

Short-Term Energy Outlook

STEO

May 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	\$79	\$74
Retail gasoline price (dollars per gallon)	\$3.97	\$3.33	\$3.09
U.S. crude oil production (million barrels per day)	11.89	12.53	12.69
Natural gas price at Henry Hub (dollars per million British thermal units)	\$6.42	\$2.91	\$3.72
U.S. liquefied natural gas gross exports (billion cubic feet per day)	10.6	12.1	12.7
Shares of U.S. electricity generation			
Natural gas	39%	40%	38%
Coal	20%	17%	16%
Renewables	22%	23%	26%
Nuclear	19%	19%	19%
U.S. GDP (percentage change)	2.1%	1.6%	1.8%
U.S. CO₂ emissions (billion metric tons)	4.96	4.83	4.81

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

- Weather forecast.** Beginning with the May 2023 *Short-Term Energy Outlook* (STEO), our STEO model will combine a 30-year trendline and the National Oceanic and Atmospheric Administration's forecast to create our weather forecasts. This methodology change will result in warmer forecast weather in the United States in both the winter and in the summer. The change will involve a one-time shift that will decrease our heating degree day (HDD) forecast in 2023 by 1% and in 2024 by 4%, and increase our cooling degree day (CDD) forecast by 8% in 2023 and by 12% in 2024. The shift will affect some series that use weather as an independent variable.
- Natural gas consumption.** We forecast the second most U.S. natural gas consumption for electricity generation on record this summer (May–September), behind last year, and averaging about 38 billion cubic feet per day (Bcf/d). Compared with last month's forecast, we have increased natural gas consumption for electricity generation by about 2% for 2023 and 3% for 2024 because of our methodology change which results in more CDDs, and in more U.S. electricity generation during the summer.
- Coal consumption.** We expect coal consumption in the electric power sector will fall by 13% in 2023 compared with last year due to several factors, including lower natural gas prices, more generation from renewable sources, and coal plant retirements. However, because of more overall electricity generation compared with our April STEO, our forecast for coal-fired generation is slightly higher in 2023 than we forecast last month.

- **U.S. gasoline prices.** Retail gasoline prices in our forecast average around \$3.40 per gallon (gal) during the summer 2023 driving season (April–September), a 20% decrease from the summer of 2022. Regional summer gasoline prices range from near \$3.00/gal on the Gulf Coast to about \$4.30/gal on the West Coast.
- **Supplements.** We periodically publish report and article supplements to the STEO to provide an in-depth analysis of special topics related to our forecasts. This month’s *Between the Lines* articles discuss [residential electricity bills](#) and updates to our [western hydropower forecast methodology](#).

Notable forecast changes

current forecast: May 9, 2023; previous forecast: April 11, 2023	2023	2024
Brent spot price average (dollars per barrel)	\$79	\$74
Previous forecast	\$85	\$81
Percentage change	-7.5%	-8.3%
U.S. retail diesel prices (dollars per gallon)	\$3.90	\$3.62
Previous forecast	\$4.11	\$3.87
Percentage change	-4.9%	-6.4%
U.S. electric power sector generation from natural gas (billion kilowatthours)	1,604	1,558
Previous forecast	1,568	1,514
Percentage change	2.3%	2.9%
U.S. electric power sector generation from coal (billion kilowatthours)	694	673
Previous forecast	687	704
Percentage change	0.9%	-4.3%
U.S. heating degree days	3,965	4,007
Previous forecast	4,024	4,194
Percentage change	-1.5%	-4.5%
U.S. cooling degree days	1,552	1,566
Previous forecast	1,433	1,393
Percentage change	8.3%	12.4%

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

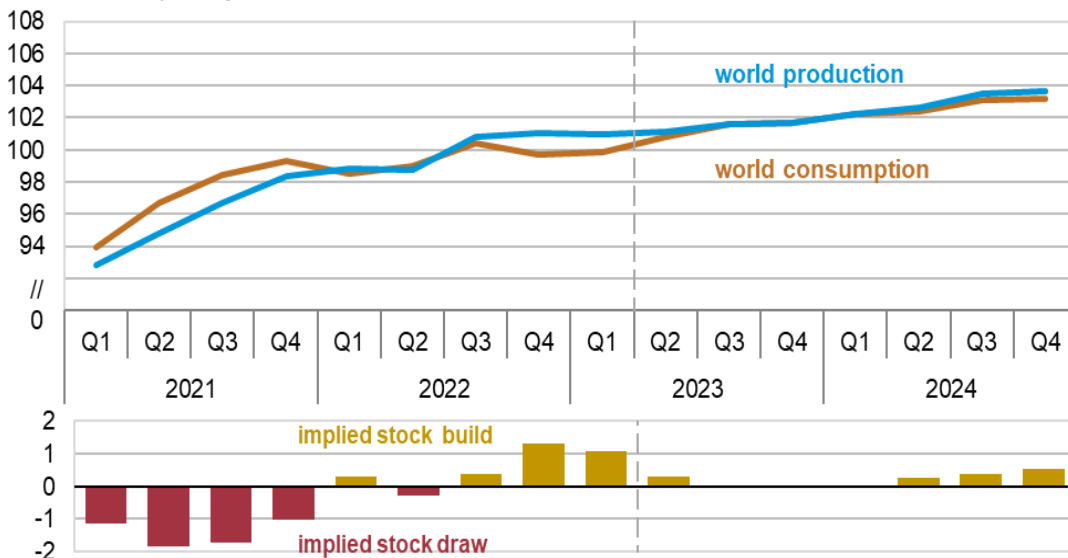
Global Oil Markets

Global oil demand and prices

The Brent crude oil spot price fell from an average of \$85 dollars per barrel (b) in April to close at \$73/b on May 4. At the beginning of April, OPEC and partner countries (OPEC+) announced a [cut to crude oil production of 1.2 million barrels per day \(b/d\)](#) through the end of 2023, which increased crude oil prices on expectations of tightening oil supplies. However, ongoing considerations about weakening global economic conditions, perceived risk around the global banking sector, and persistent inflation outweighed the initial increase in oil prices and have led to lower prices.

World liquid fuels production and consumption balance

million barrels per day



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



Although demand growth for liquid fuels faces downside risks through the end of 2024, we expect the seasonal rise in oil consumption and a drop in OPEC crude oil production to put some upward pressure on crude oil prices in the coming months. Global liquid fuels consumption in our forecast increases by 1.6 million b/d in 2023 and by 1.7 million b/d in 2024, and most expected liquid fuels demand growth is in non-OECD Asia, led by China and India. We expect this demand growth will bring the global oil market into balance between the third quarter of 2023 (3Q23) and 1Q24 and push the Brent price from current levels back to between \$75/b and \$80/b.

Beginning in 2Q24, we expect consistent global oil inventory builds over the rest of the forecast period as global oil production outpaces global oil demand, putting downward pressure on crude oil prices. We forecast global oil inventories will grow by 0.3 million b/d in 2024, and we forecast the Brent crude oil spot price to average \$74/b in 2024, \$7/b lower than in last month's STEO.

Global oil supply

Global liquid fuels production in our forecast increases by 1.5 million b/d in 2023 compared with 2022 primarily because of [growth from non-OPEC producers](#). Excluding production from Russia, which we

forecast to fall by 0.3 million b/d in 2023, we expect that non-OPEC liquid fuels production will increase by 2.2 million b/d in 2023 and by an additional 1.1 million b/d in 2024.

We forecast Russia's crude oil and other liquid fuels production will decline from 10.9 million b/d in 2022 to 10.6 million b/d in 2023 and to 10.5 million b/d in 2024. Russia's production in March and April declined in part due to announced production cuts of 0.5 million b/d and maintenance at refineries in Russia, which we expect will end in June. Our assumption of a return to near-normal refinery operations contribute to a slight increase in Russia's liquids fuel production from 10.4 million b/d in the second quarter of 2023 to 10.5 million b/d through 2024.

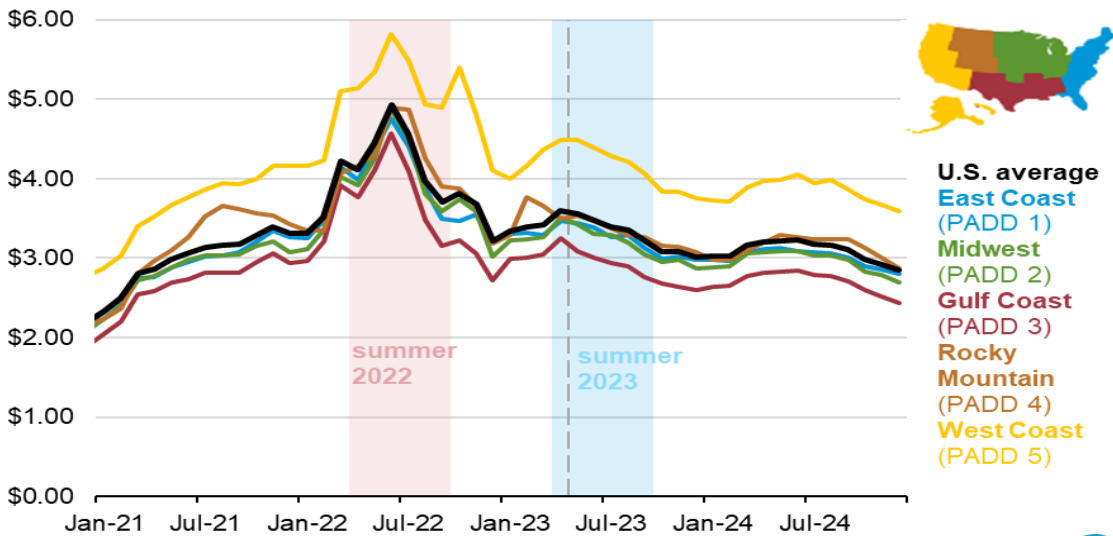
We forecast that total OPEC crude oil output will fall by 0.3 million b/d in 2023, in large part due to the April 3 OPEC+ announcement to cut production. In addition to the expected adherence to the voluntary production cuts, [recent disruptions to crude oil exports in Iraq](#) and a [force majeure limiting crude oil exports in Nigeria](#) have also reduced our near-term OPEC forecast in 2023. We forecast total OPEC liquid fuels production to increase by 0.6 million b/d in 2024 driven by the end of the current OPEC+ production cuts in 2023.

Petroleum Products

U.S. retail gasoline prices

The average U.S. regular gasoline retail price for April was \$3.60 per gallon (gal), which is higher than the \$3.53/gal we forecast in the April STEO. Inventory draws in April left U.S. gasoline inventories 3% below the five-year (2018–2022) minimum and contributed to rising retail gasoline prices. Because we reduced our crude oil price forecast in the May STEO, we now forecast gasoline prices in the summer driving months (April through September) to be slightly lower than previously expected across all regions of the United States. Overall, we expect retail gasoline prices to remain below summer 2022 prices, which reflects both lower crude oil prices this summer and lower refining margins for gasoline.

U.S. regular retail gasoline prices by PADD
dollars per gallon



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



Regular gasoline retail prices are typically highest between the months of April and September because of more expensive summer-grade gasoline used to comply with [seasonal Reid vapor pressure \(RVP\) requirements](#) and high summer driving demand. We forecast summer 2023 retail gasoline prices to average about \$3.40/gal, which is 20% lower than the summer 2022 average of \$4.29/gal. Compared with summer 2022, when retail gasoline prices fell by more than \$1/gal from the \$4.93/gal peak in June to \$3.70/gal in September, we expect less volatility in prices in summer 2023. We forecast retail gasoline prices will fall from about \$3.60/gal in April to about \$3.20/gal in September. We expect a decrease in retail gasoline prices over the course of the summer partially because our expectation of rising refinery runs from global and U.S. refiners. U.S. refinery runs in our forecast reach their highest levels since 2019 as a result of high refinery margins and expanded capacity at [ExxonMobil’s Beaumont refinery](#) and Marathon Petroleum’s Galveston Bay refinery. Despite our expectation of rising refinery runs, U.S. gasoline supply and demand conditions remain tight, which we forecast will keep refinery margins above the five-year average.

U.S. gasoline prices vary regionally, reflecting local supply and demand conditions, different fuel specifications required by state laws, and taxes. Retail gasoline prices are usually the highest on the West Coast because of the region’s limited connections with other major refining centers, tight local supply and demand conditions, requirements for gasoline specifications that are more costly to manufacture, and higher taxes. We forecast West Coast retail gasoline prices to average more than \$4.30/gal in summer 2023, about 90 cents/gal higher than the U.S. average but almost \$1.00/gal lower than West Coast prices in summer 2022.

Regional gasoline prices are usually the lowest on the Gulf Coast, which holds about half of U.S. refining capacity and produces more gasoline than it consumes and where states generally have lower [gasoline taxes](#) than the national average. We forecast Gulf Coast retail gasoline prices to average about \$3.00/gal in summer 2023, more than 40 cents/gal lower than the U.S. average and nearly 90 cents/gal lower than

in summer 2022. We forecast the summer 2023 retail gasoline price to average close to \$3.30/gal on the East Coast and in the Midwest. Several factors present uncertainty in our retail gasoline price forecast for summer 2023. Our forecast assumes rising refinery runs and gasoline inventories that, if not realized, could leave gasoline prices higher than our forecast. In addition, changes in economic conditions and oil prices could affect retail gasoline prices.

Natural Gas

Natural gas consumption for electric power

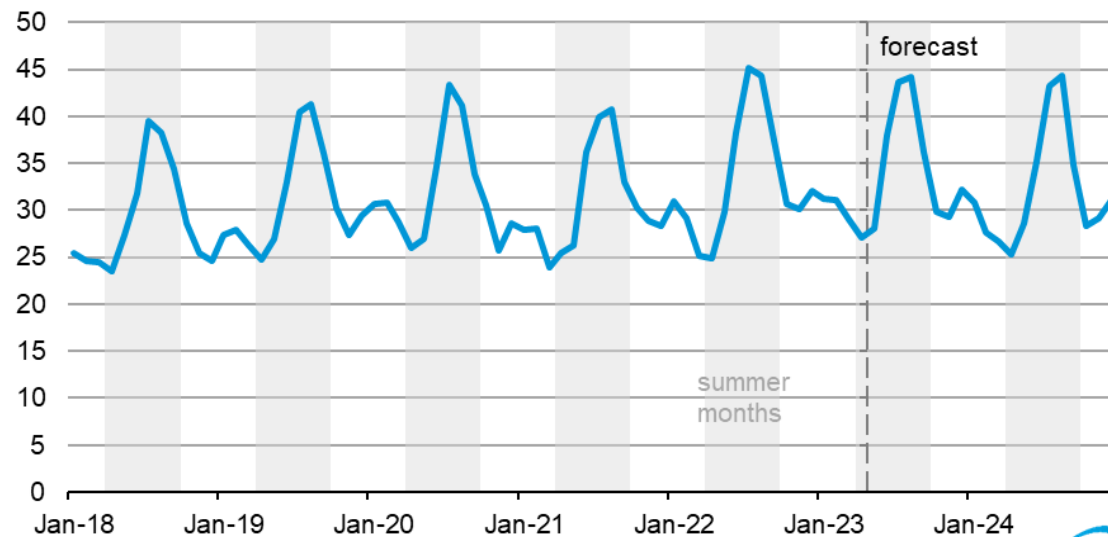
We forecast that natural gas consumed to generate electricity in the United States during the summer of 2023 (May–September) will average 38 billion cubic feet (Bcf/d), the second most on record behind the 39 Bcf/d recorded last year. U.S. natural gas consumption for electricity generation typically peaks in the summer months as warmer temperatures lead to more air-conditioning use.

High natural gas-fired electric power generation this summer is driven by a decline in coal-fired electricity generation, relatively low natural gas prices, and more overall electricity generation due to warmer-than-normal temperatures in our forecast. More electricity generation from renewable sources in 2023 compared with 2022 is one of the main reasons we do not expect natural gas consumption to reach a new record in 2023.

In the summer of 2024, we forecast natural gas consumed for electricity generation will decline by 2% and average about 37 Bcf/d, again driven lower by more renewable electricity generation sources coming online throughout 2023 and 2024.

Natural gas consumption for electric power

billion cubic feet per day



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



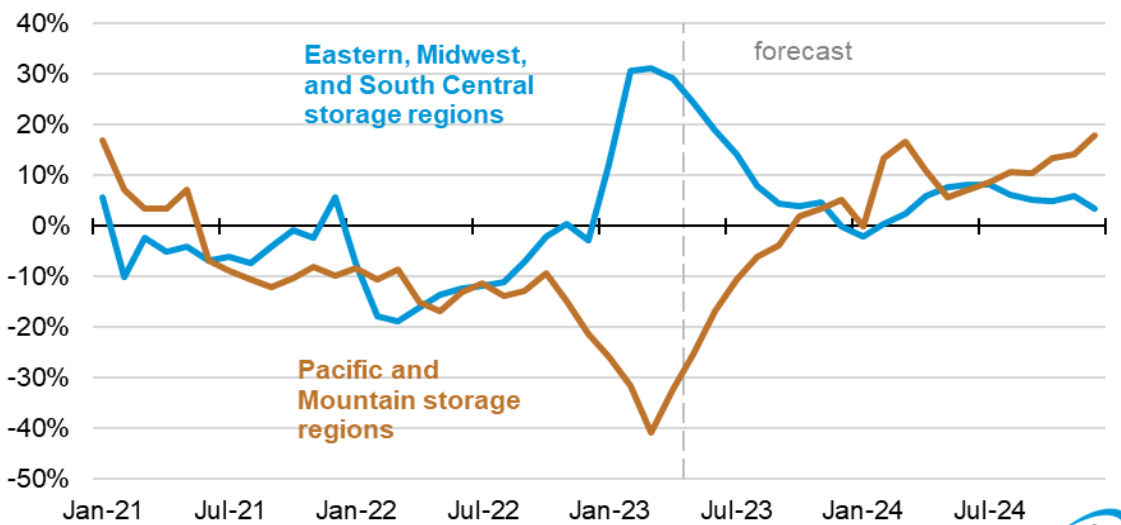
Natural gas regional storage

At the end of April, U.S. natural gas storage inventories totaled 2,114 billion cubic feet (Bcf), 19% more than the five-year (2018–2022) average. We forecast natural gas inventories will increase by 1,648 Bcf

from the end of April to reach 3,762 Bcf at the end of October, 4% more than the five-year average. Storage injections from April through October in our forecast are less than the five-year average because of high demand for natural gas in the electric power sector. We expect the U.S. benchmark Henry Hub natural gas spot price to average \$2.35 per million British thermal units (MMBtu) in May and rise to around \$3.00/MMBtu in July and August, when power demand peaks.

Above-average temperatures in the eastern and central United States this past winter and spring led to less natural gas storage withdrawals than average in those regions. In contrast, the western United States experienced colder-than-normal weather in winter and spring, which led to more natural gas storage withdrawals than average.

Regional natural gas storage inventories
percentage deviation from five-year average



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



Natural gas storage inventories in the East, Midwest, and South Central storage regions were well above the five-year average at the end of April. Natural gas withdrawals were particularly low in the South Central storage region, leaving inventories at a surplus of almost 30% at the end of April. For all three regions, we forecast natural gas storage inventories to remain above the five-year average through the end of the injection season, ending October at a combined 120 Bcf (4%) above the five-year average.

Natural gas storage inventories in the Pacific and Mountain storage regions declined by more than is typical over the past winter, causing the deficit to the five-year average to reach more than 40% at the end of March. Colder-than-normal winter and spring weather, along with limited availability of hydropower for electricity generation in the Pacific region, reduced storage inventories. However, injections in these two regions in April were more than the five-year average, and we forecast inventories will increase by almost 300 Bcf from the end of April through the end of October, placing inventories at 2% more than the five-year average at the end of the injection season. The large increase in storage in these regions reflects inventory management by storage operators as they try to build inventories to have sufficient storage to meet winter requirements. Our expectation of high hydropower

generation in the west also reduces demand for natural gas in the power sector, which could also support natural gas storage injections.

