399
Residential Sector															
Geothermal	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.040	0.040	0.040
Solar (f)	0.078	0.116	0.117	0.084	0.099	0.150	0.150	0.103	0.114	0.172	0.174	0.121	0.395	0.502	0.580
Wood Biomass	0.104	0.105	0.106	0.106	0.111	0.108	0.106	0.106	0.111	0.108	0.106	0.106	0.422	0.432	0.432
Subtotal	0.192	0.231	0.233	0.200	0.220	0.268	0.266	0.220	0.235	0.290	0.290	0.237	0.857	0.973	1.051
Transportation Sector															
Biodiesel, Renewable Diesel, and Other (g) ...	0.094	0.117	0.116	0.125	0.140	0.164	0.154	0.163	0.160	0.172	0.176	0.184	0.451	0.622	0.692
Ethanol (g)	0.259	0.281	0.279	0.281	0.267	0.284	0.292	0.281	0.270	0.287	0.293	0.282	1.100	1.125	1.132
Subtotal	0.353	0.397	0.395	0.406	0.407	0.449	0.447	0.444	0.429	0.459	0.469	0.466	1.551	1.747	1.824
All Sectors Total															
Biodiesel, Renewable Diesel, and Other (g) ...	0.094	0.117	0.116	0.125	0.140	0.164	0.154	0.163	0.160	0.172	0.176	0.184	0.451	0.622	0.692
Biofuel Losses and Co-products (d)	0.203	0.203	0.197	0.206	0.199	0.205	0.203	0.202	0.201	0.203	0.207	0.206	0.808	0.809	0.817
Ethanol (f)	0.271	0.293	0.292	0.294	0.279	0.297	0.305	0.292	0.281	0.298	0.305	0.294	1.149	1.174	1.178
Geothermal	0.053	0.052	0.054	0.055	0.052	0.051	0.052	0.053	0.054	0.044	0.053	0.053	0.214	0.209	0.204
Hydroelectric Power (a)	0.659	0.615	0.555	0.489	0.556	0.625	0.544	0.543	0.653	0.713	0.584	0.538	2.317	2.268	2.488
Solar (b)(f)	0.377	0.568	0.559	0.366	0.405	0.664	0.688	0.467	0.537	0.867	0.893	0.594	1.870	2.224	2.891
Waste Biomass (c)	0.106	0.102	0.099	0.103	0.103	0.099	0.100	0.101	0.103	0.100	0.100	0.101	0.411	0.402	0.404
Wood Biomass	0.494	0.496	0.505	0.489	0.486	0.471	0.516	0.517	0.514	0.504	0.526	0.520	1.984	1.990	2.063
Wind	1.052	1.070	0.713	1.007	1.109	0.934	0.743	1.074	1.182	0.978	0.769	1.120	3.842	3.860	4.049
Total Consumption	3.308	3.514	3.089	3.132	3.327	3.509	3.305	3.412	3.684	3.881	3.612	3.610	13.043	13.554	14.786

- (a) Conventional hydroelectric power only. Hydroelectricity generated by pumped storage is not included in renewable energy.
- (b) Solar consumption in the electric power, commercial, and industrial sectors includes energy produced from large scale (>1 MW) solar thermal and photovoltaic generators and small-scale (<1 MW) distrib
- (c) Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass.
- (d) Losses and co-products from the production of fuel ethanol and biomass-based diesel
- (e) Subtotals for the industrial and commercial sectors might not equal the sum of the components. The subtotal for the industrial sector includes ethanol consumption that is not shown separately. The subtotal for the commercial sector includes ethanol and hydroelectric consumption that are not shown separately.
- (f) Solar consumption in the residential sector includes energy from small-scale (<1 MW) solar photovoltaic systems. Also includes solar heating consumption in all sectors.
- (g) Fuel ethanol and biodiesel, renewable diesel, and other biofuels consumption in the transportation sector includes production, stock change, and imports less exports. Some biomass-based diesel may be consumed in the residential sector in heating oil.