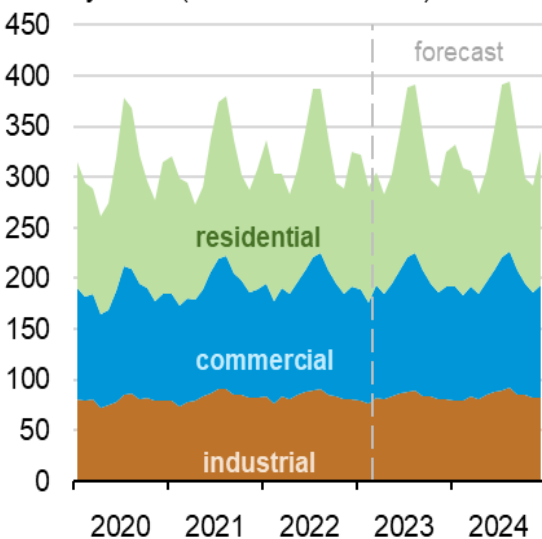
Electricity, Coal, and Renewables

Electricity consumption

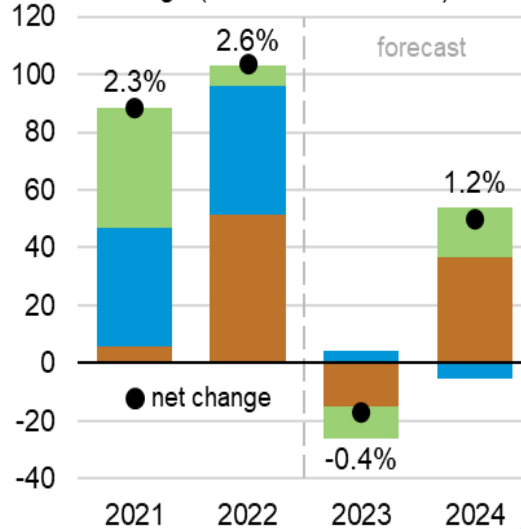
We expect total U.S. consumption of electricity in 2023 will be similar to 2022. Forecast sales of electricity to customers in the residential sector decline slightly from 2022. Residential electricity demand falls primarily because of milder winter temperatures; we forecast 7% fewer U.S. heating degree days in 2023 than last year. We expect [residential electricity demand and electricity bills](#) that are about the same or slightly higher than last summer, with similar summer temperatures offset by higher residential electricity prices.

U.S. sales of electricity to ultimate customers, by sector

monthly sales (billion kilowatthours)



annual change (billion kilowatthours)



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

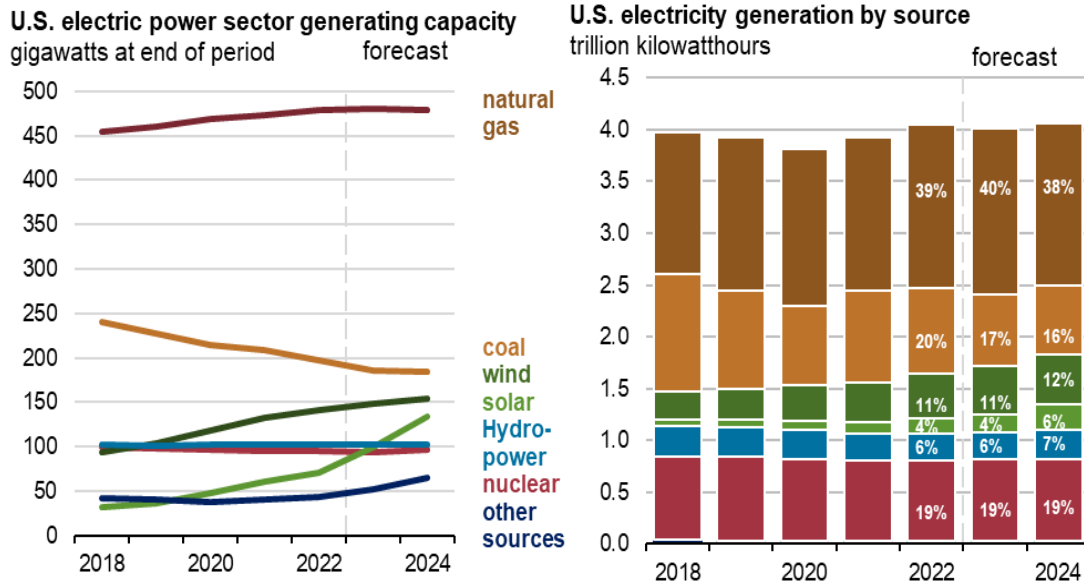


Industrial electricity demand is most affected by economic conditions. We forecast that U.S. electricity sales to industrial customers in 2023 will also be close to the same as in 2022, about 1% lower because of a 1% drop in manufacturing production in our forecast for 2023. We expect sales of electricity to the commercial sector will be almost unchanged in 2023.

Electricity generation

The forecast share of electricity generation from renewable sources rises from 22% in 2022 to 23% in 2023 and to 26% in 2024. This increase in renewable generation will reduce generation from fossil fuel-fired power plants in our forecast because renewable generators such as wind and solar have an advantage in dispatch due to their low operating costs. Improved water supply conditions should help increase hydroelectric generation over the coming months in [California and the Southwest](#).

We forecast that natural gas generation will increase slightly in the United States during 2023 in response to a significant decline in fuel costs. Natural gas’s share of U.S. generation averaged 39% in 2022, and we expect it will average 40% in 2023 before declining to 38% in 2024 as a result of the growing availability of renewable energy generating capacity and an increase of natural gas prices. Our forecast coal generation share declines from 20% last year to 17% in 2023 and 16% in 2024.



Data source: U.S. Energy Information Administration, *Short-term Energy Outlook*, May 2023



Coal markets

U.S. coal production in our forecast increases by 2% from April to May, as producers start to prepare for increased electricity generation during the summer months. After increasing in both 2021 and 2022, we expect U.S. coal production to decline by 3% from 597 million short tons (MMst) in 2022 to 577 MMst in 2023 and drop further (15%) to 491 MMst in 2024. Among the drivers of the decline in coal production is the ongoing retirement of coal-fired generating plants, low natural gas prices, and more renewable generation. About 11 gigawatts of coal-fired generating capacity is scheduled to retire in 2023, representing nearly 6% of the entire coal generating fleet. About three-quarters of the coal plant retirements will occur before July, which will limit coal-fired generation this summer.

Economy, Weather, and CO₂

U.S. macroeconomics

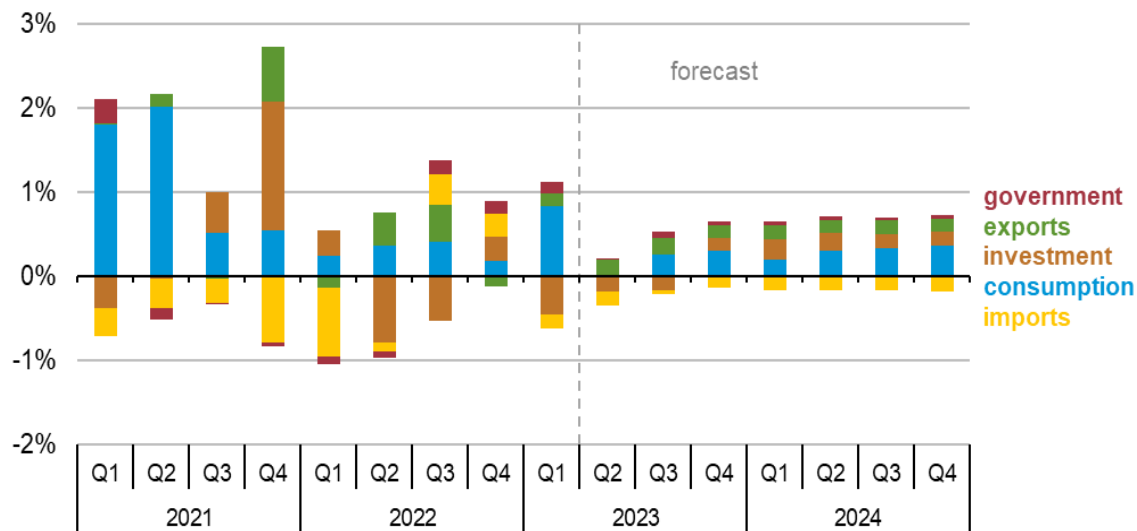
Our U.S. macroeconomic forecasts are based on S&P Global’s macroeconomic model. We incorporate STEO energy price forecasts into the model to obtain the final macroeconomic assumptions we use in the STEO.

S&P Global estimates that U.S. real GDP grew in the first quarter of 2023 (1Q23) but expects it to contract at an annualized rate of 0.2% in 2Q23. U.S. real GDP in our forecast returns to growth in 3Q23 and averages 1.6% growth throughout 2023 and 1.8% in 2024.

GDP growth largely reflects changes in real personal consumption expenditure (PCE), which grew by 1% in 1Q23 compared with 4Q22. PCE in our forecast remains flat in 2Q23. Aggregate investment is offsetting growth in PCE. As interest rates increased, borrowing costs rose and lowered residential fixed investment and private business inventories of goods. The declines in these categories cause the overall decline in aggregate investment, which is not expected to return to growth until 4Q23.

Contributions to GDP growth

weighted annualized percentage change



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



Emissions

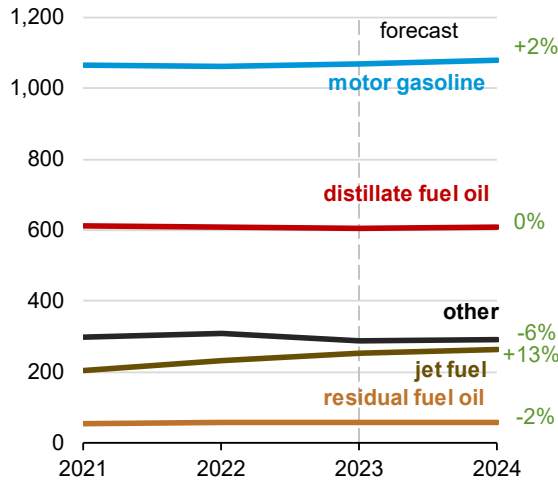
Total U.S. energy-related carbon dioxide (CO₂) emissions in our forecast decrease by 3% in 2023 and then remain flat in 2024. The largest changes in CO₂ emissions are from coal, which declines by 12% in 2023 due to less coal-fired electricity generation.

Emissions from natural gas fall slightly in both 2023 and 2024. Most 2023 reductions occur because of reduced space heating demand from residential and commercial buildings as a result of milder temperatures in 1Q23. Most 2024 reductions result from less natural gas-fired generation as the amount of generation from renewable sources grows.

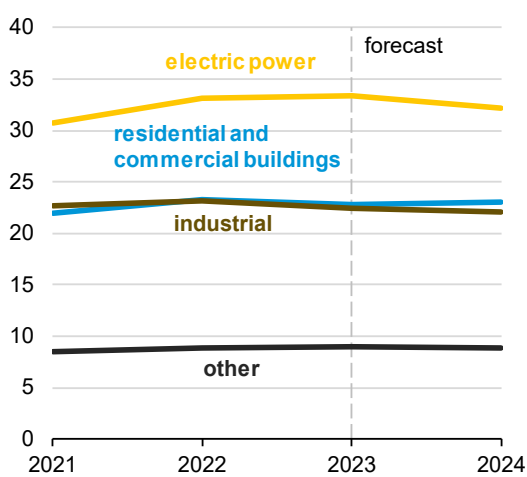
U.S. petroleum emissions remain mostly unchanged in 2023 and increase slightly in 2024. CO₂ emissions from petroleum are mostly associated with consumption of transportation fuels such as motor gasoline, diesel, and jet fuel. The consumption of both gasoline and jet fuel increases in our forecast through 2024, but the emissions from this increased consumption are offset by decreased emissions from other petroleum products in 2023.

U.S. energy-related CO₂ emissions

Petroleum emissions by product
(million metric tons)



Natural gas consumption by end use
(billion cubic feet per day)



Data source: U.S. Energy Information Administration, *Short-term Energy Outlook*, May 2023



Weather

To better reflect long-term warming trends, this month the STEO combines the 30-year trendline with the National Oceanic and Atmospheric Administration’s (NOAA) forecast to produce our weather forecasts. For the first forecast month we will continue to use data from NOAA, and for the remaining forecast period, we will use the 30-year trendline. Based on our new methodology, we now expect 1,552 cooling degree days (CDDs) in 2023 and 1,566 CDDs in 2024—an 8% increase in 2023 and a 12% increase in 2024 compared with our April 2023 STEO forecast, which was generated solely using NOAA’s 15-month forecast. Our heating degree day (HDD) forecast has been revised down from our April STEO by 1% in 2023 to 3,965 HDDs and by 4% in 2024 to 4,007 HDDs.

Short-Term Energy Outlook Chart Gallery



May 9, 2023

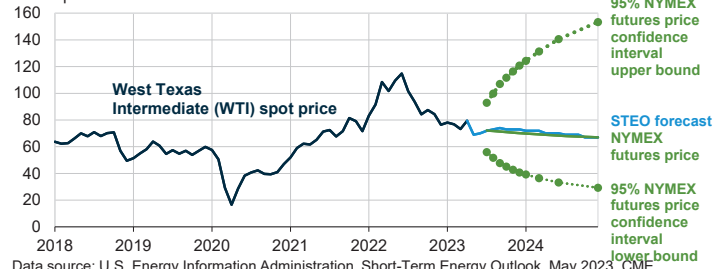


U.S. Energy Information Administration

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

dollars per barrel



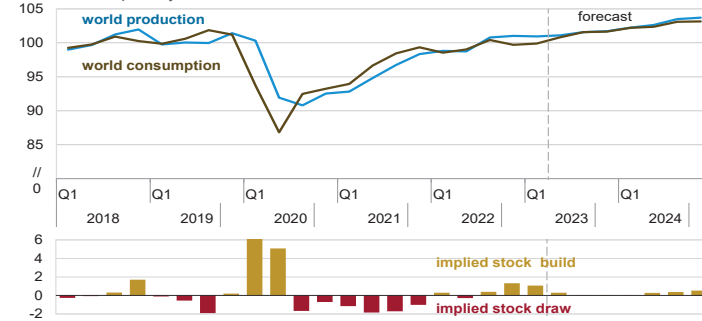
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023, CME Group, Bloomberg, L.P., and Refinitiv an LSEG Business

Note: Confidence interval derived from options market information for the five trading days ending May 4, 2023. Intervals not calculated for months with sparse trading in near-the-money options contracts.



World liquid fuels production and consumption balance

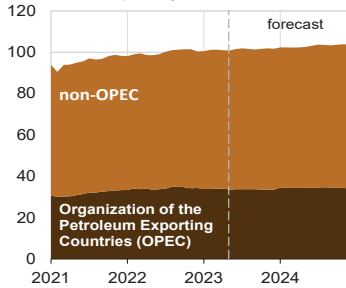
million barrels per day



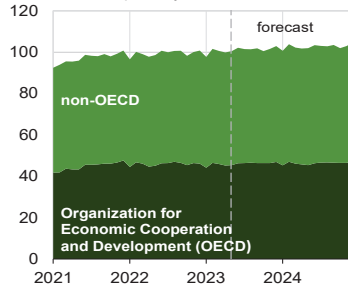
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023



World liquid fuels production
million barrels per day



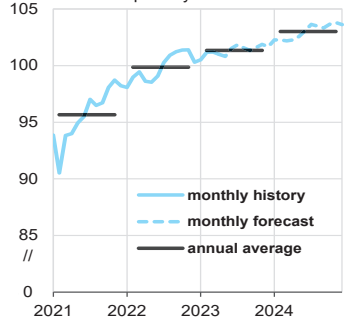
World liquid fuels consumption
million barrels per day



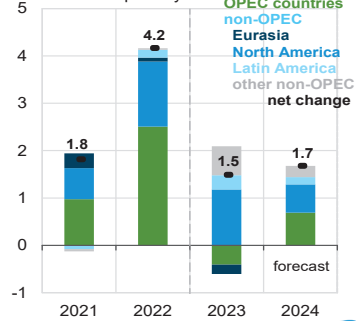
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023



World crude oil and liquid fuels production
million barrels per day



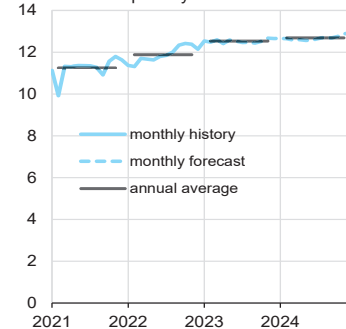
Components of annual change
million barrels per day



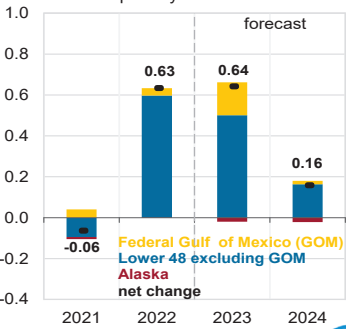
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023



U.S. crude oil production
million barrels per day



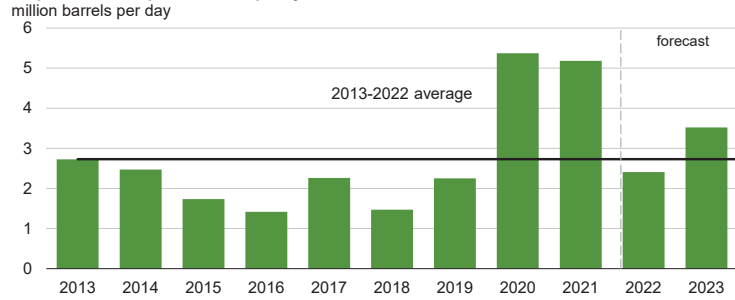
Components of annual change
million barrels per day



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



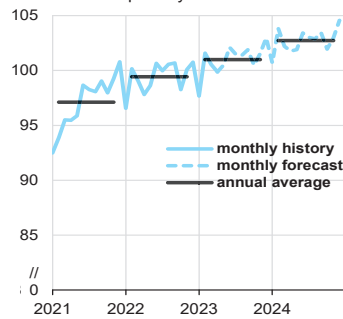
**Organization of the Petroleum Exporting Countries (OPEC)
surplus crude oil production capacity**



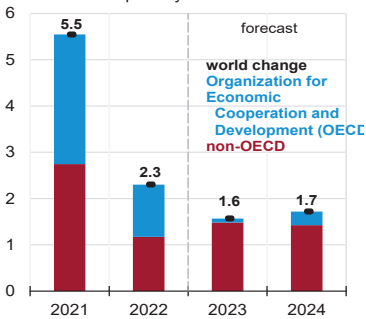
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023
 Note: Black line represents 2013-2022 average (2.7 million barrels per day).



World liquid fuels consumption
million barrels per day



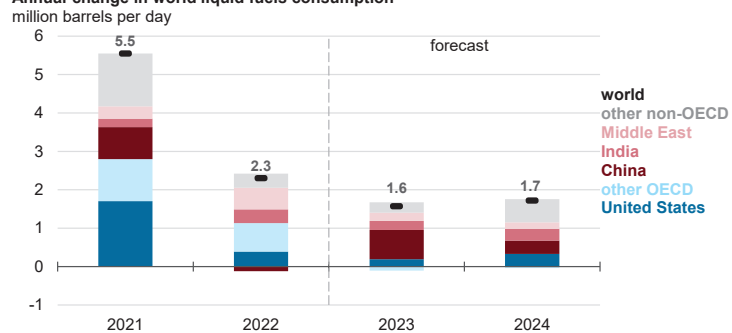
Components of annual change
million barrels per day



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



Annual change in world liquid fuels consumption

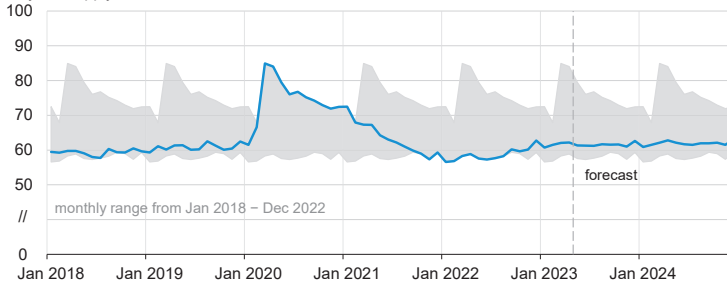


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023



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

days of supply

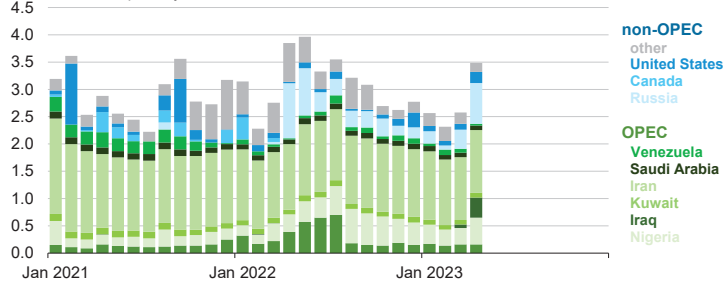


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023



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

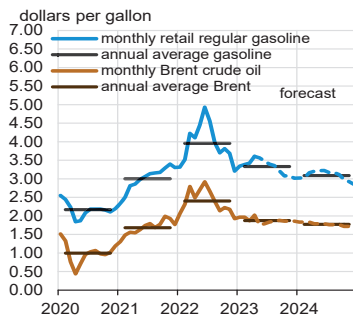
million barrels per day



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

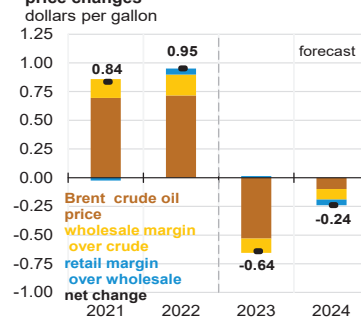


U.S. gasoline and crude oil prices

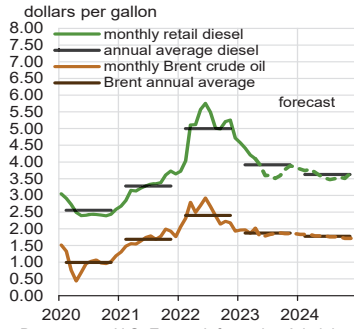


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023, and Refinitiv an LSEG Business

Components of annual gasoline price changes



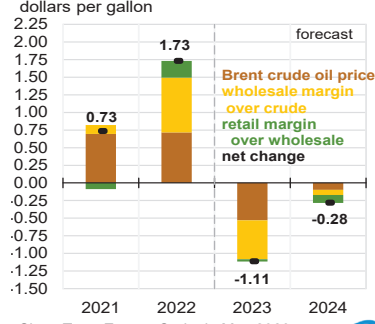
U.S. diesel and crude oil prices



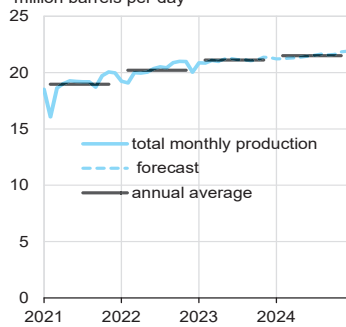
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023, and Refinitiv an LSEG Business



Components of annual diesel price changes



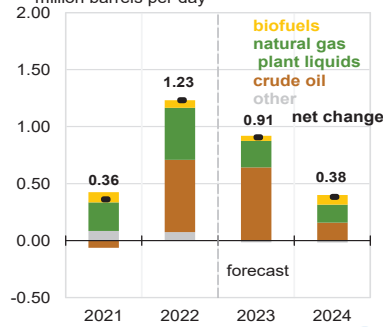
U.S. crude oil and liquid fuels production



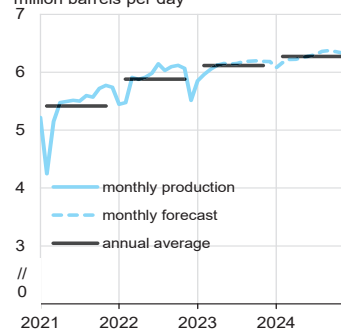
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023



Components of annual change



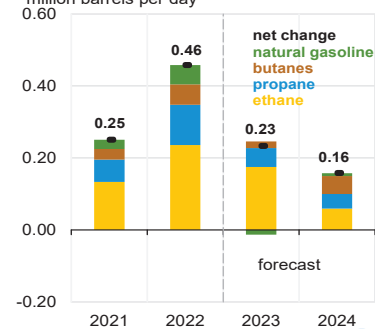
U.S. natural gas plant liquids production



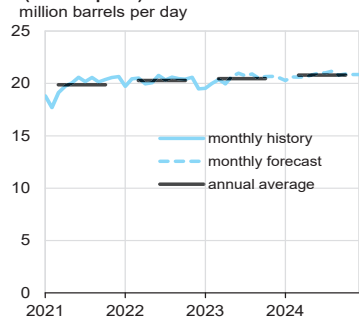
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023



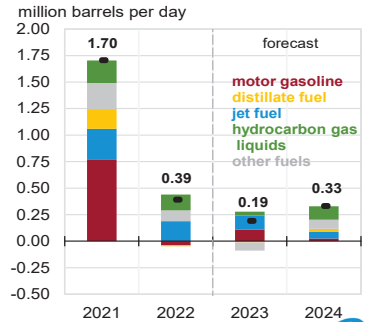
Components of annual change



U.S. liquid fuels product supplied (consumption)



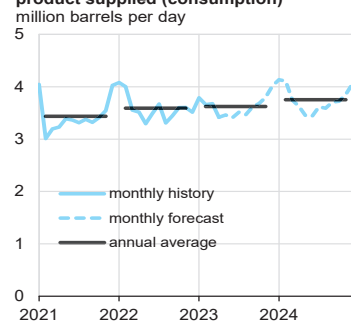
Components of annual change



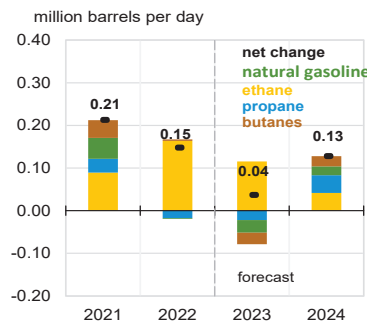
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023



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



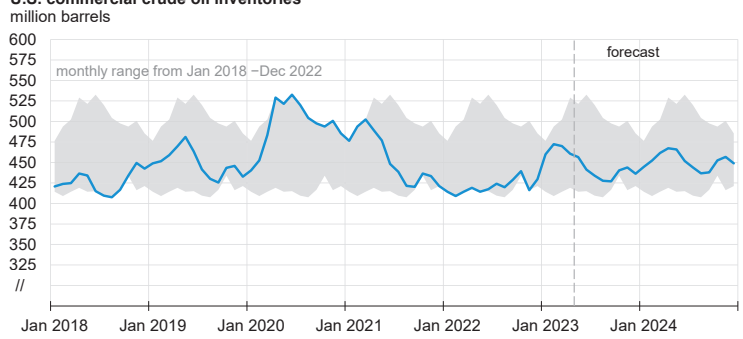
Components of annual change



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



U.S. commercial crude oil inventories

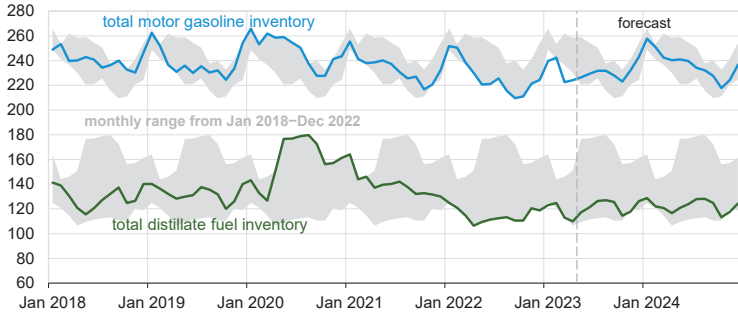


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023



U.S. gasoline and distillate inventories

million barrels

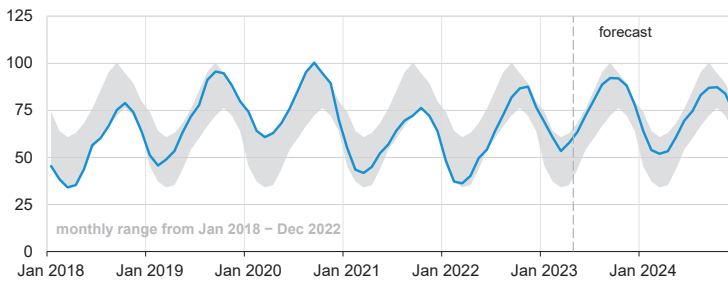


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023



U.S. commercial propane inventories

million barrels



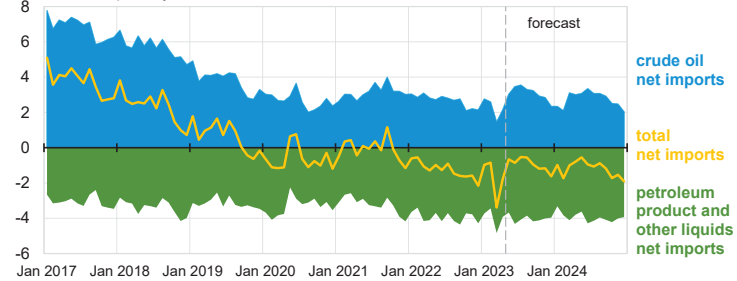
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023

Note: Excludes propylene.



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

million barrels per day

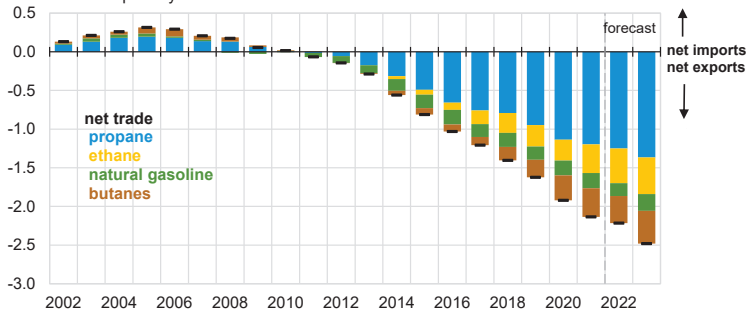


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023

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.



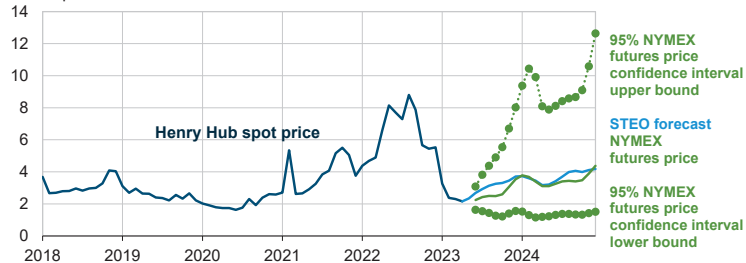
U.S. net trade of hydrocarbon gas liquids (HGL)
million barrels per day



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



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

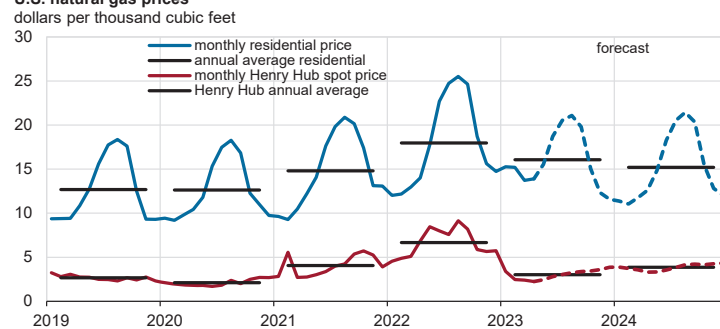


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023, CME Group, and Refinitiv an LSEG Business

Note: Confidence interval derived from options market information for the five trading days ending May 4, 2023. Intervals not calculated for months with sparse trading in near-the-money options contracts.



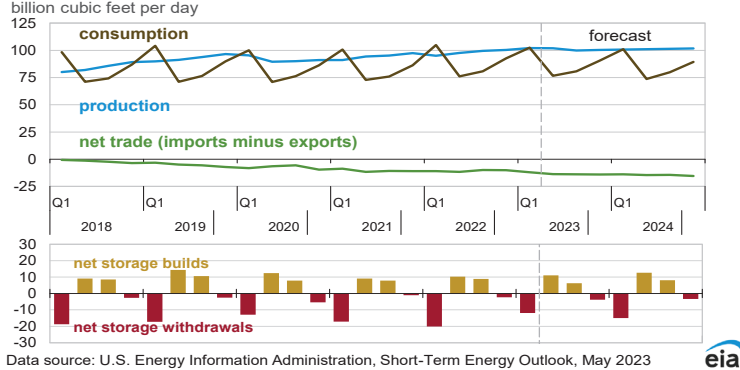
U.S. natural gas prices
dollars per thousand cubic feet



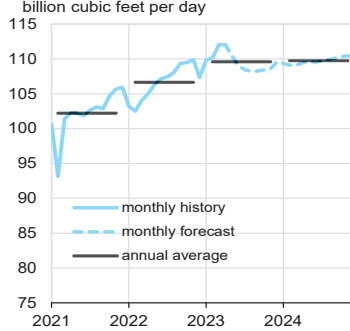
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023, and Refinitiv an LSEG Business



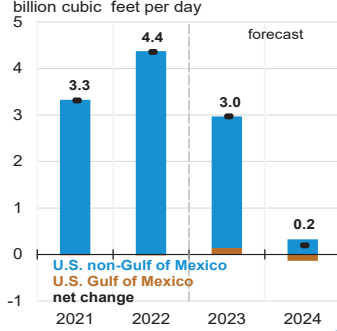
U.S. natural gas production, consumption, and net imports



U.S. marketed natural gas production

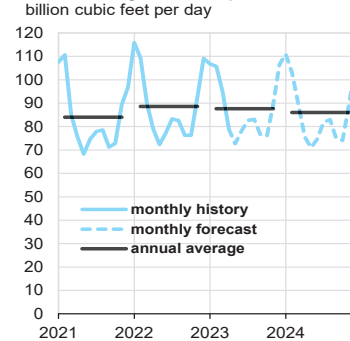


Components of annual change

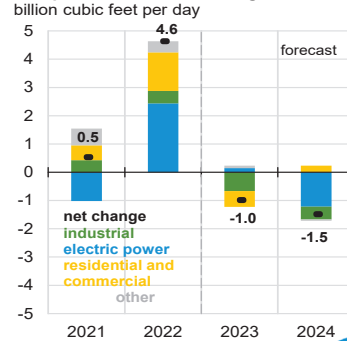


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023

U.S. natural gas consumption

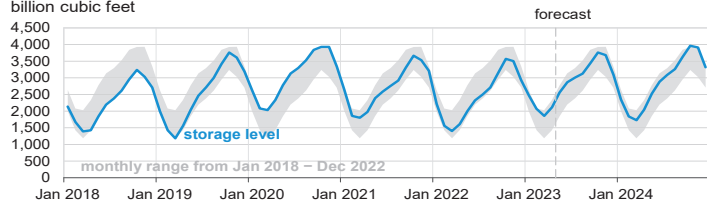


Components of annual change

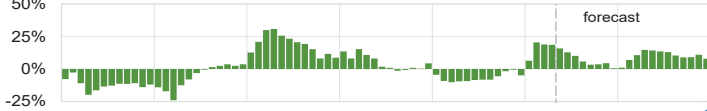


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023

U.S. working natural gas in storage



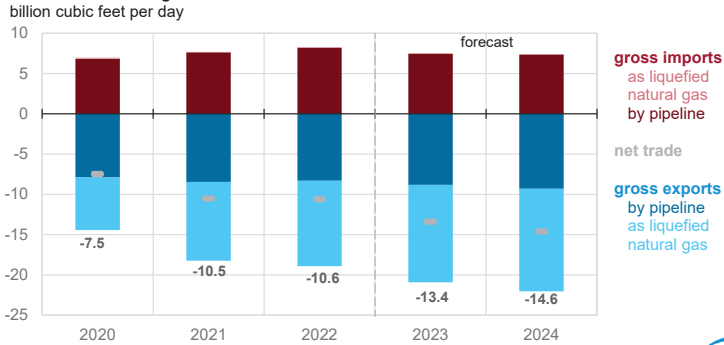
Percentage deviation from 2018 – 2022 average



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



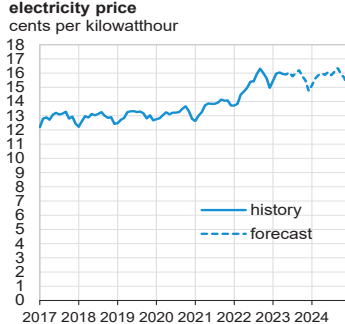
U.S. annual natural gas trade



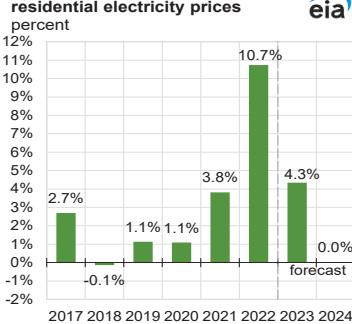
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023



U.S. monthly nominal residential electricity price



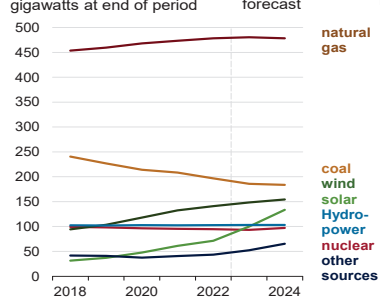
Annual growth in nominal residential electricity prices



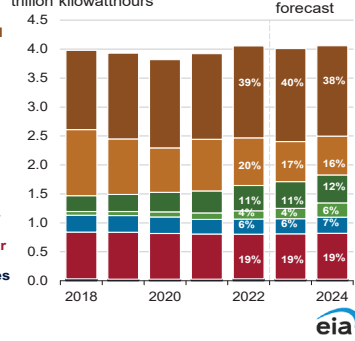
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023



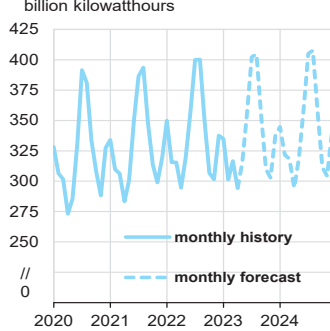
U.S. electricity generation capacity
gigawatts at end of period forecast



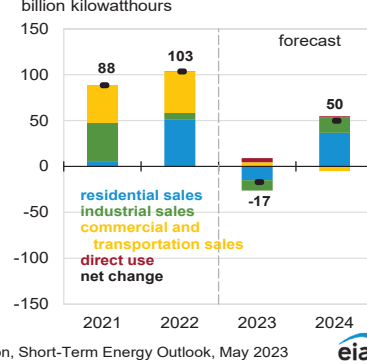
U.S. electricity generation by source, all sectors
trillion kilowatt-hours forecast



U.S. electricity consumption
billion kilowatt-hours

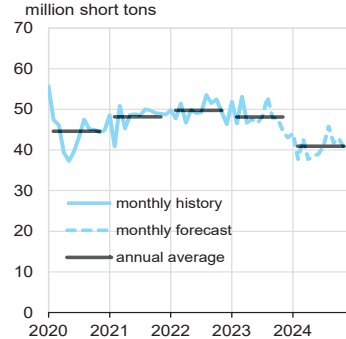


Components of annual change
billion kilowatt-hours

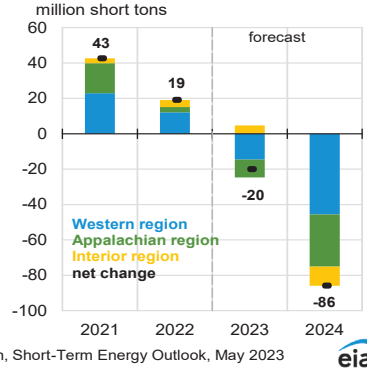


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023

U.S. coal production
million short tons

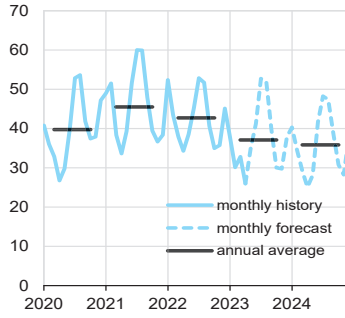


Components of annual change
million short tons

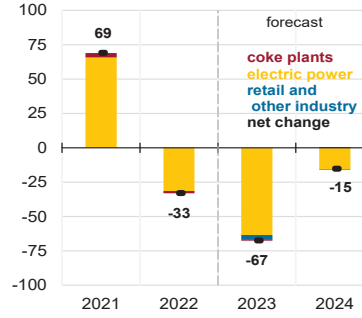


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023

U.S. coal consumption
million short tons



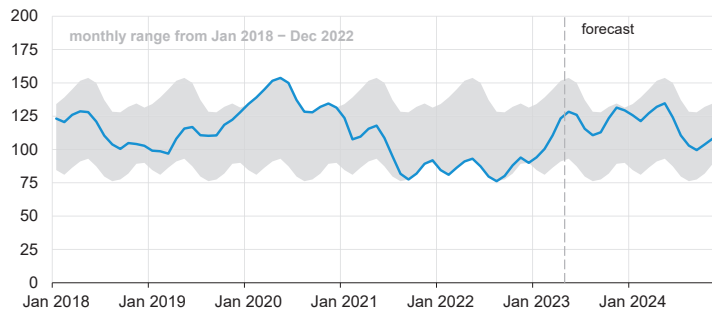
Components of annual change
million short tons



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



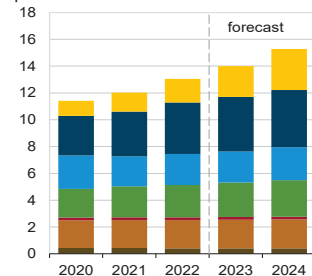
U.S. electric power coal inventories
million short tons



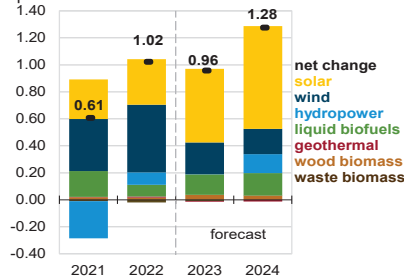
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023