- = no data available

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Historical data: Latest data available from EIA databases supporting the following reports: *Electric Power Monthly*, DOE/EIA-0226 and *Renewable Energy Annual*, DOE/EIA-0603; *Petroleum Supply*

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 8b. U.S. Renewable Electricity Generation and Capacity
 U.S. Energy Information Administration | Short-Term Energy Outlook - April 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024

Table 8b has been discontinued. Renewable electricity information can be found on the following tables:
 U.S. electric power sector generation [Table 7d](#)
 U.S. electric generating capacity [Table 7e](#)

Table 9a. U.S. Macroeconomic Indicators and CO2 Emissions
U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Macroeconomic															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR)	19,924	19,895	20,055	20,182	20,283	20,359	20,427	20,475	20,524	20,589	20,669	20,748	20,014	20,386	20,633
Real Personal Consumption Expend. (billion chained 2012 dollars - SAAR)	14,028	14,099	14,179	14,215	14,360	14,394	14,428	14,473	14,519	14,568	14,633	14,695	14,130	14,414	14,604
Real Private Fixed Investment (billion chained 2012 dollars - SAAR)	3,629	3,582	3,550	3,516	3,512	3,556	3,563	3,566	3,569	3,576	3,585	3,602	3,569	3,549	3,583
Business Inventory Change (billion chained 2012 dollars - SAAR)	257	145	71	162	12	47	28	26	29	43	52	55	159	28	45
Real Government Expenditures (billion chained 2012 dollars - SAAR)	3,393	3,379	3,411	3,442	3,484	3,494	3,516	3,520	3,526	3,532	3,536	3,543	3,406	3,503	3,534
Real Exports of Goods & Services (billion chained 2012 dollars - SAAR)	2,437	2,517	2,604	2,580	2,628	2,562	2,595	2,625	2,659	2,692	2,726	2,760	2,534	2,603	2,709
Real Imports of Goods & Services (billion chained 2012 dollars - SAAR)	3,926	3,947	3,873	3,818	3,837	3,816	3,826	3,864	3,911	3,956	4,001	4,050	3,891	3,836	3,979
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	15,109	15,022	15,141	15,236	15,550	15,626	15,733	15,809	15,937	16,072	16,177	16,272	15,127	15,679	16,114
Non-Farm Employment (millions)	150.8	152.0	153.3	154.3	155.2	156.0	156.5	156.8	156.8	156.7	156.6	156.6	152.6	156.1	156.7
Civilian Unemployment Rate (percent)	3.8	3.6	3.6	3.6	3.5	3.6	3.6	3.7	3.8	4.0	4.1	4.3	3.6	3.6	4.0
Housing Starts (millions - SAAR)	1.72	1.64	1.45	1.41	1.39	1.48	1.41	1.36	1.34	1.34	1.37	1.41	1.55	1.41	1.36
Industrial Production Indices (Index, 2017=100)															
Total Industrial Production	101.7	102.8	103.3	102.7	102.6	102.8	102.7	102.5	102.4	102.3	102.6	102.7	102.6	102.6	102.5
Manufacturing	100.1	100.8	100.9	100.0	99.9	100.4	100.2	100.2	100.1	100.1	100.5	100.9	100.5	100.2	100.4
Food	105.1	105.1	104.8	104.5	105.1	103.5	103.8	104.1	104.4	104.7	105.1	105.6	104.9	104.1	105.0
Paper	95.9	96.2	92.7	89.1	87.6	87.5	87.3	87.4	87.3	87.2	87.5	87.6	93.5	87.5	87.4
Petroleum and Coal Products	89.8	89.6	90.1	89.8	88.6	90.9	91.1	91.2	91.2	90.9	90.7	90.4	89.8	90.4	90.8
Chemicals	102.1	102.3	102.4	100.9	103.3	103.6	104.0	104.4	104.6	104.9	105.7	106.2	101.9	103.8	105.3
Nonmetallic Mineral Products	107.1	108.0	109.7	110.6	111.5	109.3	109.3	109.7	110.4	111.2	112.2	113.1	108.9	109.9	111.7
Primary Metals	94.9	96.4	95.7	92.5	92.7	95.3	94.4	94.3	93.4	93.6	95.2	95.6	94.9	94.1	94.4
Coal-weighted Manufacturing (a)	97.4	97.7	97.2	95.2	95.7	96.1	95.8	95.9	95.7	95.9	96.7	97.0	96.9	95.9	96.3
Distillate-weighted Manufacturing (a)	100.0	100.5	100.4	99.2	99.3	99.2	99.0	99.2	99.3	99.6	100.3	100.8	100.0	99.2	100.0
Electricity-weighted Manufacturing (a)	98.5	98.8	98.2	96.0	96.4	96.6	96.4	96.6	96.5	96.6	97.4	97.8	97.9	96.5	97.1
Natural Gas-weighted Manufacturing (a)	97.0	96.7	95.6	92.7	94.0	93.8	93.7	93.8	93.5	93.6	94.2	94.5	95.5	93.8	94.0
Price Indexes															
Consumer Price Index (all urban consumers) (index, 1982-1984=1.00)	2.85	2.92	2.95	2.99	3.01	3.03	3.05	3.07	3.09	3.11	3.13	3.15	2.93	3.04	3.12
Producer Price Index: All Commodities (index, 1982=1.00)	2.53	2.72	2.70	2.63	2.59	2.50	2.46	2.46	2.45	2.43	2.45	2.46	2.64	2.50	2.45
Producer Price Index: Petroleum (index, 1982=1.00)	3.16	4.21	3.74	3.44	3.09	2.91	2.78	2.76	2.67	2.69	2.64	2.57	3.64	2.88	2.64
GDP Implicit Price Deflator (index, 2012=100)	124.2	126.9	128.3	129.5	130.8	131.8	132.6	133.6	134.6	135.3	136.1	137.0	127.2	132.2	135.7
Miscellaneous															
Vehicle Miles Traveled (b) (million miles/day)	8,142	8,910	9,066	8,604	8,362	9,072	9,253	8,786	8,378	9,156	9,395	8,854	8,683	8,870	8,947
Air Travel Capacity (Available ton-miles/day, thousands)	656	686	692	700	683	721	711	698	681	719	735	722	684	703	714
Aircraft Utilization (Revenue ton-miles/day, thousands)	356	419	422	407	389	435	433	417	399	440	444	430	401	419	428
Airline Ticket Price Index (index, 1982-1984=100)	225.6	328.7	293.1	285.2	277.6	290.8	232.6	239.2	248.4	303.4	261.5	263.3	283.1	260.0	269.2
Raw Steel Production (million short tons per day)	0.253	0.253	0.247	0.235	0.236	0.244	0.251	0.249	0.244	0.243	0.252	0.252	0.247	0.245	0.248
Carbon Dioxide (CO2) Emissions (million metric tons)															
Petroleum	562	564	576	571	555	579	571	577	565	570	582	581	2,273	2,282	2,298
Natural Gas	510	374	401	461	501	389	416	458	508	371	409	450	1,746	1,764	1,738
Coal	244	215	264	212	184	154	235	171	182	163	234	171	935	744	750
Total Energy (c)	1,319	1,155	1,244	1,246	1,243	1,125	1,225	1,208	1,257	1,107	1,228	1,205	4,964	4,801	4,797