U.S. renewable energy supply
quadrillion British thermal units



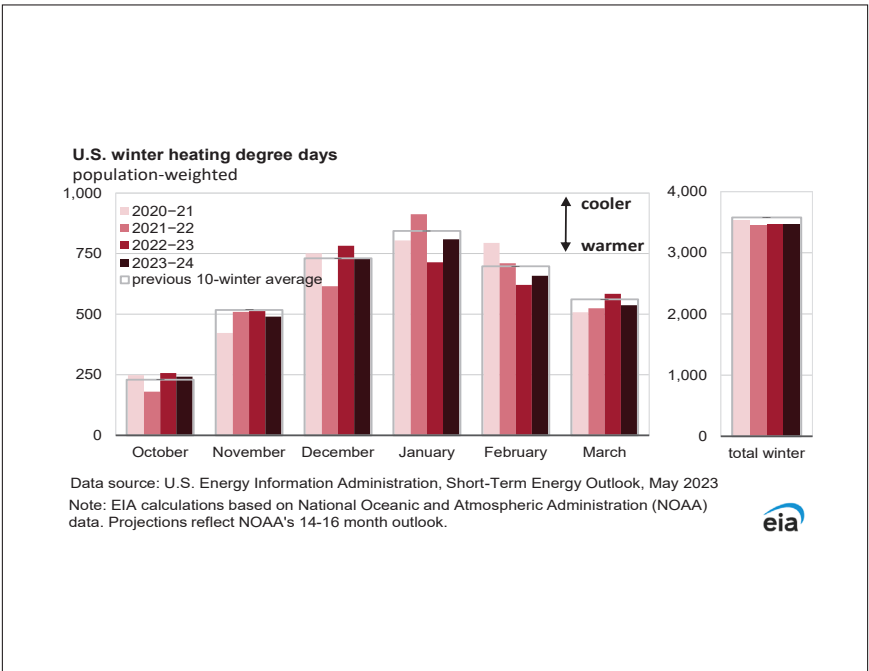
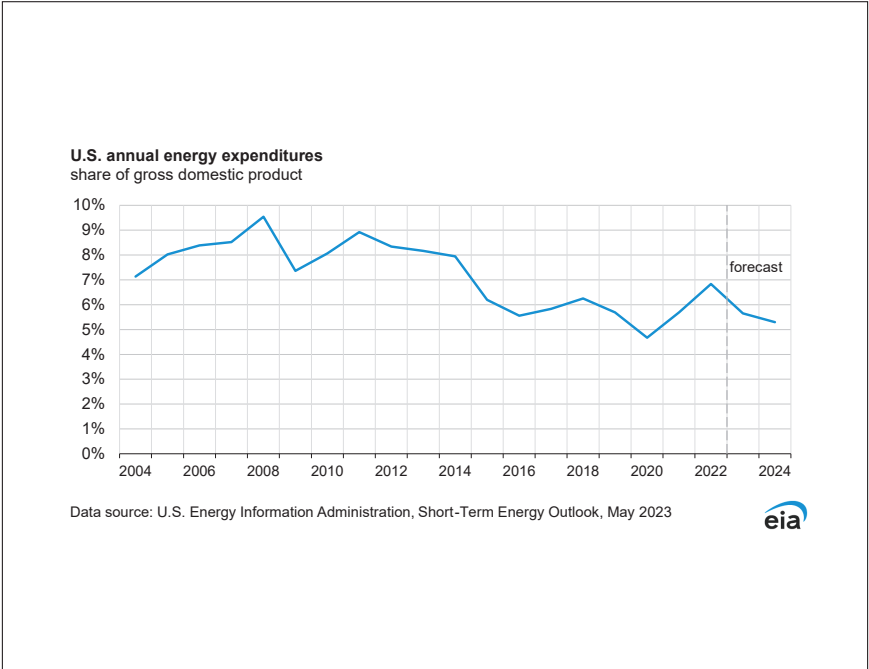
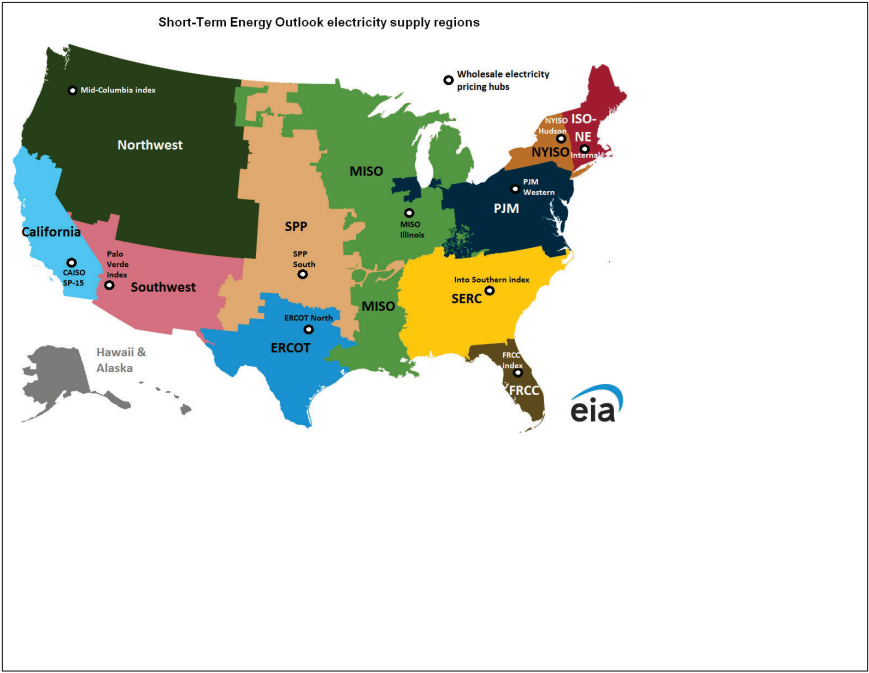
Components of annual change
quadrillion British thermal units



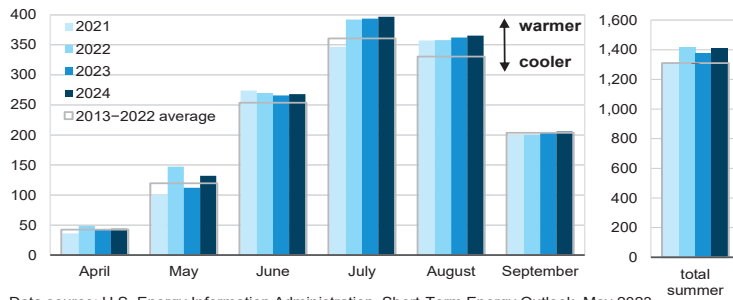
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023

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.





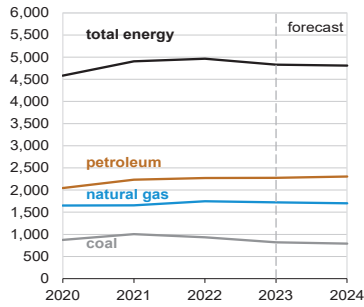
U.S. summer cooling degree days
population-weighted



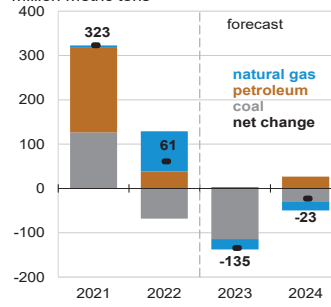
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, May 2023
 Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Projections reflect NOAA's 14-16 month outlook.



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, May 2023



Table 1. U.S. Energy Markets Summary

U.S. Energy Information Administration | Short-Term Energy Outlook - May 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)	11.47	11.70	12.06	12.31	12.54	<i>12.51</i>	<i>12.46</i>	<i>12.61</i>	<i>12.63</i>	<i>12.58</i>	<i>12.68</i>	<i>12.85</i>	11.89	<i>12.53</i>	<i>12.69</i>
Dry Natural Gas Production (billion cubic feet per day)	95.09	97.59	99.46	100.29	102.11	<i>101.93</i>	<i>99.91</i>	<i>100.42</i>	<i>100.71</i>	<i>101.05</i>	<i>101.38</i>	<i>101.80</i>	98.13	<i>101.09</i>	<i>101.24</i>
Coal Production (million short tons)	149	146	154	148	151	<i>141</i>	<i>149</i>	<i>136</i>	<i>125</i>	<i>115</i>	<i>128</i>	<i>123</i>	597	<i>577</i>	<i>491</i>
Energy Consumption															
Liquid Fuels (million barrels per day)	20.22	20.27	20.47	20.16	19.97	<i>20.54</i>	<i>20.72</i>	<i>20.64</i>	<i>20.51</i>	<i>20.82</i>	<i>21.00</i>	<i>20.87</i>	20.28	<i>20.47</i>	<i>20.80</i>
Natural Gas (billion cubic feet per day)	104.83	76.13	80.77	92.62	102.35	<i>76.56</i>	<i>80.80</i>	<i>90.64</i>	<i>101.08</i>	<i>73.75</i>	<i>79.97</i>	<i>89.44</i>	88.53	<i>87.54</i>	<i>86.05</i>
Coal (b) (million short tons)	134	118	145	116	101	<i>102</i>	<i>145</i>	<i>98</i>	<i>104</i>	<i>95</i>	<i>134</i>	<i>97</i>	513	<i>445</i>	<i>430</i>
Electricity (billion kilowatt hours per day)	10.90	10.68	12.50	10.28	10.59	<i>10.62</i>	<i>12.62</i>	<i>10.33</i>	<i>10.82</i>	<i>10.69</i>	<i>12.71</i>	<i>10.38</i>	11.09	<i>11.04</i>	<i>11.15</i>
Renewables (c) (quadrillion Btu)	3.31	3.51	3.08	3.14	3.38	<i>3.79</i>	<i>3.41</i>	<i>3.43</i>	<i>3.74</i>	<i>4.13</i>	<i>3.74</i>	<i>3.68</i>	13.04	<i>14.00</i>	<i>15.28</i>
Total Energy Consumption (d) (quadrillion Btu)	26.51	23.84	24.89	25.17	25.50	<i>24.01</i>	<i>25.29</i>	<i>25.13</i>	<i>26.31</i>	<i>24.05</i>	<i>25.41</i>	<i>25.23</i>	100.41	<i>99.93</i>	<i>101.00</i>
Energy Prices															
Crude Oil West Texas Intermediate Spot (dollars per barrel)	95.18	108.93	93.07	82.69	75.96	<i>72.50</i>	<i>73.00</i>	<i>73.00</i>	<i>72.00</i>	<i>70.00</i>	<i>69.00</i>	<i>67.00</i>	94.91	<i>73.62</i>	<i>69.47</i>
Natural Gas Henry Hub Spot (dollars per million Btu)	4.66	7.48	7.99	5.55	2.65	<i>2.40</i>	<i>3.10</i>	<i>3.49</i>	<i>3.59</i>	<i>3.27</i>	<i>3.92</i>	<i>4.09</i>	6.42	<i>2.91</i>	<i>3.72</i>
Coal (dollars per million Btu)	2.18	2.26	2.50	2.55	2.59	<i>2.58</i>	<i>2.57</i>	<i>2.52</i>	<i>2.52</i>	<i>2.52</i>	<i>2.52</i>	<i>2.49</i>	2.37	<i>2.56</i>	<i>2.51</i>
Macroeconomic															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR)	19,924	19,895	20,055	20,182	20,281	<i>20,271</i>	<i>20,336</i>	<i>20,437</i>	<i>20,529</i>	<i>20,634</i>	<i>20,739</i>	<i>20,850</i>	20,014	<i>20,331</i>	<i>20,688</i>
Percent change from prior year	3.7	1.8	1.9	0.9	1.8	<i>1.9</i>	<i>1.4</i>	<i>1.3</i>	<i>1.2</i>	<i>1.8</i>	<i>2.0</i>	<i>2.0</i>	2.1	<i>1.6</i>	<i>1.8</i>
GDP Implicit Price Deflator (Index, 2012=100)	124.2	126.9	128.3	129.5	130.7	<i>131.5</i>	<i>132.4</i>	<i>133.4</i>	<i>134.2</i>	<i>135.0</i>	<i>135.7</i>	<i>136.3</i>	127.2	<i>132.0</i>	<i>135.3</i>
Percent change from prior year	6.9	7.6	7.1	6.4	5.2	<i>3.6</i>	<i>3.2</i>	<i>3.0</i>	<i>2.7</i>	<i>2.6</i>	<i>2.5</i>	<i>2.2</i>	7.0	<i>3.7</i>	<i>2.5</i>
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	15,109	15,022	15,141	15,325	15,622	<i>15,692</i>	<i>15,776</i>	<i>15,854</i>	<i>15,977</i>	<i>16,110</i>	<i>16,224</i>	<i>16,331</i>	15,149	<i>15,736</i>	<i>16,161</i>
Percent change from prior year	-12.8	-5.7	-3.8	-1.4	3.4	<i>4.5</i>	<i>4.2</i>	<i>3.5</i>	<i>2.3</i>	<i>2.7</i>	<i>2.8</i>	<i>3.0</i>	-6.1	<i>3.9</i>	<i>2.7</i>
Manufacturing Production Index (Index, 2017=100)	100.1	100.8	100.9	100.1	100.2	<i>99.6</i>	<i>99.6</i>	<i>100.1</i>	<i>100.5</i>	<i>101.1</i>	<i>101.7</i>	<i>102.4</i>	100.5	<i>99.9</i>	<i>101.4</i>
Percent change from prior year	4.5	3.6	2.8	0.7	0.1	<i>-1.2</i>	<i>-1.3</i>	<i>0.0</i>	<i>0.3</i>	<i>1.5</i>	<i>2.1</i>	<i>2.3</i>	2.9	<i>-0.6</i>	<i>1.6</i>
Weather															
U.S. Heating Degree-Days	2,147	491	54	1,552	1,919	<i>509</i>	<i>75</i>	<i>1,461</i>	<i>2,005</i>	<i>472</i>	<i>75</i>	<i>1,455</i>	4,244	<i>3,965</i>	<i>4,007</i>
U.S. Cooling Degree-Days	46	466	950	89	69	<i>420</i>	<i>960</i>	<i>104</i>	<i>50</i>	<i>444</i>	<i>968</i>	<i>105</i>	1,552	<i>1,552</i>	<i>1,566</i>

(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 May 4, 2022.

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.

Table 2. Energy Prices

U.S. Energy Information Administration | Short-Term Energy Outlook - May 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	<i>72.50</i>	<i>73.00</i>	<i>73.00</i>	<i>72.00</i>	<i>70.00</i>	<i>69.00</i>	<i>67.00</i>	94.91	<i>73.62</i>	<i>69.47</i>
Brent Spot Average	101.17	113.84	100.53	88.44	81.04	<i>77.56</i>	<i>78.00</i>	<i>78.00</i>	<i>77.00</i>	<i>75.00</i>	<i>74.00</i>	<i>72.00</i>	100.94	<i>78.65</i>	<i>74.47</i>
U.S. Imported Average	89.85	107.23	91.86	78.11	69.88	<i>69.21</i>	<i>70.21</i>	<i>70.25</i>	<i>69.25</i>	<i>67.25</i>	<i>66.25</i>	<i>64.25</i>	92.56	<i>69.90</i>	<i>66.79</i>
U.S. Refiner Average Acquisition Cost	92.62	109.86	95.20	83.11	74.46	<i>72.13</i>	<i>72.47</i>	<i>72.50</i>	<i>71.50</i>	<i>69.50</i>	<i>68.50</i>	<i>66.50</i>	95.25	<i>72.86</i>	<i>68.99</i>
U.S. Liquid Fuels (cents per gallon)															
Refiner Prices for Resale															
Gasoline	278	376	311	267	262	<i>254</i>	<i>240</i>	<i>217</i>	<i>224</i>	<i>236</i>	<i>230</i>	<i>206</i>	309	<i>243</i>	<i>224</i>
Diesel Fuel	301	418	357	364	294	<i>233</i>	<i>234</i>	<i>251</i>	<i>245</i>	<i>232</i>	<i>228</i>	<i>238</i>	361	<i>252</i>	<i>235</i>
Fuel Oil	284	419	344	359	278	<i>224</i>	<i>213</i>	<i>248</i>	<i>235</i>	<i>218</i>	<i>211</i>	<i>231</i>	352	<i>255</i>	<i>231</i>
Refiner Prices to End Users															
Jet Fuel	283	400	340	332	305	<i>223</i>	<i>219</i>	<i>229</i>	<i>234</i>	<i>225</i>	<i>216</i>	<i>218</i>	340	<i>242</i>	<i>223</i>
No. 6 Residual Fuel Oil (a)	252	258	228	201	197	<i>186</i>	<i>186</i>	<i>188</i>	<i>188</i>	<i>180</i>	<i>179</i>	<i>175</i>	236	<i>189</i>	<i>180</i>
Retail Prices Including Taxes															
Gasoline Regular Grade (b)	371	450	408	357	338	<i>355</i>	<i>332</i>	<i>306</i>	<i>307</i>	<i>321</i>	<i>315</i>	<i>292</i>	397	<i>333</i>	<i>309</i>
Gasoline All Grades (b)	380	460	419	369	349	<i>365</i>	<i>343</i>	<i>317</i>	<i>318</i>	<i>332</i>	<i>326</i>	<i>303</i>	408	<i>344</i>	<i>320</i>
On-highway Diesel Fuel	432	549	516	508	440	<i>386</i>	<i>357</i>	<i>383</i>	<i>377</i>	<i>360</i>	<i>351</i>	<i>361</i>	502	<i>390</i>	<i>362</i>
Heating Oil	415	553	497	494	406	<i>345</i>	<i>322</i>	<i>361</i>	<i>353</i>	<i>330</i>	<i>314</i>	<i>351</i>	466	<i>373</i>	<i>345</i>
Natural Gas															
Henry Hub Spot (dollars per thousand cubic feet)	4.84	7.77	8.30	5.76	2.76	<i>2.49</i>	<i>3.22</i>	<i>3.63</i>	<i>3.73</i>	<i>3.40</i>	<i>4.07</i>	<i>4.25</i>	6.67	<i>3.02</i>	<i>3.86</i>
Henry Hub Spot (dollars per million Btu)	4.66	7.48	7.99	5.55	2.65	<i>2.40</i>	<i>3.10</i>	<i>3.49</i>	<i>3.59</i>	<i>3.27</i>	<i>3.92</i>	<i>4.09</i>	6.42	<i>2.91</i>	<i>3.72</i>
U.S. Retail Prices (dollars per thousand cubic feet)															
Industrial Sector	6.82	8.24	9.27	7.53	6.18	<i>4.02</i>	<i>4.16</i>	<i>4.86</i>	<i>5.32</i>	<i>4.45</i>	<i>4.88</i>	<i>5.51</i>	7.90	<i>4.87</i>	<i>5.06</i>
Commercial Sector	10.00	11.71	14.12	12.14	12.07	<i>10.90</i>	<i>10.83</i>	<i>9.22</i>	<i>8.95</i>	<i>9.58</i>	<i>10.53</i>	<i>9.43</i>	11.37	<i>10.84</i>	<i>9.39</i>
Residential Sector	12.32	16.57	24.95	15.63	14.78	<i>15.41</i>	<i>20.43</i>	<i>12.40</i>	<i>11.36</i>	<i>14.48</i>	<i>20.74</i>	<i>12.85</i>	14.82	<i>14.58</i>	<i>13.04</i>
U.S. Electricity															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	2.18	2.26	2.50	2.55	2.59	<i>2.58</i>	<i>2.57</i>	<i>2.52</i>	<i>2.52</i>	<i>2.52</i>	<i>2.52</i>	<i>2.49</i>	2.37	<i>2.56</i>	<i>2.51</i>
Natural Gas	5.95	7.39	8.23	6.90	4.98	<i>2.92</i>	<i>3.25</i>	<i>3.85</i>	<i>4.18</i>	<i>3.51</i>	<i>4.06</i>	<i>4.47</i>	7.24	<i>3.70</i>	<i>4.05</i>
Residual Fuel Oil (c)	16.81	26.17	26.53	21.27	18.52	<i>15.92</i>	<i>14.25</i>	<i>14.58</i>	<i>14.76</i>	<i>14.98</i>	<i>13.93</i>	<i>13.77</i>	21.80	<i>15.89</i>	<i>14.33</i>
Distillate Fuel Oil	21.23	30.71	26.79	24.48	23.00	<i>18.30</i>	<i>17.82</i>	<i>19.18</i>	<i>18.91</i>	<i>17.98</i>	<i>17.50</i>	<i>18.45</i>	24.89	<i>19.58</i>	<i>18.33</i>
Prices to Ultimate Customers (cents per kilowatthour)															
Industrial Sector	7.42	8.41	9.38	8.52	8.15	<i>8.50</i>	<i>9.23</i>	<i>8.46</i>	<i>8.46</i>	<i>8.64</i>	<i>9.41</i>	<i>8.64</i>	8.45	<i>8.60</i>	<i>8.80</i>
Commercial Sector	11.63	12.35	13.38	12.66	12.62	<i>12.64</i>	<i>13.22</i>	<i>12.25</i>	<i>12.30</i>	<i>12.73</i>	<i>13.63</i>	<i>12.61</i>	12.55	<i>12.71</i>	<i>12.85</i>
Residential Sector	13.98	15.07	15.85	15.48	15.80	<i>15.97</i>	<i>15.98</i>	<i>15.30</i>	<i>15.50</i>	<i>15.98</i>	<i>16.08</i>	<i>15.48</i>	15.12	<i>15.78</i>	<i>15.78</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 May 4, 2022.