(a) Fuel share weights of individual sector indices based on EIA *Manufacturing Energy Consumption Survey*.

(b) Total highway travel includes gasoline and diesel fuel vehicles.

(c) Includes electric power sector use of geothermal energy and non-biomass waste.

- = no data available

SAAR = Seasonally-adjusted annual rate

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Historical data: Latest data available from U.S. Department of Commerce, Bureau of Economic Analysis; Federal Reserve System, Statistical release G17; Federal Highway Administration; and Federal

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: EIA Short-Term Integrated Forecasting System. U.S. macroeconomic forecasts are based on the S&P Global model of the U.S. Economy.

Table 9b. U.S. Regional Macroeconomic Data

U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Real Gross State Product (Billion \$2012)															
New England	1,032	1,024	1,031	1,037	1,042	1,044	<i>1,047</i>	<i>1,049</i>	<i>1,051</i>	<i>1,054</i>	<i>1,058</i>	<i>1,061</i>	1,031	<i>1,046</i>	<i>1,056</i>
Middle Atlantic	2,858	2,858	2,879	2,886	2,899	2,908	<i>2,916</i>	<i>2,922</i>	<i>2,930</i>	<i>2,938</i>	<i>2,949</i>	<i>2,960</i>	2,870	<i>2,911</i>	<i>2,944</i>
E. N. Central	2,596	2,583	2,592	2,596	2,605	2,615	<i>2,622</i>	<i>2,627</i>	<i>2,631</i>	<i>2,636</i>	<i>2,644</i>	<i>2,651</i>	2,592	<i>2,617</i>	<i>2,641</i>
W. N. Central	1,220	1,215	1,220	1,221	1,228	1,231	<i>1,234</i>	<i>1,237</i>	<i>1,240</i>	<i>1,244</i>	<i>1,248</i>	<i>1,252</i>	1,219	<i>1,233</i>	<i>1,246</i>
S. Atlantic	3,578	3,578	3,601	3,627	3,644	3,658	<i>3,674</i>	<i>3,686</i>	<i>3,696</i>	<i>3,709</i>	<i>3,724</i>	<i>3,740</i>	3,596	<i>3,665</i>	<i>3,717</i>
E. S. Central	884	883	887	895	898	901	<i>903</i>	<i>905</i>	<i>906</i>	<i>908</i>	<i>910</i>	<i>913</i>	887	<i>902</i>	<i>909</i>
W. S. Central	2,377	2,383	2,424	2,460	2,482	2,495	<i>2,505</i>	<i>2,512</i>	<i>2,519</i>	<i>2,529</i>	<i>2,542</i>	<i>2,554</i>	2,411	<i>2,499</i>	<i>2,536</i>
Mountain	1,359	1,354	1,366	1,378	1,385	1,389	<i>1,395</i>	<i>1,399</i>	<i>1,403</i>	<i>1,409</i>	<i>1,415</i>	<i>1,422</i>	1,364	<i>1,392</i>	<i>1,412</i>
Pacific	3,805	3,802	3,838	3,865	3,880	3,896	<i>3,909</i>	<i>3,917</i>	<i>3,927</i>	<i>3,940</i>	<i>3,955</i>	<i>3,971</i>	3,828	<i>3,901</i>	<i>3,948</i>
Industrial Output, Manufacturing (Index, Year 2017=100)															
New England	97.6	97.9	97.5	96.2	96.2	96.3	<i>96.0</i>	<i>95.9</i>	<i>95.9</i>	<i>96.0</i>	<i>96.4</i>	<i>96.7</i>	97.3	<i>96.1</i>	<i>96.2</i>
Middle Atlantic	95.9	96.6	96.4	95.4	95.1	95.5	<i>95.1</i>	<i>94.9</i>	<i>94.8</i>	<i>94.8</i>	<i>95.0</i>	<i>95.3</i>	96.1	<i>95.1</i>	<i>95.0</i>
E. N. Central	97.4	97.8	97.8	96.6	96.2	96.8	<i>96.7</i>	<i>96.7</i>	<i>96.6</i>	<i>96.5</i>	<i>96.8</i>	<i>97.1</i>	97.4	<i>96.6</i>	<i>96.7</i>
W. N. Central	100.9	101.7	101.8	101.3	101.4	102.0	<i>101.8</i>	<i>101.8</i>	<i>101.8</i>	<i>101.9</i>	<i>102.3</i>	<i>102.6</i>	101.5	<i>101.8</i>	<i>102.2</i>
S. Atlantic	102.5	103.2	103.2	102.3	102.1	102.5	<i>102.4</i>	<i>102.4</i>	<i>102.5</i>	<i>102.5</i>	<i>103.1</i>	<i>103.5</i>	102.8	<i>102.4</i>	<i>102.9</i>
E. S. Central	100.2	101.2	101.5	100.5	100.3	100.9	<i>100.8</i>	<i>100.6</i>	<i>100.4</i>	<i>100.2</i>	<i>100.5</i>	<i>100.7</i>	100.9	<i>100.7</i>	<i>100.5</i>
W. S. Central	102.4	103.6	104.3	104.1	104.1	104.8	<i>104.7</i>	<i>104.7</i>	<i>104.8</i>	<i>104.9</i>	<i>105.3</i>	<i>105.7</i>	103.6	<i>104.6</i>	<i>105.2</i>
Mountain	111.6	112.5	112.7	111.3	111.6	112.3	<i>112.1</i>	<i>112.0</i>	<i>112.0</i>	<i>112.0</i>	<i>112.4</i>	<i>112.8</i>	112.0	<i>112.0</i>	<i>112.3</i>
Pacific	97.7	98.3	98.4	97.5	97.3	97.5	<i>97.3</i>	<i>97.3</i>	<i>97.3</i>	<i>97.4</i>	<i>97.8</i>	<i>98.2</i>	98.0	<i>97.3</i>	<i>97.7</i>
Real Personal Income (Billion \$2012)															
New England	950	940	940	947	944	946	<i>950</i>	<i>953</i>	<i>958</i>	<i>964</i>	<i>968</i>	<i>973</i>	944	<i>948</i>	<i>966</i>
Middle Atlantic	2,414	2,392	2,398	2,402	2,410	2,417	<i>2,428</i>	<i>2,435</i>	<i>2,448</i>	<i>2,462</i>	<i>2,474</i>	<i>2,486</i>	2,401	<i>2,422</i>	<i>2,468</i>
E. N. Central	2,449	2,430	2,438	2,440	2,442	2,448	<i>2,458</i>	<i>2,465</i>	<i>2,480</i>	<i>2,494</i>	<i>2,508</i>	<i>2,519</i>	2,439	<i>2,453</i>	<i>2,500</i>
W. N. Central	1,165	1,161	1,175	1,173	1,177	1,178	<i>1,182</i>	<i>1,186</i>	<i>1,193</i>	<i>1,200</i>	<i>1,207</i>	<i>1,214</i>	1,169	<i>1,181</i>	<i>1,203</i>
S. Atlantic	3,396	3,385	3,423	3,434	3,453	3,470	<i>3,492</i>	<i>3,509</i>	<i>3,535</i>	<i>3,561</i>	<i>3,585</i>	<i>3,606</i>	3,410	<i>3,481</i>	<i>3,572</i>
E. S. Central	943	937	943	944	948	948	<i>951</i>	<i>953</i>	<i>957</i>	<i>962</i>	<i>966</i>	<i>970</i>	942	<i>950</i>	<i>964</i>
W. S. Central	2,084	2,085	2,111	2,117	2,131	2,139	<i>2,150</i>	<i>2,159</i>	<i>2,174</i>	<i>2,190</i>	<i>2,205</i>	<i>2,218</i>	2,099	<i>2,145</i>	<i>2,197</i>
Mountain	1,307	1,307	1,324	1,320	1,324	1,329	<i>1,335</i>	<i>1,340</i>	<i>1,348</i>	<i>1,356</i>	<i>1,364</i>	<i>1,371</i>	1,315	<i>1,332</i>	<i>1,360</i>
Pacific	2,956	2,929	2,943	2,974	2,964	2,976	<i>2,994</i>	<i>3,008</i>	<i>3,027</i>	<i>3,048</i>	<i>3,067</i>	<i>3,085</i>	2,951	<i>2,986</i>	<i>3,057</i>
Households (Thousands)															
New England	6,101	6,100	6,098	6,100	6,118	6,127	<i>6,140</i>	<i>6,150</i>	<i>6,157</i>	<i>6,164</i>	<i>6,169</i>	<i>6,175</i>	6,100	<i>6,150</i>	<i>6,175</i>