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 - May 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	31.62	31.88	32.54	32.97	33.34	33.71	33.84	34.38	34.47	34.23	34.51	35.13	32.26	33.82	34.59
U.S. (50 States)	19.44	20.12	20.60	20.67	20.93	21.15	21.11	21.27	21.24	21.39	21.59	21.78	20.21	21.12	21.50
Canada	5.66	5.51	5.72	5.91	5.89	5.70	5.93	6.14	6.22	5.93	6.13	6.35	5.70	5.92	6.16
Mexico	1.91	1.89	1.90	1.90	1.97	1.97	1.97	1.95	1.97	1.96	1.93	1.89	1.90	1.96	1.94
Other OECD	4.61	4.35	4.32	4.49	4.56	4.89	4.83	5.01	5.04	4.95	4.86	5.11	4.44	4.82	4.99
Non-OECD	67.20	66.86	68.26	68.05	67.61	67.39	67.75	67.33	67.77	68.41	68.97	68.57	67.60	67.52	68.43
OPEC	33.75	33.76	34.71	34.43	33.93	33.75	33.77	33.58	34.40	34.42	34.61	34.35	34.17	33.76	34.45
Crude Oil Portion	28.19	28.33	29.23	28.92	28.44	28.39	28.37	28.14	28.87	29.02	29.17	28.87	28.67	28.34	28.99
Other Liquids (b)	5.56	5.43	5.48	5.52	5.49	5.36	5.40	5.44	5.53	5.40	5.44	5.48	5.50	5.42	5.46
Eurasia	14.39	13.39	13.56	13.90	14.04	13.46	13.47	13.55	13.62	13.61	13.59	13.67	13.81	13.63	13.62
China	5.18	5.18	5.05	5.09	5.32	5.24	5.23	5.28	5.21	5.24	5.23	5.27	5.12	5.27	5.24
Other Non-OECD	13.89	14.53	14.94	14.63	14.32	14.95	15.27	14.93	14.54	15.14	15.55	15.27	14.50	14.87	15.13
Total World Production	98.83	98.74	100.80	101.02	100.95	101.10	101.58	101.71	102.24	102.64	103.49	103.69	99.85	101.34	103.02
Non-OPEC Production	65.08	64.98	66.09	66.58	67.02	67.35	67.81	68.13	67.83	68.21	68.88	69.34	65.69	67.58	68.57
Consumption (million barrels per day) (c)															
OECD	45.76	45.37	46.63	45.98	45.45	45.63	46.44	46.56	46.15	45.80	46.62	46.69	45.94	46.02	46.32
U.S. (50 States)	20.22	20.27	20.47	20.16	19.97	20.54	20.72	20.64	20.51	20.82	21.00	20.87	20.28	20.47	20.80
U.S. Territories	0.11	0.12	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Canada	2.24	2.21	2.38	2.35	2.24	2.24	2.34	2.32	2.30	2.25	2.35	2.33	2.29	2.28	2.31
Europe	13.19	13.42	14.09	13.34	13.03	13.44	13.85	13.61	13.24	13.39	13.80	13.56	13.51	13.48	13.50
Japan	3.70	3.03	3.19	3.56	3.69	3.00	3.11	3.44	3.55	2.94	3.04	3.37	3.37	3.31	3.23
Other OECD	6.30	6.33	6.37	6.45	6.40	6.28	6.31	6.44	6.43	6.28	6.30	6.44	6.36	6.36	6.36
Non-OECD	52.78	53.66	53.78	53.72	54.43	55.19	55.14	55.11	56.06	56.56	56.49	56.47	53.49	54.97	56.40
Eurasia	4.28	4.43	4.73	4.65	4.29	4.44	4.75	4.66	4.42	4.57	4.89	4.80	4.53	4.53	4.67
Europe	0.74	0.76	0.76	0.77	0.74	0.76	0.77	0.77	0.75	0.77	0.77	0.78	0.76	0.76	0.77
China	15.11	15.30	14.99	15.19	15.87	16.07	15.75	15.96	16.22	16.42	16.09	16.31	15.15	15.91	16.26
Other Asia	13.75	13.76	13.42	13.85	14.23	14.29	13.71	14.01	14.86	14.83	14.23	14.55	13.69	14.06	14.62
Other Non-OECD	18.90	19.41	19.87	19.26	19.29	19.64	20.17	19.71	19.81	19.97	20.51	20.04	19.36	19.70	20.08
Total World Consumption	98.54	99.03	100.41	99.70	99.88	100.82	101.58	101.67	102.21	102.36	103.11	103.16	99.43	100.99	102.71
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	-0.05	-0.06	-0.19	0.27	-0.02	-0.37	-0.03	0.38	0.54	-0.01	-0.01
Other OECD	-0.09	-0.29	-0.48	-0.26	-0.36	-0.07	0.06	-0.10	0.00	0.03	-0.11	-0.29	-0.28	-0.12	-0.09
Other Stock Draws and Balance	-1.00	0.06	-0.36	-1.47	-0.67	-0.15	0.13	-0.21	-0.01	0.06	-0.24	-0.63	-0.69	-0.22	-0.20
Total Stock Draw	-0.29	0.29	-0.39	-1.32	-1.07	-0.29	0.00	-0.04	-0.03	-0.28	-0.38	-0.53	-0.43	-0.35	-0.30
End-of-period Commercial Crude Oil and Other Liquids Inventories (million barrels)															
U.S. Commercial Inventory	1,154	1,180	1,215	1,222	1,227	1,258	1,276	1,251	1,252	1,286	1,288	1,253	1,222	1,251	1,253
OECD Commercial Inventory	2,604	2,656	2,735	2,766	2,804	2,841	2,853	2,838	2,839	2,870	2,883	2,874	2,766	2,838	2,874

(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 May 4, 2022.

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 - May 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
North America	27.01	27.52	28.22	28.48	28.79	<i>28.82</i>	<i>29.01</i>	<i>29.37</i>	<i>29.42</i>	<i>29.27</i>	<i>29.65</i>	<i>30.01</i>	27.82	<i>29.00</i>	<i>29.59</i>
Canada	5.66	5.51	5.72	5.91	5.89	<i>5.70</i>	<i>5.93</i>	<i>6.14</i>	<i>6.22</i>	<i>5.93</i>	<i>6.13</i>	<i>6.35</i>	5.70	<i>5.92</i>	<i>6.16</i>
Mexico	1.91	1.89	1.90	1.90	1.97	<i>1.97</i>	<i>1.97</i>	<i>1.95</i>	<i>1.97</i>	<i>1.96</i>	<i>1.93</i>	<i>1.89</i>	1.90	<i>1.96</i>	<i>1.94</i>
United States	19.44	20.12	20.60	20.67	20.93	<i>21.15</i>	<i>21.11</i>	<i>21.27</i>	<i>21.24</i>	<i>21.39</i>	<i>21.59</i>	<i>21.78</i>	20.21	<i>21.12</i>	<i>21.50</i>
Central and South America	5.83	6.41	6.86	6.58	6.29	<i>6.89</i>	<i>7.21</i>	<i>6.90</i>	<i>6.51</i>	<i>7.14</i>	<i>7.55</i>	<i>7.30</i>	6.42	<i>6.82</i>	<i>7.12</i>
Argentina	0.77	0.78	0.79	0.82	0.81	<i>0.85</i>	<i>0.85</i>	<i>0.89</i>	<i>0.85</i>	<i>0.90</i>	<i>0.90</i>	<i>0.94</i>	0.79	<i>0.85</i>	<i>0.90</i>
Brazil	3.33	3.79	4.15	3.78	3.52	<i>4.07</i>	<i>4.41</i>	<i>3.98</i>	<i>3.65</i>	<i>4.21</i>	<i>4.55</i>	<i>4.12</i>	3.76	<i>4.00</i>	<i>4.13</i>
Colombia	0.77	0.77	0.78	0.79	0.78	<i>0.78</i>	<i>0.78</i>	<i>0.81</i>	<i>0.77</i>	<i>0.77</i>	<i>0.78</i>	<i>0.80</i>	0.78	<i>0.79</i>	<i>0.78</i>
Ecuador	0.48	0.47	0.49	0.49	0.48	<i>0.47</i>	<i>0.48</i>	<i>0.48</i>	<i>0.48</i>	<i>0.50</i>	<i>0.51</i>	<i>0.51</i>	0.48	<i>0.48</i>	<i>0.50</i>
Guyana	0.12	0.24	0.32	0.35	0.35	<i>0.36</i>	<i>0.36</i>	<i>0.39</i>	<i>0.42</i>	<i>0.42</i>	<i>0.49</i>	<i>0.60</i>	0.26	<i>0.36</i>	<i>0.48</i>
Europe	4.04	3.76	3.81	3.93	4.01	<i>4.34</i>	<i>4.28</i>	<i>4.46</i>	<i>4.49</i>	<i>4.40</i>	<i>4.31</i>	<i>4.57</i>	3.89	<i>4.27</i>	<i>4.44</i>
Norway	1.97	1.74	1.91	1.99	2.02	<i>2.30</i>	<i>2.30</i>	<i>2.39</i>	<i>2.42</i>	<i>2.36</i>	<i>2.36</i>	<i>2.53</i>	1.90	<i>2.25</i>	<i>2.42</i>
United Kingdom	0.97	0.91	0.80	0.84	0.87	<i>0.91</i>	<i>0.83</i>	<i>0.92</i>	<i>0.92</i>	<i>0.91</i>	<i>0.81</i>	<i>0.90</i>	0.88	<i>0.88</i>	<i>0.89</i>
Eurasia	14.39	13.39	13.56	13.90	14.04	<i>13.46</i>	<i>13.47</i>	<i>13.55</i>	<i>13.62</i>	<i>13.61</i>	<i>13.59</i>	<i>13.67</i>	13.81	<i>13.63</i>	<i>13.62</i>
Azerbaijan	0.70	0.67	0.65	0.67	0.65	<i>0.64</i>	<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	<i>1.96</i>	<i>1.92</i>	<i>1.99</i>	<i>2.06</i>	<i>2.05</i>	<i>2.03</i>	<i>2.10</i>	1.83	<i>1.97</i>	<i>2.06</i>
Russia	11.30	10.59	10.92	10.95	10.97	<i>10.44</i>	<i>10.51</i>	<i>10.51</i>	<i>10.51</i>	<i>10.51</i>	<i>10.51</i>	<i>10.51</i>	10.94	<i>10.61</i>	<i>10.51</i>
Turkmenistan	0.26	0.26	0.26	0.26	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>	<i>0.27</i>	0.26	<i>0.27</i>	<i>0.27</i>
Middle East	3.23	3.29	3.34	3.28	3.19	<i>3.17</i>	<i>3.19</i>	<i>3.19</i>	<i>3.23</i>	<i>3.23</i>	<i>3.22</i>	<i>3.22</i>	3.28	<i>3.18</i>	<i>3.23</i>
Oman	1.05	1.07	1.10	1.08	1.07	<i>1.03</i>	<i>1.02</i>	<i>1.02</i>	<i>1.04</i>	<i>1.04</i>	<i>1.04</i>	<i>1.04</i>	1.07	<i>1.03</i>	<i>1.04</i>
Qatar	1.85	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>	<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	9.30	<i>9.25</i>	<i>9.22</i>	<i>9.24</i>	<i>9.18</i>	<i>9.18</i>	<i>9.17</i>	<i>9.19</i>	9.04	<i>9.25</i>	<i>9.18</i>
Australia	0.44	0.47	0.39	0.43	0.42	<i>0.43</i>	<i>0.43</i>	<i>0.42</i>	<i>0.41</i>	<i>0.40</i>	<i>0.40</i>	<i>0.39</i>	0.43	<i>0.42</i>	<i>0.40</i>
China	5.18	5.18	5.05	5.09	5.32	<i>5.24</i>	<i>5.23</i>	<i>5.28</i>	<i>5.21</i>	<i>5.24</i>	<i>5.23</i>	<i>5.27</i>	5.12	<i>5.27</i>	<i>5.24</i>
India	0.88	0.89	0.87	0.85	0.88	<i>0.91</i>	<i>0.90</i>	<i>0.89</i>	<i>0.91</i>	<i>0.91</i>	<i>0.91</i>	<i>0.90</i>	0.87	<i>0.90</i>	<i>0.91</i>
Indonesia	0.84	0.83	0.81	0.83	0.84	<i>0.84</i>	<i>0.83</i>	<i>0.82</i>	<i>0.81</i>	<i>0.81</i>	<i>0.80</i>	<i>0.80</i>	0.83	<i>0.83</i>	<i>0.80</i>
Malaysia	0.61	0.60	0.58	0.61	0.61	<i>0.60</i>	<i>0.59</i>	<i>0.59</i>	<i>0.58</i>	<i>0.58</i>	<i>0.57</i>	<i>0.57</i>	0.60	<i>0.60</i>	<i>0.57</i>
Africa	1.40	1.43	1.44	1.44	1.40	<i>1.43</i>	<i>1.43</i>	<i>1.42</i>	<i>1.39</i>	<i>1.38</i>	<i>1.38</i>	<i>1.37</i>	1.43	<i>1.42</i>	<i>1.38</i>
Egypt	0.66	0.68	0.67	0.67	0.68	<i>0.69</i>	<i>0.69</i>	<i>0.69</i>	<i>0.66</i>	<i>0.66</i>	<i>0.66</i>	<i>0.66</i>	0.67	<i>0.69</i>	<i>0.66</i>
South Sudan	0.15	0.15	0.16	0.15	0.13	<i>0.15</i>	<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	65.08	64.98	66.09	66.58	67.02	<i>67.35</i>	<i>67.81</i>	<i>68.13</i>	<i>67.83</i>	<i>68.21</i>	<i>68.88</i>	<i>69.34</i>	65.69	<i>67.58</i>	<i>68.57</i>
OPEC non-crude liquids	5.56	5.43	5.48	5.52	5.49	<i>5.36</i>	<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	70.64	70.41	71.57	72.10	72.51	<i>72.71</i>	<i>73.21</i>	<i>73.57</i>	<i>73.36</i>	<i>73.61</i>	<i>74.31</i>	<i>74.82</i>	71.18	<i>73.00</i>	<i>74.03</i>
Unplanned non-OPEC Production Outages	0.76	1.31	0.78	0.56	0.55	-	-	-	-	-	-	-	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 May 4, 2022.

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 - May 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	-	-	-	-	-	-	-	1.00	-	-
Angola	1.15	1.19	1.16	1.10	1.08	-	-	-	-	-	-	-	1.15	-	-
Congo (Brazzaville)	0.27	0.29	0.28	0.26	0.26	-	-	-	-	-	-	-	0.27	-	-
Equatorial Guinea	0.09	0.09	0.09	0.07	0.06	-	-	-	-	-	-	-	0.09	-	-
Gabon	0.19	0.19	0.20	0.21	0.20	-	-	-	-	-	-	-	0.20	-	-
Iran	2.55	2.53	2.53	2.56	2.60	-	-	-	-	-	-	-	2.54	-	-
Iraq	4.30	4.42	4.55	4.51	4.41	-	-	-	-	-	-	-	4.45	-	-
Kuwait	2.61	2.69	2.80	2.72	2.68	-	-	-	-	-	-	-	2.71	-	-
Libya	1.06	0.76	0.95	1.14	1.14	-	-	-	-	-	-	-	0.98	-	-
Nigeria	1.27	1.11	0.97	1.07	1.24	-	-	-	-	-	-	-	1.10	-	-
Saudi Arabia	10.08	10.30	10.85	10.50	10.02	-	-	-	-	-	-	-	10.43	-	-
United Arab Emirates	2.94	3.04	3.17	3.09	3.05	-	-	-	-	-	-	-	3.06	-	-
Venezuela	0.70	0.72	0.66	0.69	0.70	-	-	-	-	-	-	-	0.69	-	-
OPEC Total	28.19	28.33	29.23	28.92	28.44	<i>28.39</i>	<i>28.37</i>	<i>28.14</i>	<i>28.87</i>	<i>29.02</i>	<i>29.17</i>	<i>28.87</i>	28.67	<i>28.34</i>	<i>28.99</i>
Other Liquids (a)	5.56	5.43	5.48	5.52	5.49	<i>5.36</i>	<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	33.93	<i>33.75</i>	<i>33.77</i>	<i>33.58</i>	<i>34.40</i>	<i>34.42</i>	<i>34.61</i>	<i>34.35</i>	34.17	<i>33.76</i>	<i>34.45</i>
Crude Oil Production Capacity															
Middle East	25.48	25.46	25.55	25.66	25.90	<i>26.08</i>	<i>26.08</i>	<i>26.08</i>	<i>26.51</i>	<i>26.63</i>	<i>26.68</i>	<i>26.68</i>	25.54	<i>26.04</i>	<i>26.63</i>
Other	5.83	5.45	5.35	5.55	5.70	<i>5.82</i>	<i>5.89</i>	<i>5.88</i>	<i>5.91</i>	<i>5.86</i>	<i>5.82</i>	<i>5.79</i>	5.54	<i>5.82</i>	<i>5.84</i>
OPEC Total	31.31	30.91	30.89	31.21	31.60	<i>31.90</i>	<i>31.97</i>	<i>31.96</i>	<i>32.42</i>	<i>32.49</i>	<i>32.50</i>	<i>32.47</i>	31.08	<i>31.86</i>	<i>32.47</i>
Surplus Crude Oil Production Capacity															
Middle East	3.00	2.47	1.65	2.28	3.13	<i>3.46</i>	<i>3.53</i>	<i>3.75</i>	<i>3.51</i>	<i>3.45</i>	<i>3.31</i>	<i>3.58</i>	2.35	<i>3.47</i>	<i>3.46</i>
Other	0.12	0.11	0.01	0.01	0.02	<i>0.05</i>	<i>0.07</i>	<i>0.07</i>	<i>0.04</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	0.06	<i>0.05</i>	<i>0.02</i>
OPEC Total	3.12	2.58	1.67	2.29	3.16	<i>3.51</i>	<i>3.60</i>	<i>3.82</i>	<i>3.55</i>	<i>3.47</i>	<i>3.33</i>	<i>3.60</i>	2.41	<i>3.52</i>	<i>3.48</i>
Unplanned OPEC Production Outages	1.98	2.42	2.50	2.14	1.94	-	-	-	-	-	-	-	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 May 4, 2022.

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 - May 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	24.47	24.10	<i>24.70</i>	<i>24.97</i>	<i>24.89</i>	<i>24.68</i>	<i>24.97</i>	<i>25.25</i>	<i>25.12</i>	24.50	<i>24.67</i>	<i>25.01</i>
Canada	2.24	2.21	2.38	2.35	2.24	<i>2.24</i>	<i>2.34</i>	<i>2.32</i>	<i>2.30</i>	<i>2.25</i>	<i>2.35</i>	<i>2.33</i>	2.29	<i>2.28</i>	<i>2.31</i>
Mexico	1.76	1.99	1.96	1.95	1.89	<i>1.91</i>	<i>1.91</i>	<i>1.92</i>	<i>1.87</i>	<i>1.89</i>	<i>1.89</i>	<i>1.91</i>	1.92	<i>1.91</i>	<i>1.89</i>
United States	20.22	20.27	20.47	20.16	19.97	<i>20.54</i>	<i>20.72</i>	<i>20.64</i>	<i>20.51</i>	<i>20.82</i>	<i>21.00</i>	<i>20.87</i>	20.28	<i>20.47</i>	<i>20.80</i>
Central and South America	6.27	6.43	6.57	6.53	6.33	<i>6.47</i>	<i>6.57</i>	<i>6.50</i>	<i>6.43</i>	<i>6.57</i>	<i>6.68</i>	<i>6.61</i>	6.45	<i>6.47</i>	<i>6.57</i>
Brazil	2.85	2.93	3.02	3.02	2.90	<i>2.96</i>	<i>3.03</i>	<i>3.02</i>	<i>2.96</i>	<i>3.02</i>	<i>3.09</i>	<i>3.08</i>	2.96	<i>2.98</i>	<i>3.04</i>
Europe	13.93	14.18	14.85	14.11	13.77	<i>14.20</i>	<i>14.61</i>	<i>14.38</i>	<i>13.99</i>	<i>14.16</i>	<i>14.58</i>	<i>14.34</i>	14.27	<i>14.24</i>	<i>14.27</i>
Eurasia	4.28	4.43	4.73	4.65	4.29	<i>4.44</i>	<i>4.75</i>	<i>4.66</i>	<i>4.42</i>	<i>4.57</i>	<i>4.89</i>	<i>4.80</i>	4.53	<i>4.53</i>	<i>4.67</i>
Russia	3.27	3.36	3.64	3.50	3.27	<i>3.36</i>	<i>3.64</i>	<i>3.50</i>	<i>3.36</i>	<i>3.45</i>	<i>3.74</i>	<i>3.60</i>	3.44	<i>3.44</i>	<i>3.54</i>
Middle East	8.87	9.24	9.69	8.96	9.15	<i>9.33</i>	<i>9.86</i>	<i>9.27</i>	<i>9.46</i>	<i>9.46</i>	<i>9.99</i>	<i>9.40</i>	9.19	<i>9.40</i>	<i>9.58</i>
Asia and Oceania	36.51	35.82	35.40	36.50	37.71	<i>37.14</i>	<i>36.36</i>	<i>37.35</i>	<i>38.59</i>	<i>37.98</i>	<i>37.16</i>	<i>38.17</i>	36.06	<i>37.14</i>	<i>37.98</i>
China	15.11	15.30	14.99	15.19	15.87	<i>16.07</i>	<i>15.75</i>	<i>15.96</i>	<i>16.22</i>	<i>16.42</i>	<i>16.09</i>	<i>16.31</i>	15.15	<i>15.91</i>	<i>16.26</i>
Japan	3.70	3.03	3.19	3.56	3.69	<i>3.00</i>	<i>3.11</i>	<i>3.44</i>	<i>3.55</i>	<i>2.94</i>	<i>3.04</i>	<i>3.37</i>	3.37	<i>3.31</i>	<i>3.23</i>
India	5.08	5.07	4.84	5.18	5.26	<i>5.41</i>	<i>5.05</i>	<i>5.37</i>	<i>5.63</i>	<i>5.70</i>	<i>5.33</i>	<i>5.66</i>	5.04	<i>5.27</i>	<i>5.58</i>
Africa	4.45	4.45	4.34	4.48	4.52	<i>4.54</i>	<i>4.46</i>	<i>4.62</i>	<i>4.63</i>	<i>4.64</i>	<i>4.56</i>	<i>4.72</i>	4.43	<i>4.53</i>	<i>4.64</i>
Total OECD Liquid Fuels Consumption	45.76	45.37	46.63	45.98	45.45	<i>45.63</i>	<i>46.44</i>	<i>46.56</i>	<i>46.15</i>	<i>45.80</i>	<i>46.62</i>	<i>46.69</i>	45.94	<i>46.02</i>	<i>46.32</i>
Total non-OECD Liquid Fuels Consumption	52.78	53.66	53.78	53.72	54.43	<i>55.19</i>	<i>55.14</i>	<i>55.11</i>	<i>56.06</i>	<i>56.56</i>	<i>56.49</i>	<i>56.47</i>	53.49	<i>54.97</i>	<i>56.40</i>
Total World Liquid Fuels Consumption	98.54	99.03	100.41	99.70	99.88	<i>100.82</i>	<i>101.58</i>	<i>101.67</i>	<i>102.21</i>	<i>102.36</i>	<i>103.11</i>	<i>103.16</i>	99.43	<i>100.99</i>	<i>102.71</i>
Real Gross Domestic Product (a)															
World Index, 2015 Q1 = 100	122.0	122.2	123.4	123.7	124.7	<i>125.5</i>	<i>125.8</i>	<i>126.5</i>	<i>127.4</i>	<i>128.5</i>	<i>129.7</i>	<i>131.0</i>	122.8	<i>125.6</i>	<i>129.2</i>
Percent change from prior year	4.4	3.5	3.2	2.1	2.3	<i>2.6</i>	<i>2.0</i>	<i>2.2</i>	<i>2.2</i>	<i>2.4</i>	<i>3.1</i>	<i>3.6</i>	3.3	<i>2.3</i>	<i>2.8</i>
OECD Index, 2015 = 100	113.3	114.1	115.3	114.1	114.1	<i>114.4</i>	<i>115.3</i>	<i>115.6</i>	<i>115.5</i>	<i>115.1</i>	<i>114.5</i>	<i>113.7</i>	113.3	<i>114.1</i>	<i>115.3</i>
Percent change from prior year	2.9	0.7	1.1	1.1	1.1	<i>1.4</i>	<i>-1.5</i>	<i>-2.3</i>	<i>1.2</i>	<i>0.6</i>	<i>-0.7</i>	<i>-1.7</i>	3.6	<i>3.5</i>	<i>4.2</i>
Non-OECD Index, 2015 = 100	129.0	133.5	139.0	139.0	139.0	<i>139.0</i>	<i>139.0</i>	<i>139.0</i>	<i>139.0</i>	<i>139.0</i>	<i>139.0</i>	<i>139.0</i>	129.0	<i>133.5</i>	<i>139.0</i>
Percent change from prior year	3.6	3.5	4.2	4.2	4.2	<i>4.2</i>	<i>4.2</i>	<i>4.2</i>	<i>4.2</i>	<i>4.2</i>	<i>4.2</i>	<i>4.2</i>	3.6	<i>3.5</i>	<i>4.2</i>
Nominal U.S. Dollar Index (b)															
Index, 2015 Q1 = 100	109.5	112.8	117.1	118.4	114.1	<i>114.4</i>	<i>115.3</i>	<i>115.6</i>	<i>115.5</i>	<i>115.1</i>	<i>114.5</i>	<i>113.7</i>	114.5	<i>114.9</i>	<i>114.7</i>
Percent change from prior year	2.8	6.4	9.0	8.6	4.2	<i>1.4</i>	<i>-1.5</i>	<i>-2.3</i>	<i>1.2</i>	<i>0.6</i>	<i>-0.7</i>	<i>-1.7</i>	6.7	<i>0.4</i>	<i>-0.1</i>

(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 May 4, 2022.

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 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 - May 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	2.45	2.58	2.60	2.61	2.58	2.63	2.63	2.64	2.39	2.56	2.62
Propane	1.77	1.85	1.92	1.88	1.89	1.92	1.90	1.92	1.93	1.93	1.96	1.97	1.86	1.91	1.95
Butanes	0.93	0.98	1.02	0.99	0.98	0.99	1.00	1.01	1.03	1.04	1.06	1.06	0.98	1.00	1.05
Natural Gasoline (Pentanes Plus)	0.59	0.67	0.74	0.66	0.63	0.65	0.67	0.64	0.63	0.66	0.69	0.66	0.66	0.65	0.66
Refinery and Blender Net Production															
Ethane/Ethylene	0.01	0.01	0.01	0.01	0.00	0.01	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	0.28	0.28	0.29	0.28	0.28	0.29	0.30	0.29	0.28	0.28	0.29
Propylene (refinery-grade)	0.28	0.28	0.26	0.23	0.25	0.29	0.28	0.28	0.28	0.29	0.28	0.28	0.26	0.27	0.28
Butanes/Butylenes	-0.07	0.25	0.19	-0.15	-0.05	0.26	0.19	-0.19	-0.08	0.26	0.20	-0.19	0.06	0.05	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	-0.48	-0.47	-0.47	-0.47	-0.49	-0.50	-0.49	-0.52	-0.45	-0.47	-0.50
Propane/Propylene	-1.18	-1.33	-1.21	-1.29	-1.37	-1.39	-1.32	-1.38	-1.35	-1.40	-1.38	-1.45	-1.25	-1.37	-1.39
Butanes/Butylenes	-0.28	-0.41	-0.34	-0.36	-0.42	-0.42	-0.43	-0.42	-0.40	-0.45	-0.46	-0.41	-0.35	-0.42	-0.43
Natural Gasoline (Pentanes Plus)	-0.17	-0.17	-0.19	-0.15	-0.18	-0.24	-0.24	-0.21	-0.24	-0.23	-0.20	-0.19	-0.17	-0.22	-0.21
HGL Refinery and Blender Net Inputs															
Butanes/Butylenes	0.44	0.31	0.35	0.56	0.49	0.29	0.32	0.50	0.43	0.30	0.33	0.55	0.42	0.40	0.40
Natural Gasoline (Pentanes Plus)	0.20	0.20	0.22	0.20	0.21	0.19	0.19	0.19	0.17	0.18	0.19	0.18	0.20	0.19	0.18
HGL Consumption															
Ethane/Ethylene	1.98	2.03	1.97	1.91	2.01	2.10	2.11	2.12	2.13	2.12	2.12	2.14	1.97	2.09	2.13
Propane	1.16	0.60	0.69	0.91	1.04	0.58	0.64	0.97	1.12	0.61	0.68	0.94	0.84	0.81	0.84
Propylene (refinery-grade)	0.30	0.29	0.28	0.24	0.27	0.30	0.30	0.29	0.30	0.30	0.29	0.29	0.28	0.29	0.30
Butanes/Butylenes	0.23	0.26	0.29	0.20	0.15	0.25	0.25	0.22	0.22	0.25	0.27	0.23	0.24	0.22	0.24
Natural Gasoline (Pentanes Plus)	0.21	0.24	0.26	0.31	0.25	0.20	0.22	0.24	0.23	0.22	0.27	0.28	0.26	0.23	0.25
HGL Inventories (million barrels)															
Ethane	51.1	51.7	49.9	54.3	51.6	50.3	52.4	55.0	52.4	53.4	55.6	56.0	51.8	52.3	54.3
Propane	36.3	54.1	81.9	76.6	53.3	72.4	92.1	77.7	51.9	69.5	87.0	73.7	76.6	77.7	73.7
Propylene (at refineries only)	1.0	1.2	1.1	1.3	0.9	1.3	1.7	1.6	1.5	1.7	1.9	1.7	1.3	1.6	1.7
Butanes/Butylenes	35.7	58.8	81.2	54.5	43.9	70.1	88.0	58.9	49.8	77.2	95.2	66.1	54.5	58.9	66.1
Natural Gasoline (Pentanes Plus)	19.4	22.7	27.2	25.2	21.5	22.5	23.1	22.1	19.4	20.4	21.1	20.2	25.2	22.1	20.2
Refinery and Blender Net Inputs															
Crude Oil	15.56	16.09	16.26	15.80	15.21	16.52	16.45	15.63	15.39	16.39	16.33	15.50	15.93	15.96	15.90
Hydrocarbon Gas Liquids	0.64	0.50	0.57	0.76	0.70	0.48	0.51	0.69	0.60	0.48	0.52	0.73	0.62	0.59	0.58
Other Hydrocarbons/Oxygenates	1.12	1.20	1.19	1.17	1.13	1.22	1.22	1.18	1.17	1.23	1.23	1.22	1.17	1.19	1.21
Unfinished Oils	-0.12	0.21	0.24	0.15	0.16	0.31	0.39	0.28	0.08	0.28	0.31	0.27	0.12	0.29	0.24
Motor Gasoline Blend Components	0.33	0.84	0.66	0.29	0.33	0.69	0.59	0.53	0.55	0.72	0.59	0.53	0.53	0.53	0.59
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	17.54	19.23	19.15	18.30	17.78	19.10	18.98	18.25	18.37	18.56	18.53
Refinery Processing Gain	0.95	1.07	1.05	1.01	0.99	1.03	1.02	1.01	0.97	1.01	1.01	0.99	1.02	1.01	1.00
Refinery and Blender Net Production															
Hydrocarbon Gas Liquids	0.49	0.84	0.75	0.36	0.48	0.84	0.77	0.37	0.48	0.85	0.78	0.38	0.61	0.62	0.62
Finished Motor Gasoline	9.22	9.74	9.73	9.58	9.27	9.88	9.91	9.77	9.53	9.84	9.79	9.88	9.57	9.71	9.76
Jet Fuel	1.48	1.71	1.67	1.60	1.61	1.75	1.72	1.59	1.49	1.61	1.65	1.53	1.62	1.67	1.57
Distillate Fuel	4.77	5.00	5.15	5.09	4.67	5.05	5.15	5.10	4.84	5.18	5.16	5.05	5.01	4.99	5.06
Residual Fuel	0.26	0.22	0.26	0.25	0.26	0.30	0.32	0.32	0.28	0.25	0.28	0.23	0.25	0.30	0.26
Other Oils (a)	2.26	2.39	2.40	2.30	2.23	2.45	2.30	2.16	2.13	2.38	2.33	2.17	2.34	2.28	2.25
Total Refinery and Blender Net Production	18.49	19.90	19.97	19.18	18.53	20.26	20.17	19.31	18.75	20.11	19.99	19.24	19.39	19.57	19.52
Refinery Distillation Inputs	16.07	16.61	16.82	16.34	15.78	16.82	16.74	15.97	15.71	16.60	16.64	15.85	16.46	16.33	16.20
Refinery Operable Distillation Capacity	17.94	17.94	17.98	18.01	18.03	18.07	18.11	18.11	17.90	17.85	17.86	17.87	17.97	18.08	17.87
Refinery Distillation Utilization Factor	0.90	0.93	0.94	0.91	0.88	0.93	0.92	0.88	0.88	0.93	0.93	0.89	0.92	0.90	0.91

(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 May 4, 2022.

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 - May 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	254	240	217	224	236	230	206	309	243	224
Gasoline Regular Grade Retail Prices Including Taxes															
PADD 1	364	438	393	341	331	343	323	299	301	311	305	285	385	324	301
PADD 2	352	436	397	345	324	341	318	293	295	308	302	277	383	319	296
PADD 3	340	414	357	300	302	311	287	264	269	283	276	252	353	291	270
PADD 4	360	446	434	358	357	350	331	313	302	325	323	300	401	338	313
PADD 5	452	543	511	478	418	446	419	381	378	400	393	367	497	416	385
U.S. Average	371	450	408	357	338	355	332	306	307	321	315	292	397	333	309
Gasoline All Grades Including Taxes	380	460	419	369	349	365	343	317	318	332	326	303	408	344	320
End-of-period Inventories (million barrels)															
Total Gasoline Inventories															
PADD 1	56.9	53.6	54.4	56.4	53.0	58.1	60.5	63.3	62.9	64.7	59.5	62.7	56.4	63.3	62.7
PADD 2	56.5	46.7	44.1	46.6	49.3	46.1	47.3	53.3	54.4	50.7	47.5	51.5	46.6	53.3	51.5
PADD 3	87.1	83.9	80.2	81.4	81.9	88.4	82.5	87.0	86.1	86.6	82.7	82.5	81.4	87.0	82.5
PADD 4	8.1	6.4	6.4	7.4	8.2	6.6	7.3	8.1	8.3	6.9	7.0	7.7	7.4	8.1	7.7
PADD 5	29.9	30.3	24.5	32.6	30.1	30.1	30.3	31.1	30.6	30.8	31.1	32.1	32.6	31.1	32.1
U.S. Total	238.5	221.0	209.6	224.3	222.5	229.3	227.9	242.8	242.4	239.7	227.7	236.5	224.3	242.8	236.5
Finished Gasoline Inventories															
U.S. Total	17.3	17.1	17.6	17.4	14.1	17.8	20.0	22.8	19.8	20.1	21.1	23.2	17.4	22.8	23.2
Gasoline Blending Components Inventories															
U.S. Total	221.2	203.8	192.0	206.9	208.4	211.4	207.9	220.0	222.7	219.6	206.5	213.3	206.9	220.0	213.3

- = no data available

Notes: EIA completed modeling and analysis for this report on May 4, 2022.

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 - May 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	110.70	<i>110.51</i>	<i>108.31</i>	<i>108.87</i>	<i>109.18</i>	<i>109.55</i>	<i>109.90</i>	<i>110.35</i>	106.67	<i>109.59</i>	<i>109.75</i>
Alaska	1.06	1.00	0.96	1.07	1.08	<i>0.96</i>	<i>0.86</i>	<i>0.98</i>	<i>1.00</i>	<i>0.92</i>	<i>0.84</i>	<i>0.97</i>	1.02	<i>0.97</i>	<i>0.93</i>
Federal GOM (a)	2.05	2.11	2.19	2.12	2.23	<i>2.32</i>	<i>2.23</i>	<i>2.23</i>	<i>2.24</i>	<i>2.17</i>	<i>2.03</i>	<i>2.04</i>	2.12	<i>2.26</i>	<i>2.12</i>
Lower 48 States (excl GOM)	100.16	103.07	105.12	105.71	107.39	<i>107.23</i>	<i>105.22</i>	<i>105.65</i>	<i>105.94</i>	<i>106.45</i>	<i>107.02</i>	<i>107.34</i>	103.53	<i>106.37</i>	<i>106.69</i>
Total Dry Gas Production	95.09	97.59	99.46	100.29	102.11	<i>101.93</i>	<i>99.91</i>	<i>100.42</i>	<i>100.71</i>	<i>101.05</i>	<i>101.38</i>	<i>101.80</i>	98.13	<i>101.09</i>	<i>101.24</i>
LNG Gross Imports	0.15	0.01	0.07	0.05	0.09	<i>0.04</i>	<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	11.61	<i>12.32</i>	<i>12.17</i>	<i>12.33</i>	<i>12.70</i>	<i>12.60</i>	<i>12.31</i>	<i>13.30</i>	10.59	<i>12.11</i>	<i>12.73</i>
Pipeline Gross Imports	8.89	7.73	7.84	8.41	8.40	<i>6.95</i>	<i>7.07</i>	<i>7.45</i>	<i>8.18</i>	<i>6.81</i>	<i>7.04</i>	<i>7.44</i>	8.22	<i>7.46</i>	<i>7.36</i>
Pipeline Gross Exports	8.46	8.50	8.10	8.19	8.85	<i>8.44</i>	<i>8.79</i>	<i>9.20</i>	<i>9.49</i>	<i>8.88</i>	<i>9.21</i>	<i>9.64</i>	8.31	<i>8.82</i>	<i>9.31</i>
Supplemental Gaseous Fuels	0.21	0.17	0.18	0.16	0.19	<i>0.18</i>	<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	11.86	<i>-11.10</i>	<i>-6.24</i>	<i>3.79</i>	<i>14.99</i>	<i>-12.70</i>	<i>-8.10</i>	<i>3.38</i>	0.75	<i>-0.46</i>	<i>-0.62</i>
Total Supply	104.52	75.96	80.76	92.73	102.20	<i>77.25</i>	<i>80.00</i>	<i>90.36</i>	<i>101.97</i>	<i>73.90</i>	<i>79.02</i>	<i>89.92</i>	88.44	<i>87.40</i>	<i>86.19</i>
Balancing Item (b)	0.30	0.17	0.01	-0.11	0.15	<i>-0.69</i>	<i>0.80</i>	<i>0.28</i>	<i>-0.89</i>	<i>-0.15</i>	<i>0.95</i>	<i>-0.47</i>	0.09	<i>0.14</i>	<i>-0.14</i>
Total Primary Supply	104.83	76.13	80.77	92.62	102.35	<i>76.56</i>	<i>80.80</i>	<i>90.64</i>	<i>101.08</i>	<i>73.75</i>	<i>79.97</i>	<i>89.44</i>	88.53	<i>87.54</i>	<i>86.05</i>
Consumption (billion cubic feet per day)															
Residential	26.09	7.86	3.57	17.37	23.64	<i>8.27</i>	<i>4.27</i>	<i>16.64</i>	<i>24.82</i>	<i>7.86</i>	<i>4.32</i>	<i>16.64</i>	13.67	<i>13.16</i>	<i>13.39</i>
Commercial	15.61	6.67	4.74	11.69	14.33	<i>7.23</i>	<i>5.52</i>	<i>11.42</i>	<i>14.61</i>	<i>6.97</i>	<i>5.49</i>	<i>11.37</i>	9.66	<i>9.61</i>	<i>9.60</i>
Industrial	25.46	22.25	21.47	23.51	24.41	<i>21.47</i>	<i>21.05</i>	<i>23.10</i>	<i>23.84</i>	<i>20.85</i>	<i>20.66</i>	<i>22.84</i>	23.16	<i>22.50</i>	<i>22.05</i>
Electric Power (c)	28.39	30.99	42.36	30.94	30.43	<i>31.03</i>	<i>41.36</i>	<i>30.47</i>	<i>28.37</i>	<i>29.68</i>	<i>40.84</i>	<i>29.55</i>	33.20	<i>33.34</i>	<i>32.13</i>
Lease and Plant Fuel	5.26	5.41	5.51	5.55	5.64	<i>5.63</i>	<i>5.52</i>	<i>5.54</i>	<i>5.56</i>	<i>5.58</i>	<i>5.60</i>	<i>5.62</i>	5.43	<i>5.58</i>	<i>5.59</i>
Pipeline and Distribution Use	3.86	2.80	2.98	3.41	3.76	<i>2.78</i>	<i>2.95</i>	<i>3.32</i>	<i>3.72</i>	<i>2.68</i>	<i>2.91</i>	<i>3.28</i>	3.26	<i>3.20</i>	<i>3.15</i>
Vehicle Use	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>	<i>0.15</i>	0.15	<i>0.15</i>	<i>0.15</i>
Total Consumption	104.83	76.13	80.77	92.62	102.35	<i>76.56</i>	<i>80.80</i>	<i>90.64</i>	<i>101.08</i>	<i>73.75</i>	<i>79.97</i>	<i>89.44</i>	88.53	<i>87.54</i>	<i>86.05</i>
End-of-period Inventories (billion cubic feet)															
Working Gas Inventory	1,401	2,325	3,146	2,927	1,857	<i>2,867</i>	<i>3,441</i>	<i>3,092</i>	<i>1,728</i>	<i>2,884</i>	<i>3,629</i>	<i>3,318</i>	2,927	<i>3,092</i>	<i>3,318</i>
East Region (d)	242	482	759	698	335	<i>638</i>	<i>849</i>	<i>712</i>	<i>307</i>	<i>623</i>	<i>865</i>	<i>754</i>	698	<i>712</i>	<i>754</i>
Midwest Region (d)	296	557	917	831	421	<i>702</i>	<i>986</i>	<i>847</i>	<i>370</i>	<i>691</i>	<i>1,027</i>	<i>900</i>	831	<i>847</i>	<i>900</i>
South Central Region (d)	587	885	1,006	1,042	921	<i>1,154</i>	<i>1,115</i>	<i>1,091</i>	<i>750</i>	<i>1,109</i>	<i>1,176</i>	<i>1,159</i>	1,042	<i>1,091</i>	<i>1,159</i>
Mountain Region (d)	90	137	184	158	80	<i>150</i>	<i>217</i>	<i>186</i>	<i>121</i>	<i>162</i>	<i>223</i>	<i>193</i>	158	<i>186</i>	<i>193</i>
Pacific Region (d)	165	240	247	169	73	<i>194</i>	<i>241</i>	<i>227</i>	<i>156</i>	<i>270</i>	<i>305</i>	<i>283</i>	169	<i>227</i>	<i>283</i>
Alaska	21	25	32	30	27	<i>29</i>	<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 May 4, 2022.