Middle Atlantic	16,124	16,119	16,108	16,110	16,151	16,173	<i>16,201</i>	<i>16,228</i>	<i>16,248</i>	<i>16,268</i>	<i>16,286</i>	<i>16,305</i>	16,110	<i>16,228</i>	<i>16,305</i>
E. N. Central	19,058	19,063	19,061	19,069	19,112	19,138	<i>19,175</i>	<i>19,209</i>	<i>19,234</i>	<i>19,257</i>	<i>19,279</i>	<i>19,300</i>	19,069	<i>19,209</i>	<i>19,300</i>
W. N. Central	8,655	8,668	8,678	8,690	8,722	8,745	<i>8,772</i>	<i>8,798</i>	<i>8,820</i>	<i>8,838</i>	<i>8,856</i>	<i>8,873</i>	8,690	<i>8,798</i>	<i>8,873</i>
S. Atlantic	27,104	27,219	27,316	27,397	27,530	27,631	<i>27,735</i>	<i>27,831</i>	<i>27,908</i>	<i>27,976</i>	<i>28,042</i>	<i>28,102</i>	27,397	<i>27,831</i>	<i>28,102</i>
E. S. Central	7,825	7,847	7,864	7,886	7,924	7,954	<i>7,985</i>	<i>8,015</i>	<i>8,041</i>	<i>8,063</i>	<i>8,085</i>	<i>8,104</i>	7,886	<i>8,015</i>	<i>8,104</i>
W. S. Central	15,856	15,922	15,980	16,030	16,109	16,170	<i>16,237</i>	<i>16,300</i>	<i>16,352</i>	<i>16,400</i>	<i>16,452</i>	<i>16,502</i>	16,030	<i>16,300</i>	<i>16,502</i>
Mountain	9,792	9,826	9,858	9,882	9,934	9,974	<i>10,017</i>	<i>10,060</i>	<i>10,097</i>	<i>10,132</i>	<i>10,167</i>	<i>10,203</i>	9,882	<i>10,060</i>	<i>10,203</i>
Pacific	19,052	19,064	19,068	19,074	19,128	19,157	<i>19,190</i>	<i>19,220</i>	<i>19,243</i>	<i>19,264</i>	<i>19,287</i>	<i>19,312</i>	19,074	<i>19,220</i>	<i>19,312</i>
Total Non-farm Employment (Millions)															
New England	7.4	7.5	7.5	7.5	7.6	7.6	<i>7.6</i>	<i>7.7</i>	<i>7.7</i>	<i>7.7</i>	<i>7.6</i>	<i>7.6</i>	7.5	<i>7.6</i>	<i>7.6</i>
Middle Atlantic	19.6	19.7	19.9	20.0	20.1	20.2	<i>20.3</i>	<i>20.3</i>	<i>20.3</i>	<i>20.3</i>	<i>20.3</i>	<i>20.3</i>	19.8	<i>20.2</i>	<i>20.3</i>
E. N. Central	21.9	22.0	22.2	22.3	22.4	22.5	<i>22.6</i>	<i>22.6</i>	<i>22.6</i>	<i>22.5</i>	<i>22.5</i>	<i>22.5</i>	22.1	<i>22.5</i>	<i>22.5</i>
W. N. Central	10.7	10.7	10.8	10.9	10.9	11.0	<i>11.0</i>	<i>11.0</i>	<i>11.0</i>	<i>11.0</i>	<i>11.0</i>	<i>11.0</i>	10.8	<i>11.0</i>	<i>11.0</i>
S. Atlantic	29.6	29.9	30.2	30.4	30.6	30.7	<i>30.9</i>	<i>31.0</i>	<i>31.0</i>	<i>31.0</i>	<i>31.0</i>	<i>31.0</i>	30.0	<i>30.8</i>	<i>31.0</i>
E. S. Central	8.4	8.5	8.5	8.6	8.6	8.7	<i>8.7</i>	<i>8.7</i>	<i>8.7</i>	<i>8.7</i>	<i>8.7</i>	<i>8.7</i>	8.5	<i>8.7</i>	<i>8.7</i>
W. S. Central	18.1	18.3	18.6	18.7	18.9	19.0	<i>19.1</i>	<i>19.1</i>	<i>19.1</i>	<i>19.1</i>	<i>19.1</i>	<i>19.1</i>	18.4	<i>19.0</i>	<i>19.1</i>
Mountain	11.5	11.6	11.7	11.7	11.8	11.9	<i>11.9</i>	<i>11.9</i>	<i>12.0</i>	<i>12.0</i>	<i>12.0</i>	<i>12.0</i>	11.6	<i>11.9</i>	<i>12.0</i>
Pacific	23.8	24.1	24.2	24.4	24.6	24.7	<i>24.7</i>	<i>24.8</i>	<i>24.8</i>	<i>24.7</i>	<i>24.7</i>	<i>24.7</i>	24.1	<i>24.7</i>	<i>24.7</i>