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 - May 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	<i>2.49</i>	<i>3.22</i>	<i>3.63</i>	<i>3.73</i>	<i>3.40</i>	<i>4.07</i>	<i>4.25</i>	6.67	<i>3.02</i>	<i>3.86</i>
Residential Retail															
New England	17.69	20.93	26.83	21.72	21.16	<i>20.60</i>	<i>23.44</i>	<i>18.02</i>	<i>17.66</i>	<i>19.04</i>	<i>23.53</i>	<i>18.76</i>	19.87	<i>20.23</i>	<i>18.62</i>
Middle Atlantic	12.79	15.55	23.86	16.89	15.35	<i>14.85</i>	<i>20.85</i>	<i>14.13</i>	<i>12.88</i>	<i>15.09</i>	<i>22.07</i>	<i>14.88</i>	15.17	<i>15.28</i>	<i>14.45</i>
E. N. Central	9.81	14.81	25.79	13.17	11.30	<i>13.88</i>	<i>21.74</i>	<i>9.86</i>	<i>8.63</i>	<i>12.44</i>	<i>21.71</i>	<i>10.19</i>	12.45	<i>11.81</i>	<i>10.47</i>
W. N. Central	11.40	15.25	25.08	13.42	13.34	<i>14.70</i>	<i>21.56</i>	<i>10.44</i>	<i>9.25</i>	<i>12.13</i>	<i>20.33</i>	<i>10.52</i>	13.23	<i>13.06</i>	<i>10.67</i>
S. Atlantic	13.91	22.11	32.99	17.69	17.42	<i>18.20</i>	<i>25.45</i>	<i>14.34</i>	<i>13.34</i>	<i>18.29</i>	<i>26.95</i>	<i>15.05</i>	17.48	<i>17.07</i>	<i>15.58</i>
E. S. Central	11.80	17.16	26.38	15.45	13.75	<i>14.46</i>	<i>22.37</i>	<i>12.08</i>	<i>10.68</i>	<i>15.16</i>	<i>23.21</i>	<i>12.40</i>	14.32	<i>13.81</i>	<i>12.54</i>
W. S. Central	12.61	20.91	30.98	17.56	13.89	<i>15.55</i>	<i>21.51</i>	<i>12.51</i>	<i>9.86</i>	<i>15.26</i>	<i>22.81</i>	<i>13.23</i>	16.35	<i>14.34</i>	<i>12.59</i>
Mountain	10.31	12.85	19.38	13.44	11.25	<i>9.63</i>	<i>13.91</i>	<i>9.22</i>	<i>8.64</i>	<i>10.31</i>	<i>14.71</i>	<i>9.58</i>	12.39	<i>10.59</i>	<i>9.66</i>
Pacific	17.07	17.80	20.54	18.95	21.88	<i>18.91</i>	<i>17.45</i>	<i>15.34</i>	<i>15.97</i>	<i>15.86</i>	<i>16.64</i>	<i>15.49</i>	18.20	<i>18.99</i>	<i>15.88</i>
U.S. Average	12.32	16.57	24.95	15.63	14.78	<i>15.41</i>	<i>20.43</i>	<i>12.40</i>	<i>11.36</i>	<i>14.48</i>	<i>20.74</i>	<i>12.85</i>	14.82	<i>14.58</i>	<i>13.04</i>
Commercial Retail															
New England	12.62	14.46	16.23	15.81	15.27	<i>13.36</i>	<i>12.40</i>	<i>11.13</i>	<i>11.27</i>	<i>11.75</i>	<i>12.25</i>	<i>11.51</i>	14.21	<i>13.34</i>	<i>11.52</i>
Middle Atlantic	10.36	10.78	12.01	11.99	11.73	<i>8.74</i>	<i>7.71</i>	<i>8.16</i>	<i>8.75</i>	<i>8.18</i>	<i>8.09</i>	<i>8.77</i>	11.11	<i>9.61</i>	<i>8.58</i>
E. N. Central	8.12	10.46	14.23	10.32	9.15	<i>8.89</i>	<i>9.84</i>	<i>7.13</i>	<i>6.95</i>	<i>8.20</i>	<i>10.08</i>	<i>7.56</i>	9.59	<i>8.50</i>	<i>7.57</i>
W. N. Central	10.22	11.73	15.07	11.32	11.71	<i>10.42</i>	<i>10.75</i>	<i>8.51</i>	<i>8.38</i>	<i>8.92</i>	<i>10.65</i>	<i>9.06</i>	11.12	<i>10.47</i>	<i>8.84</i>
S. Atlantic	10.52	12.22	14.21	13.08	13.33	<i>11.53</i>	<i>11.01</i>	<i>9.93</i>	<i>9.59</i>	<i>10.33</i>	<i>10.80</i>	<i>10.21</i>	12.06	<i>11.58</i>	<i>10.06</i>
E. S. Central	10.41	12.80	15.56	13.49	12.46	<i>10.85</i>	<i>11.03</i>	<i>9.60</i>	<i>9.15</i>	<i>10.27</i>	<i>11.53</i>	<i>10.27</i>	12.26	<i>11.05</i>	<i>9.95</i>
W. S. Central	10.09	12.86	15.00	12.73	11.32	<i>10.56</i>	<i>10.57</i>	<i>9.31</i>	<i>8.48</i>	<i>9.32</i>	<i>10.29</i>	<i>9.60</i>	12.01	<i>10.48</i>	<i>9.20</i>
Mountain	8.78	9.98	12.60	11.31	11.43	<i>10.66</i>	<i>10.32</i>	<i>8.53</i>	<i>8.27</i>	<i>8.61</i>	<i>9.28</i>	<i>8.12</i>	10.19	<i>10.33</i>	<i>8.38</i>
Pacific	13.08	13.67	15.58	14.47	18.19	<i>16.82</i>	<i>15.88</i>	<i>14.64</i>	<i>14.34</i>	<i>13.47</i>	<i>13.81</i>	<i>13.48</i>	14.00	<i>16.53</i>	<i>13.82</i>
U.S. Average	10.00	11.71	14.12	12.14	12.07	<i>10.90</i>	<i>10.83</i>	<i>9.22</i>	<i>8.95</i>	<i>9.58</i>	<i>10.53</i>	<i>9.43</i>	11.37	<i>10.84</i>	<i>9.39</i>
Industrial Retail															
New England	11.11	12.09	12.17	13.47	13.35	<i>10.10</i>	<i>7.85</i>	<i>8.63</i>	<i>9.37</i>	<i>8.61</i>	<i>7.81</i>	<i>9.10</i>	12.11	<i>10.29</i>	<i>8.87</i>
Middle Atlantic	10.80	10.15	11.91	12.72	12.30	<i>9.22</i>	<i>7.92</i>	<i>8.10</i>	<i>8.47</i>	<i>7.87</i>	<i>7.85</i>	<i>8.49</i>	11.26	<i>9.94</i>	<i>8.30</i>
E. N. Central	7.66	8.72	10.75	10.31	9.25	<i>7.15</i>	<i>6.20</i>	<i>6.15</i>	<i>6.51</i>	<i>6.49</i>	<i>6.54</i>	<i>6.75</i>	8.88	<i>7.49</i>	<i>6.58</i>
W. N. Central	7.96	8.58	9.59	8.62	8.82	<i>5.15</i>	<i>4.53</i>	<i>5.26</i>	<i>5.82</i>	<i>4.92</i>	<i>5.16</i>	<i>6.01</i>	8.64	<i>6.04</i>	<i>5.51</i>
S. Atlantic	7.46	8.84	11.14	9.09	6.93	<i>4.59</i>	<i>4.76</i>	<i>5.41</i>	<i>5.90</i>	<i>5.23</i>	<i>5.63</i>	<i>6.20</i>	9.05	<i>5.51</i>	<i>5.76</i>
E. S. Central	6.53	8.70	10.63	8.03	5.65	<i>4.07</i>	<i>4.30</i>	<i>5.03</i>	<i>5.48</i>	<i>4.88</i>	<i>5.20</i>	<i>5.83</i>	8.34	<i>4.81</i>	<i>5.37</i>
W. S. Central	5.58	7.69	8.45	5.87	3.43	<i>2.64</i>	<i>3.36</i>	<i>3.86</i>	<i>3.99</i>	<i>3.52</i>	<i>4.23</i>	<i>4.52</i>	6.92	<i>3.32</i>	<i>4.07</i>
Mountain	7.11	8.39	10.45	9.79	9.82	<i>7.44</i>	<i>6.63</i>	<i>6.21</i>	<i>6.20</i>	<i>5.94</i>	<i>6.28</i>	<i>6.39</i>	8.83	<i>7.78</i>	<i>6.21</i>
Pacific	8.82	9.02	9.60	9.42	10.50	<i>8.10</i>	<i>7.26</i>	<i>7.25</i>	<i>7.58</i>	<i>6.90</i>	<i>7.07</i>	<i>7.44</i>	9.19	<i>8.32</i>	<i>7.30</i>
U.S. Average	6.82	8.24	9.27	7.53	6.18	<i>4.02</i>	<i>4.16</i>	<i>4.86</i>	<i>5.32</i>	<i>4.45</i>	<i>4.88</i>	<i>5.51</i>	7.90	<i>4.87</i>	<i>5.06</i>

- = no data available

Notes: EIA completed modeling and analysis for this report on May 4, 2022.

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 - May 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	<i>140.9</i>	<i>149.2</i>	<i>135.6</i>	<i>124.6</i>	<i>115.1</i>	<i>128.3</i>	<i>123.2</i>	597.2	<i>577.1</i>	<i>491.2</i>
Appalachia	40.2	40.2	40.0	38.4	41.1	<i>39.5</i>	<i>35.2</i>	<i>32.9</i>	<i>32.3</i>	<i>30.8</i>	<i>27.8</i>	<i>28.3</i>	158.8	<i>148.6</i>	<i>119.2</i>
Interior	23.8	26.0	24.7	22.9	25.5	<i>25.5</i>	<i>26.8</i>	<i>24.4</i>	<i>24.2</i>	<i>22.2</i>	<i>23.2</i>	<i>21.6</i>	97.4	<i>102.1</i>	<i>91.3</i>
Western	85.0	79.5	89.5	86.9	84.9	<i>75.9</i>	<i>87.2</i>	<i>78.4</i>	<i>68.1</i>	<i>62.1</i>	<i>77.3</i>	<i>73.3</i>	340.9	<i>326.4</i>	<i>280.7</i>
Primary Inventory Withdrawals	-1.9	0.0	3.4	-0.3	-1.9	<i>0.1</i>	<i>3.4</i>	<i>0.0</i>	<i>-1.7</i>	<i>0.2</i>	<i>3.6</i>	<i>0.0</i>	1.2	<i>1.5</i>	<i>2.1</i>
Imports	1.3	1.6	2.0	1.4	1.2	<i>1.3</i>	<i>1.6</i>	<i>1.1</i>	<i>0.7</i>	<i>0.8</i>	<i>1.2</i>	<i>0.9</i>	6.3	<i>5.2</i>	<i>3.6</i>
Exports	20.2	23.0	20.7	20.8	24.6	<i>26.4</i>	<i>24.2</i>	<i>24.5</i>	<i>24.7</i>	<i>26.0</i>	<i>25.0</i>	<i>26.6</i>	84.8	<i>99.7</i>	<i>102.3</i>
Metallurgical Coal	10.5	13.1	11.6	11.3	13.0	<i>13.7</i>	<i>12.3</i>	<i>12.3</i>	<i>12.8</i>	<i>13.9</i>	<i>13.2</i>	<i>13.8</i>	46.4	<i>51.4</i>	<i>53.8</i>
Steam Coal	9.7	9.9	9.2	9.6	11.6	<i>12.7</i>	<i>11.9</i>	<i>12.2</i>	<i>11.8</i>	<i>12.1</i>	<i>11.8</i>	<i>12.8</i>	38.4	<i>48.3</i>	<i>48.6</i>
Total Primary Supply	128.2	124.3	138.9	128.5	126.1	<i>115.8</i>	<i>130.1</i>	<i>112.2</i>	<i>98.9</i>	<i>90.1</i>	<i>108.1</i>	<i>97.5</i>	520.0	<i>484.1</i>	<i>394.6</i>
Secondary Inventory Withdrawals	5.9	-1.0	7.0	-9.8	-21.0	<i>-15.5</i>	<i>12.8</i>	<i>-16.4</i>	<i>3.0</i>	<i>2.9</i>	<i>24.2</i>	<i>-2.1</i>	2.1	<i>-40.1</i>	<i>28.0</i>
Waste Coal (a)	1.9	1.9	1.9	1.9	1.8	<i>1.8</i>	<i>1.8</i>	<i>1.8</i>	<i>1.8</i>	<i>1.8</i>	<i>1.8</i>	<i>1.8</i>	7.5	<i>7.2</i>	<i>7.2</i>
Total Supply	136.0	125.2	147.8	120.6	106.9	<i>102.1</i>	<i>144.7</i>	<i>97.6</i>	<i>103.7</i>	<i>94.8</i>	<i>134.1</i>	<i>97.2</i>	529.6	<i>451.2</i>	<i>429.8</i>
Consumption (million short tons)															
Coke Plants	4.2	3.9	3.9	4.0	3.8	<i>3.9</i>	<i>3.9</i>	<i>4.0</i>	<i>4.0</i>	<i>4.0</i>	<i>4.1</i>	<i>4.2</i>	16.0	<i>15.6</i>	<i>16.2</i>
Electric Power Sector (b)	122.7	107.3	134.8	105.3	90.7	<i>92.9</i>	<i>135.4</i>	<i>87.5</i>	<i>93.6</i>	<i>85.6</i>	<i>124.7</i>	<i>87.0</i>	469.9	<i>406.5</i>	<i>390.9</i>
Retail and Other Industry	6.9	6.7	6.5	6.6	6.3	<i>5.3</i>	<i>5.4</i>	<i>6.1</i>	<i>6.2</i>	<i>5.2</i>	<i>5.3</i>	<i>6.0</i>	26.7	<i>23.1</i>	<i>22.7</i>
Residential and Commercial	0.2	0.1	0.2	0.2	0.3	<i>0.1</i>	<i>0.1</i>	<i>0.2</i>	<i>0.3</i>	<i>0.1</i>	<i>0.1</i>	<i>0.2</i>	0.8	<i>0.7</i>	<i>0.8</i>
Other Industrial	6.7	6.6	6.3	6.3	6.0	<i>5.2</i>	<i>5.2</i>	<i>5.9</i>	<i>5.9</i>	<i>5.0</i>	<i>5.1</i>	<i>5.8</i>	25.9	<i>22.3</i>	<i>21.9</i>
Total Consumption	133.7	117.9	145.2	115.8	100.8	<i>102.1</i>	<i>144.7</i>	<i>97.6</i>	<i>103.7</i>	<i>94.8</i>	<i>134.1</i>	<i>97.2</i>	512.6	<i>445.2</i>	<i>429.8</i>
Discrepancy (c)	2.2	7.3	2.6	4.8	6.1	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	17.0	<i>6.1</i>	<i>0.0</i>
End-of-period Inventories (million short tons)															
Primary Inventories (d)	21.0	20.9	17.5	17.8	19.7	<i>19.6</i>	<i>16.2</i>	<i>16.2</i>	<i>17.9</i>	<i>17.7</i>	<i>14.1</i>	<i>14.1</i>	17.8	<i>16.2</i>	<i>14.1</i>
Secondary Inventories	90.5	91.5	84.5	94.3	115.3	<i>130.8</i>	<i>118.0</i>	<i>134.3</i>	<i>131.4</i>	<i>128.5</i>	<i>104.3</i>	<i>106.4</i>	94.3	<i>134.3</i>	<i>106.4</i>
Electric Power Sector	86.3	87.3	80.1	90.0	110.6	<i>125.9</i>	<i>112.9</i>	<i>129.4</i>	<i>127.1</i>	<i>124.1</i>	<i>99.6</i>	<i>101.7</i>	90.0	<i>129.4</i>	<i>101.7</i>
Retail and General Industry	2.4	2.4	2.5	2.5	3.0	<i>3.0</i>	<i>3.2</i>	<i>3.2</i>	<i>2.7</i>	<i>2.8</i>	<i>3.0</i>	<i>3.0</i>	2.5	<i>3.2</i>	<i>3.0</i>
Coke Plants	1.6	1.6	1.6	1.6	1.6	<i>1.7</i>	<i>1.6</i>	<i>1.6</i>	<i>1.4</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	1.6	<i>1.6</i>	<i>1.5</i>
Commercial & Institutional	0.2	0.2	0.2	0.2	0.1	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	0.2	<i>0.2</i>	<i>0.1</i>
Coal Market Indicators															
Coal Miner Productivity															
(Tons per hour)	6.05	6.05	6.05	6.05	5.98	<i>5.98</i>	<i>5.98</i>	<i>5.98</i>	<i>5.80</i>	<i>5.80</i>	<i>5.80</i>	<i>5.80</i>	6.05	<i>5.98</i>	<i>5.80</i>
Total Raw Steel Production															
(Million short tons per day)	0.253	0.253	0.247	0.235	0.236	<i>0.241</i>	<i>0.246</i>	<i>0.244</i>	<i>0.240</i>	<i>0.245</i>	<i>0.250</i>	<i>0.248</i>	0.247	<i>0.242</i>	<i>0.246</i>
Cost of Coal to Electric Utilities															
(Dollars per million Btu)	2.18	2.26	2.50	2.55	2.59	<i>2.58</i>	<i>2.57</i>	<i>2.52</i>	<i>2.52</i>	<i>2.52</i>	<i>2.52</i>	<i>2.49</i>	2.37	<i>2.56</i>	<i>2.51</i>

(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 May 4, 2022.