- = no data available

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Regions refer to U.S. Census divisions.

See "Census division" in EIA's Energy Glossary (<http://www.eia.doe.gov/glossary/index.html>) for a list of States in each region.

Historical data: Latest data available from U.S. Department of Commerce, Bureau of Economic Analysis; Federal Reserve System, Statistical release G17.

Minor discrepancies with published historical data are due to independent rounding.

Forecasts: U.S. macroeconomic forecasts are based on the IHS Markit model of the U.S. Economy.

Table 9c. U.S. Regional Weather Data

U.S. Energy Information Administration | Short-Term Energy Outlook - August 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Heating Degree Days															
New England	3,136	785	113	1,980	2,712	816	125	2,061	2,980	828	132	2,054	6,014	5,714	5,994
Middle Atlantic	2,933	669	72	1,960	2,451	653	82	1,887	2,755	662	87	1,880	5,634	5,074	5,385
E. N. Central	3,269	754	99	2,226	2,727	700	117	2,160	3,038	710	122	2,155	6,347	5,704	6,026
W. N. Central	3,487	792	111	2,517	3,169	656	152	2,363	3,183	708	154	2,360	6,907	6,340	6,406
South Atlantic	1,342	189	13	979	1,057	190	13	898	1,295	181	13	891	2,523	2,157	2,380
E. S. Central	1,827	248	22	1,337	1,392	259	19	1,247	1,712	236	19	1,242	3,434	2,917	3,209
W. S. Central	1,335	56	2	800	930	94	5	775	1,105	86	5	772	2,193	1,803	1,968
Mountain	2,296	732	84	2,012	2,556	726	135	1,820	2,138	701	152	1,815	5,124	5,236	4,806
Pacific	1,404	606	49	1,302	1,839	662	78	1,148	1,424	576	94	1,144	3,361	3,727	3,239
U.S. Average	2,147	491	54	1,552	1,921	486	69	1,461	2,005	472	75	1,454	4,243	3,938	4,006
Heating Degree Days, Prior 10-year Average															
New England	3,100	853	107	2,103	3,150	859	106	2,093	3,110	856	102	2,070	6,163	6,208	6,137
Middle Atlantic	2,881	681	70	1,904	2,939	689	69	1,907	2,889	685	64	1,889	5,536	5,604	5,528
E. N. Central	3,133	727	97	2,162	3,215	741	93	2,169	3,159	735	93	2,139	6,119	6,218	6,126
W. N. Central	3,221	726	125	2,358	3,319	754	121	2,374	3,295	729	126	2,338	6,430	6,568	6,489
South Atlantic	1,381	187	11	907	1,403	190	10	905	1,357	188	10	896	2,486	2,508	2,450
E. S. Central	1,764	244	15	1,229	1,811	251	14	1,231	1,757	248	15	1,214	3,251	3,307	3,233
W. S. Central	1,144	93	3	753	1,188	95	3	762	1,163	91	3	738	1,993	2,047	1,995
Mountain	2,173	681	131	1,810	2,193	696	128	1,834	2,207	696	129	1,816	4,794	4,851	4,848
Pacific	1,457	523	79	1,138	1,442	523	75	1,150	1,470	540	75	1,142	3,196	3,191	3,227
U.S. Average	2,095	478	62	1,472	2,132	485	60	1,477	2,102	483	59	1,457	4,107	4,155	4,101
Cooling Degree Days															
New England	0	81	566	0	0	52	488	1	0	99	509	1	646	541	610
Middle Atlantic	0	153	686	1	0	92	610	5	0	185	663	5	839	707	853
E. N. Central	1	256	558	2	0	180	550	7	1	249	608	7	816	737	865
W. N. Central	3	305	733	8	1	320	683	11	5	298	735	11	1,050	1,014	1,049
South Atlantic	157	714	1,198	232	203	590	1,222	255	138	711	1,286	257	2,301	2,270	2,392
E. S. Central	28	598	1,067	37	64	442	1,087	67	34	546	1,129	68	1,730	1,660	1,776
W. S. Central	57	1,097	1,667	172	152	898	1,642	209	104	923	1,626	210	2,992	2,900	2,863
Mountain	17	473	1,024	66	3	358	1,000	83	21	456	1,031	84	1,580	1,445	1,592
Pacific	31	220	756	80	26	106	669	78	28	205	719	79	1,086	879	1,030
U.S. Average	47	467	952	89	69	364	923	104	50	444	968	105	1,555	1,459	1,567
Cooling Degree Days, Prior 10-year Average															
New England	0	87	472	2	0	87	480	2	0	83	485	2	561	569	569
Middle Atlantic	0	163	612	8	0	160	617	8	0	154	626	8	783	785	787
E. N. Central	3	238	571	9	1	234	561	10	1	230	569	10	821	805	810
W. N. Central	7	299	682	11	4	292	674	12	4	301	677	12	999	982	994
South Atlantic	146	667	1,188	268	144	675	1,192	272	153	674	1,210	272	2,269	2,283	2,310
E. S. Central	44	517	1,056	83	36	520	1,059	83	41	519	1,076	84	1,701	1,698	1,720
W. S. Central	113	852	1,537	224	101	861	1,549	223	109	872	1,562	227	2,726	2,734	2,770
Mountain	24	463	954	85	24	460	959	83	22	448	967	86	1,526	1,526	1,523
Pacific	31	208	664	85	32	213	674	86	32	202	682	89	988	1,005	1,004
U.S. Average	53	413	890	109	50	416	895	109	53	414	907	111	1,464	1,470	1,486

- = no data available

Notes: EIA completed modeling and analysis for this report on August 8, 2023.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Regional degree days for each period are calculated by EIA as contemporaneous period population-weighted averages of state degree day data published by the National See *Change in Regional and U.S. Degree-Day Calculations* (http://www.eia.gov/forecasts/steo/special/pdf/2012_sp_04.pdf) for more information.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Regions refer to U.S. Census divisions. See "Census division" in EIA's Energy Glossary (<http://www.eia.gov/tools/glossary/>) for a list of states in each region.

Historical data: Latest data available from U.S. Department of Commerce, National Oceanic and Atmospheric Association (NOAA).

Forecasts: Current month based on forecasts by the NOAA Climate Prediction Center (<http://www.cpc.ncep.noaa.gov/pacdir/DDdir/NHOME3.shtml>). Remaining months based on the 30-year trend.

Appendix to the August 2023 Short-Term Energy Outlook

This appendix is prepared in fulfillment of section 1245(d)(4)(A) of the National Defense Authorization Act (NDAA) for Fiscal Year 2012, as amended. The law requires the U.S. Energy Information Administration (EIA), the statistical and analytical agency within the U.S. Department of Energy, to submit to Congress a report on the availability and price of petroleum and petroleum products produced in countries other than Iran in the two-month period preceding the submission of the report. By law, EIA's data, analyses, and forecasts are independent of approval by any other officer or employee of the U.S. Government. The data in this appendix, therefore, should not be construed as representing those of the U.S. Department of Energy or other federal agencies.

EIA consulted with the U.S. Department of the Treasury, the U.S. Department of State, and the intelligence community in the process of developing the NDAA report, which was previously published as a stand-alone report. Detailed background and contextual information not repeated here can be found in [early editions of the NDAA report](#).

This appendix is published in the *Short-Term Energy Outlook* in even numbered months.

Table a1. Summary of Estimated Petroleum and Other Liquids Quantities

	Jun 2023	Jul 2023	Jun 2023 – Jul 2023 Average	Jun 2022 – Jul 2022 Average	2020 – 2022 Average
Global Petroleum and Other Liquids (million barrels per day)					
Global Petroleum and Other Liquids Production (a)	101.3	101.6	101.5	99.7	96.5
Global Petroleum and Other Liquids Consumption (b)	101.4	102.2	101.8	100.3	96.0
Biofuels Production (c)	3.1	3.2	3.1	3.2	2.6
Biofuels Consumption (c)	2.7	2.7	2.7	2.7	2.6
Iran Liquid Fuels Production	3.8	3.9	3.9	3.6	3.4
Iran Liquid Fuels Consumption	2.0	2.0	2.0	2.0	2.0
Petroleum and Petroleum Products Produced and Consumed in Countries Other Than Iran (million barrels per day)					
Production (d)	94.4	94.5	94.5	93.0	90.4
Consumption (d)	96.7	97.4	97.1	95.6	91.4
Production minus Consumption	-2.3	-2.9	-2.6	-2.6	-1.0
World Inventory Net Withdrawals Including Iran	0.0	0.5	0.3	0.6	-0.4
Estimated OECD Inventory Level (e) (million barrels)	2,823	2,821	2,822	2,683	2,878
Surplus Production Capacity (million barrels per day)					
OPEC Surplus Crude Oil Production Capacity (f)	4.5	3.8	4.1	2.2	4.3

Note: The term "petroleum and other liquids" encompasses crude oil, lease condensate, natural gas liquids, biofuels, coal-to-liquids, gas-to-liquids, and refinery processing gains, which are important to consider in concert due to the inter-related supply, demand, and price dynamics of petroleum, petroleum products, and related fuels.

(a) Production includes crude oil (including lease condensates), natural gas liquids, other liquids, and refinery processing gains.

(b) Consumption of petroleum by the OECD countries is synonymous with "products supplied," defined in the glossary of the EIA Petroleum Supply Monthly, DOE/EIA-0109. Consumption of petroleum by the non-OECD countries is "apparent consumption," which includes internal consumption, refinery fuel, and loss, and bunkering.

(c) Biofuels production and consumption are based on EIA estimates as published in the International Energy Statistics. Biofuels production in the third quarter tends to be at its highest level in the year as ethanol production in Brazil reaches its seasonal peak and is typically lowest in the first quarter as seasonal production falls in the South/South-Central region of Brazil.

(d) Global production of petroleum and petroleum products outside of Iran is derived by subtracting biofuels production and Iran liquid fuels production from global liquid fuels production. The same method is used to calculate global consumption outside of Iran.

(e) Estimated inventory level is for OECD countries only.

(f) EIA defines surplus oil production capacity as potential oil production that could be brought online within 30 days and sustained for at least 90 days, consistent with sound business practices. This does not include oil production increases that could not be sustained without degrading the future production capacity of a field.

Data source: U.S. Energy Information Administration.

Table a2. Crude Oil and Petroleum Product Price Data

Item	Jun 2023	Jul 2023	Jun 2023 – Jul 2023	Jun 2022 – Jul	2020 – 2022
			Average	2022 Average	Average
Brent Front Month Futures Price (\$ per barrel)	74.98	80.16	77.51	111.46	71.07
WTI Front Month Futures Price (\$ per barrel)	70.27	76.03	73.08	107.04	67.25
Dubai Front Month Futures Price (\$ per barrel)	74.97	80.88	77.85	108.28	69.66
Brent 1st - 13th Month Futures Spread (\$ per barrel)	2.81	4.02	3.40	18.96	5.09
WTI 1st - 13th Month Futures Spread (\$ per barrel)	2.52	4.09	3.29	19.27	5.09
RBOB Front Month Futures Price (\$ per gallon)	2.57	2.72	2.64	3.67	2.08
Heating Oil Front Month Futures Price (\$ per gallon)	2.41	2.67	2.54	3.98	2.29
RBOB - Brent Futures Crack Spread (\$ per gallon)	0.79	0.81	0.80	1.02	0.39
Heating Oil - Brent Futures Crack Spread (\$ per gallon)	0.63	0.76	0.69	1.33	0.60

(a) Brent refers to Brent crude oil traded on the Intercontinental Exchange (ICE).

(b) WTI refers to West Texas Intermediate crude oil traded on the New York Mercantile Exchange (NYMEX), owned by Chicago Mercantile Exchange (CME) Group.

(c) RBOB refers to *reformulated blendstock for oxygenate blending* traded on the NYMEX.

Data source: U.S. Energy Information Administration, based on Chicago Mercantile Exchange (CME), Intercontinental Exchange (ICE), and Dubai Mercantile Exchange (DME).