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 - May 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	1,029	1,026	1,187	1,001	989	<i>1,020</i>	<i>1,203</i>	<i>988</i>	<i>1,017</i>	<i>1,029</i>	<i>1,210</i>	<i>992</i>	4,243	<i>4,200</i>	<i>4,248</i>
Electric Power Sector (a)	990	989	1,148	963	951	<i>981</i>	<i>1,161</i>	<i>949</i>	<i>977</i>	<i>990</i>	<i>1,168</i>	<i>953</i>	4,090	<i>4,042</i>	<i>4,089</i>
Industrial Sector (b)	36	34	36	35	35	<i>36</i>	<i>38</i>	<i>36</i>	<i>36</i>	<i>35</i>	<i>38</i>	<i>36</i>	140	<i>145</i>	<i>145</i>
Commercial Sector (b)	3	3	3	3	3	<i>3</i>	<i>4</i>	<i>3</i>	<i>3</i>	<i>3</i>	<i>4</i>	<i>3</i>	13	<i>13</i>	<i>14</i>
Net Imports	7	10	15	10	10	<i>11</i>	<i>14</i>	<i>10</i>	<i>12</i>	<i>12</i>	<i>14</i>	<i>11</i>	41	<i>46</i>	<i>49</i>
Total Supply	1,036	1,036	1,203	1,010	999	<i>1,031</i>	<i>1,216</i>	<i>999</i>	<i>1,028</i>	<i>1,041</i>	<i>1,224</i>	<i>1,003</i>	4,284	<i>4,246</i>	<i>4,297</i>
Losses and Unaccounted for (c)	55	64	53	64	46	<i>65</i>	<i>55</i>	<i>48</i>	<i>44</i>	<i>69</i>	<i>55</i>	<i>48</i>	236	<i>215</i>	<i>216</i>
Electricity Consumption (billion kilowatthours unless noted)															
Sales to Ultimate Customers	945	938	1,114	911	918	<i>931</i>	<i>1,123</i>	<i>915</i>	<i>949</i>	<i>937</i>	<i>1,131</i>	<i>919</i>	3,909	<i>3,887</i>	<i>3,936</i>
Residential Sector	380	347	458	338	357	<i>343</i>	<i>467</i>	<i>340</i>	<i>379</i>	<i>347</i>	<i>474</i>	<i>343</i>	1,522	<i>1,507</i>	<i>1,543</i>
Commercial Sector	322	335	389	327	321	<i>336</i>	<i>393</i>	<i>327</i>	<i>325</i>	<i>334</i>	<i>389</i>	<i>324</i>	1,373	<i>1,377</i>	<i>1,372</i>
Industrial Sector	242	255	266	245	238	<i>250</i>	<i>262</i>	<i>246</i>	<i>243</i>	<i>254</i>	<i>266</i>	<i>250</i>	1,008	<i>996</i>	<i>1,013</i>
Transportation Sector	2	2	2	2	2	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	7	<i>7</i>	<i>7</i>
Direct Use (d)	35	34	36	35	35	<i>35</i>	<i>38</i>	<i>36</i>	<i>36</i>	<i>35</i>	<i>38</i>	<i>36</i>	139	<i>144</i>	<i>145</i>
Total Consumption	981	972	1,150	946	953	<i>966</i>	<i>1,161</i>	<i>951</i>	<i>985</i>	<i>973</i>	<i>1,169</i>	<i>955</i>	4,048	<i>4,031</i>	<i>4,081</i>
Average residential electricity usage per customer (kWh)	2,711	2,476	3,268	2,411	2,527	<i>2,422</i>	<i>3,302</i>	<i>2,404</i>	<i>2,654</i>	<i>2,433</i>	<i>3,320</i>	<i>2,402</i>	10,866	<i>10,654</i>	<i>10,809</i>
End-of-period Fuel Inventories Held by Electric Power Sector															
Coal (mmst)	86.3	87.3	80.1	90.0	110.6	<i>125.9</i>	<i>112.9</i>	<i>129.4</i>	<i>127.1</i>	<i>124.1</i>	<i>99.6</i>	<i>101.7</i>	90.0	<i>129.4</i>	<i>101.7</i>
Residual Fuel (mmb)	5.6	5.9	5.7	5.4	4.8	<i>4.5</i>	<i>2.7</i>	<i>3.5</i>	<i>2.4</i>	<i>2.7</i>	<i>1.1</i>	<i>2.0</i>	5.4	<i>3.5</i>	<i>2.0</i>
Distillate Fuel (mmb)	17.6	17.7	16.7	15.9	17.2	<i>16.9</i>	<i>16.8</i>	<i>17.1</i>	<i>16.9</i>	<i>16.7</i>	<i>16.7</i>	<i>16.9</i>	15.9	<i>17.1</i>	<i>16.9</i>
Prices															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	2.18	2.26	2.50	2.55	2.59	<i>2.58</i>	<i>2.57</i>	<i>2.52</i>	<i>2.52</i>	<i>2.52</i>	<i>2.52</i>	<i>2.49</i>	2.37	<i>2.56</i>	<i>2.51</i>
Natural Gas	5.95	7.39	8.23	6.90	4.98	<i>2.92</i>	<i>3.25</i>	<i>3.85</i>	<i>4.18</i>	<i>3.51</i>	<i>4.06</i>	<i>4.47</i>	7.24	<i>3.70</i>	<i>4.05</i>
Residual Fuel Oil	16.81	26.17	26.53	21.27	18.52	<i>15.92</i>	<i>14.25</i>	<i>14.58</i>	<i>14.76</i>	<i>14.98</i>	<i>13.93</i>	<i>13.77</i>	21.80	<i>15.89</i>	<i>14.33</i>
Distillate Fuel Oil	21.23	30.71	26.79	24.48	23.00	<i>18.30</i>	<i>17.82</i>	<i>19.18</i>	<i>18.91</i>	<i>17.98</i>	<i>17.50</i>	<i>18.45</i>	24.89	<i>19.58</i>	<i>18.33</i>
Prices to Ultimate Customers (cents per kilowatthour)															
Residential Sector	13.98	15.07	15.85	15.48	15.80	<i>15.97</i>	<i>15.98</i>	<i>15.30</i>	<i>15.50</i>	<i>15.98</i>	<i>16.08</i>	<i>15.48</i>	15.12	<i>15.78</i>	<i>15.78</i>
Commercial Sector	11.63	12.35	13.38	12.66	12.62	<i>12.64</i>	<i>13.22</i>	<i>12.25</i>	<i>12.30</i>	<i>12.73</i>	<i>13.63</i>	<i>12.61</i>	12.55	<i>12.71</i>	<i>12.85</i>
Industrial Sector	7.42	8.41	9.38	8.52	8.15	<i>8.50</i>	<i>9.23</i>	<i>8.46</i>	<i>8.46</i>	<i>8.64</i>	<i>9.41</i>	<i>8.64</i>	8.45	<i>8.60</i>	<i>8.80</i>
Wholesale Electricity Prices (dollars per megawatt-hour)															
ERCOT North hub	42.73	83.19	130.71	53.01	28.05	<i>26.98</i>	<i>57.83</i>	<i>28.31</i>	<i>27.40</i>	<i>23.54</i>	<i>36.20</i>	<i>28.15</i>	77.41	<i>35.29</i>	<i>28.82</i>
CAISO SP15 zone	45.20	60.34	110.03	135.13	92.54	<i>50.87</i>	<i>109.06</i>	<i>62.87</i>	<i>61.95</i>	<i>42.47</i>	<i>104.03</i>	<i>61.25</i>	87.67	<i>78.83</i>	<i>67.43</i>
ISO-NE Internal hub	116.48	73.28	99.14	80.77	52.63	<i>37.23</i>	<i>49.29</i>	<i>60.25</i>	<i>90.76</i>	<i>55.01</i>	<i>57.50</i>	<i>68.43</i>	92.42	<i>49.85</i>	<i>67.93</i>
NYISO Hudson Valley zone	100.10	79.72	104.71	77.17	44.65	<i>39.06</i>	<i>43.81</i>	<i>50.89</i>	<i>74.87</i>	<i>43.76</i>	<i>51.03</i>	<i>60.57</i>	90.42	<i>44.60</i>	<i>57.56</i>
PJM Western hub	58.33	93.00	110.99	71.60	36.49	<i>45.75</i>	<i>50.56</i>	<i>47.72</i>	<i>57.59</i>	<i>51.57</i>	<i>58.42</i>	<i>55.91</i>	83.48	<i>45.13</i>	<i>55.87</i>
Midcontinent ISO Illinois hub	47.88	89.21	101.80	57.87	31.39	<i>34.34</i>	<i>38.31</i>	<i>38.07</i>	<i>42.08</i>	<i>38.35</i>	<i>46.14</i>	<i>42.48</i>	74.19	<i>35.53</i>	<i>42.26</i>
SPP ISO South hub	37.25	72.85	109.97	55.87	28.96	<i>32.59</i>	<i>38.36</i>	<i>33.89</i>	<i>34.47</i>	<i>31.33</i>	<i>41.91</i>	<i>36.21</i>	68.98	<i>33.45</i>	<i>35.98</i>
SERC index, Into Southern	42.45	84.96	94.82	59.33	30.53	<i>35.63</i>	<i>38.74</i>	<i>37.12</i>	<i>39.83</i>	<i>36.43</i>	<i>43.30</i>	<i>40.35</i>	70.39	<i>35.51</i>	<i>39.98</i>
FRCC index, Florida Reliability	41.11	78.70	92.71	58.54	30.31	<i>38.17</i>	<i>41.26</i>	<i>38.16</i>	<i>38.42</i>	<i>38.05</i>	<i>42.37</i>	<i>39.17</i>	67.77	<i>36.97</i>	<i>39.50</i>
Northwest index, Mid-Columbia	39.85	59.39	137.82	151.39	105.99	<i>79.47</i>	<i>129.00</i>	<i>91.37</i>	<i>89.59</i>	<i>62.66</i>	<i>109.74</i>	<i>87.15</i>	97.11	<i>101.46</i>	<i>87.28</i>
Southwest index, Palo Verde	39.02	60.50	128.25	130.12	84.19	<i>49.81</i>	<i>115.38</i>	<i>57.84</i>	<i>58.07</i>	<i>45.00</i>	<i>110.15</i>	<i>56.65</i>	89.47	<i>76.81</i>	<i>67.47</i>

Notes: EIA completed modeling and analysis for this report on May 4, 2022.

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 1 megawatt operated by electric utilities and independent power producers.

(b) Generation supplied by power plants with capacity of at least 1 megawatt operated by businesses in the commercial and industrial sectors, primarily for onsite use.

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

(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 - May 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	10.4	13.4	11.0	13.0	10.6	13.6	11.1	48.4	47.0	48.4
Middle Atlantic	36.1	30.0	42.6	30.3	33.1	30.2	42.2	30.2	35.2	30.4	42.5	30.3	138.9	135.8	138.3
E. N. Central	50.8	43.8	54.8	43.1	46.4	43.0	57.1	43.8	50.6	44.1	58.2	44.1	192.5	190.4	197.0
W. N. Central	30.6	24.7	31.3	25.7	29.3	25.1	32.8	25.9	30.7	25.4	33.5	26.5	112.3	113.1	116.1
S. Atlantic	96.0	91.5	116.3	87.7	87.9	91.7	122.7	88.9	95.8	93.6	124.9	89.8	391.4	391.1	404.1
E. S. Central	32.6	27.7	37.0	26.5	29.6	27.5	38.3	26.9	33.1	27.7	38.7	27.1	123.8	122.2	126.7
W. S. Central	56.9	58.8	81.3	51.3	52.7	55.5	80.1	52.8	57.4	56.1	81.4	53.5	248.3	241.1	248.5
Mountain	24.1	26.2	36.1	24.3	25.1	25.8	36.8	23.9	24.3	26.3	37.4	24.2	110.7	111.6	112.2
Pacific contiguous	38.4	32.4	43.2	36.8	39.9	32.3	42.5	35.2	37.6	32.1	42.6	35.2	150.7	149.8	147.5
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	357.4	342.5	467.0	340.0	379.0	347.4	474.1	343.0	1,521.9	1,506.9	1,543.5
Commercial Sector															
New England	12.1	11.8	13.9	11.7	11.9	11.9	13.7	11.7	12.1	11.8	13.5	11.6	49.4	49.2	48.9
Middle Atlantic	36.0	34.3	40.5	34.6	35.0	34.3	40.0	34.2	35.4	34.1	39.9	34.1	145.3	143.4	143.5
E. N. Central	43.3	42.9	48.8	42.2	42.6	42.8	49.4	42.0	43.3	42.7	49.3	41.9	177.1	176.9	177.1
W. N. Central	25.1	24.5	28.0	24.7	25.0	24.9	28.7	25.0	25.6	25.0	28.7	25.0	102.4	103.5	104.2
S. Atlantic	75.1	82.5	93.5	78.9	73.9	83.2	95.9	79.6	75.8	83.5	95.8	79.4	330.0	332.5	334.5
E. S. Central	21.0	22.4	26.8	21.0	20.8	22.6	27.5	21.4	21.4	22.5	27.2	21.2	91.3	92.2	92.2
W. S. Central	47.0	52.1	61.2	48.6	48.0	51.8	60.8	48.3	47.8	49.5	58.1	46.4	208.9	208.9	201.7
Mountain	23.2	25.4	29.6	24.3	23.8	25.5	30.0	24.4	23.8	25.5	30.0	24.3	102.6	103.6	103.6
Pacific contiguous	37.7	37.9	45.4	39.7	38.8	38.2	45.5	39.4	38.8	38.0	45.0	39.0	160.7	161.9	160.8
AK and HI	1.3	1.3	1.4	1.4	1.3	1.3	1.3	1.4	1.4	1.3	1.4	1.4	5.4	5.3	5.4
Total	321.8	335.2	389.0	327.0	321.0	336.3	392.7	327.3	325.2	333.9	388.8	324.2	1,373.0	1,377.4	1,372.2
Industrial Sector															
New England	3.9	3.9	4.1	3.8	3.8	3.8	4.0	3.8	3.8	3.7	4.0	3.8	15.7	15.4	15.3
Middle Atlantic	17.5	18.2	19.4	18.2	16.9	18.0	19.2	18.2	17.1	18.2	19.5	18.4	73.3	72.3	73.2
E. N. Central	45.9	47.0	48.8	45.3	44.9	45.8	47.9	45.5	45.5	46.2	48.4	46.1	187.1	184.1	186.2
W. N. Central	24.0	24.8	26.9	25.0	24.2	24.2	26.3	25.1	24.7	24.8	27.1	25.9	100.7	99.7	102.4
S. Atlantic	36.3	37.5	38.7	36.4	34.7	36.4	37.6	36.3	35.3	37.1	38.5	37.1	148.9	145.1	148.0
E. S. Central	24.7	25.8	25.6	23.4	23.4	25.0	24.9	23.2	23.5	24.9	24.9	23.2	99.5	96.5	96.5
W. S. Central	49.8	53.3	53.8	50.6	50.8	53.7	53.9	51.7	53.1	56.1	56.2	53.5	207.6	210.1	218.8
Mountain	19.9	21.7	24.0	20.9	19.8	21.9	24.4	21.3	20.4	22.3	24.8	21.7	86.5	87.4	89.2
Pacific contiguous	19.0	21.0	23.4	20.0	18.7	20.3	22.4	19.3	18.2	19.8	22.0	19.0	83.4	80.8	79.0
AK and HI	1.1	1.2	1.3	1.2	1.2	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	238.4	250.3	261.9	245.6	242.8	254.4	266.5	249.8	1,007.5	996.2	1,013.4
Total All Sectors (a)															
New England	29.2	26.3	32.0	26.5	28.0	26.2	31.2	26.6	29.0	26.3	31.3	26.5	114.0	112.0	113.1
Middle Atlantic	90.4	83.3	103.3	84.0	85.9	83.4	102.3	83.5	88.6	83.5	102.8	83.7	360.9	355.1	358.7
E. N. Central	140.2	133.8	152.5	130.7	134.0	131.8	154.6	131.5	139.5	133.1	156.0	132.2	557.2	551.9	560.8
W. N. Central	79.7	74.1	86.3	75.4	78.6	74.2	87.7	76.0	80.9	75.2	89.2	77.3	315.4	316.4	322.7
S. Atlantic	207.7	211.8	248.7	203.2	196.7	211.5	256.5	205.1	207.2	214.4	259.5	206.5	871.3	869.8	887.7
E. S. Central	78.4	76.0	89.4	70.9	73.8	75.0	90.7	71.4	78.1	75.2	90.8	71.4	314.6	310.9	315.4
W. S. Central	153.7	164.2	196.4	150.5	151.5	161.0	195.0	152.9	158.2	161.8	195.7	153.5	664.9	660.3	669.2
Mountain	67.2	73.4	89.8	69.5	68.7	73.2	91.2	69.7	68.5	74.2	92.2	70.2	299.9	302.8	305.1
Pacific contiguous	95.3	91.6	112.2	96.6	97.6	91.0	110.6	94.1	94.9	90.1	109.8	93.5	395.7	393.3	388.2
AK and HI	3.7	3.6	3.8	3.9	3.7	3.5	3.8	3.9	3.8	3.6	3.8	3.9	15.0	14.9	15.0
Total	945.5	938.0	1,114.3	911.2	918.4	930.8	1,123.5	914.6	948.8	937.3	1,131.1	918.8	3,909.1	3,887.3	3,936.0

(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 May 4, 2022.

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 - May 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	30.19	28.13	27.22	27.61	30.47	27.90	27.08	28.06	24.81	28.29	28.40
Middle Atlantic	17.20	18.29	18.95	19.50	19.67	19.00	18.73	19.01	19.71	19.57	19.39	19.65	18.47	19.08	19.57
E. N. Central	14.21	15.50	16.18	16.13	16.06	16.47	16.40	15.78	15.41	16.09	16.32	16.04	15.49	16.19	15.97
W. N. Central	11.28	13.26	14.36	12.39	11.81	13.09	13.80	12.04	11.61	13.16	13.81	12.01	12.83	12.72	12.68
S. Atlantic	12.68	13.61	14.27	13.85	14.44	14.35	14.23	13.43	13.75	13.97	14.03	13.34	13.63	14.12	13.80
E. S. Central	11.97	13.08	13.78	13.40	13.21	13.13	13.17	12.95	13.18	13.57	13.48	13.30	13.06	13.12	13.38
W. S. Central	11.86	12.97	13.84	13.97	13.66	14.07	14.23	13.90	13.53	14.27	14.50	14.14	13.21	14.00	14.15
Mountain	12.14	12.85	13.23	12.98	13.00	13.79	14.05	13.61	13.32	13.82	13.89	13.52	12.85	13.66	13.67
Pacific	18.12	20.60	22.03	18.82	19.77	22.10	22.86	19.20	20.02	22.82	23.57	19.69	19.95	21.02	21.58
U.S. Average	13.98	15.07	15.85	15.48	15.80	15.97	15.98	15.30	15.50	15.98	16.08	15.48	15.12	15.78	15.78
Commercial Sector															
New England	18.47	17.46	18.32	18.55	20.32	18.50	18.78	18.30	19.73	18.19	18.94	18.97	18.21	18.97	18.96
Middle Atlantic	14.05	14.96	16.60	15.26	14.59	14.35	15.38	13.95	13.80	14.45	16.11	14.57	15.26	14.60	14.78
E. N. Central	11.06	11.84	12.12	11.87	11.93	11.94	11.62	11.08	11.25	11.75	11.86	11.46	11.73	11.64	11.59
W. N. Central	9.65	10.71	11.70	10.15	9.91	10.28	11.09	9.53	9.59	10.42	11.37	9.62	10.59	10.24	10.29
S. Atlantic	10.30	10.87	11.52	11.23	11.49	11.19	11.13	10.45	10.66	10.76	10.98	10.39	11.01	11.06	10.71
E. S. Central	11.69	12.20	13.02	12.59	12.35	12.11	12.70	12.30	12.34	12.48	13.20	12.65	12.41	12.38	12.70
W. S. Central	8.68	9.63	10.47	9.91	9.24	9.15	9.75	9.22	9.16	9.97	10.92	9.94	9.73	9.36	10.04
Mountain	9.57	10.32	10.97	10.42	10.30	11.01	11.56	10.82	10.47	10.96	11.51	10.82	10.36	10.96	10.98
Pacific	16.13	17.81	20.34	18.00	18.23	20.21	22.68	19.55	19.19	20.73	23.43	20.32	18.18	20.27	21.01
U.S. Average	11.63	12.35	13.38	12.66	12.62	12.64	13.22	12.25	12.30	12.73	13.63	12.61	12.55	12.71	12.85
Industrial Sector															
New England	15.12	15.17	15.93	15.36	16.09	15.87	16.18	15.06	15.53	15.44	16.18	15.49	15.40	15.81	15.67
Middle Atlantic	7.88	8.29	9.30	8.46	8.30	8.23	8.96	8.31	8.66	8.32	9.06	8.41	8.51	8.46	8.62
E. N. Central	7.72	8.55	8.99	8.50	8.31	8.66	8.90	8.58	8.83	8.98	9.23	8.85	8.45	8.62	8.98
W. N. Central	7.17	8.00	8.70	7.46	7.36	7.79	8.35	7.37	7.58	7.91	8.52	7.49	7.85	7.72	7.89
S. Atlantic	6.85	8.10	9.11	8.05	7.75	7.95	8.57	7.79	8.12	8.02	8.72	7.91	8.04	8.02	8.20
E. S. Central	6.35	7.36	8.41	7.53	7.05	7.48	8.17	7.46	7.43	7.65	8.40	7.64	7.42	7.55	7.79
W. S. Central	6.19	7.28	8.08	7.37	6.81	7.24	7.70	7.16	7.00	7.22	7.67	7.25	7.25	7.24	7.29
Mountain	6.58	7.27	8.41	7.88	7.66	7.80	8.82	8.05	7.85	8.01	9.05	8.26	7.57	8.11	8.32
Pacific	10.37	11.98	14.16	12.65	11.84	12.75	14.88	13.06	12.26	13.24	15.50	13.61	12.38	13.20	13.73
U.S. Average	7.42	8.41	9.38	8.52	8.15	8.50	9.23	8.46	8.46	8.64	9.41	8.64	8.45	8.60	8.80
All Sectors (a)															
New England	20.46	19.83	20.79	21.27	24.03	21.92	22.04	21.66	23.96	21.69	22.10	22.25	20.59	22.42	22.52
Middle Atlantic	14.09	14.68	16.17	15.29	15.31	14.70	15.54	14.54	15.14	14.96	16.11	15.03	15.10	15.05	15.35
E. N. Central	11.10	11.88	12.57	12.10	12.14	12.27	12.54	11.78	11.97	12.22	12.70	12.08	11.93	12.20	12.26
W. N. Central	9.53	10.65	11.73	10.02	9.83	10.42	11.28	9.67	9.74	10.52	11.42	9.73	10.51	10.33	10.38
S. Atlantic	10.79	11.56	12.43	11.79	12.15	12.00	12.23	11.27	11.65	11.68	12.11	11.23	11.68	11.93	11.70
E. S. Central	10.12	10.88	12.01	11.22	11.01	10.95	11.65	10.98	11.21	11.28	12.00	11.27	11.09	11.17	11.47
W. S. Central	9.05	10.06	11.21	10.44	9.96	10.21	11.03	10.14	10.02	10.51	11.48	10.47	10.25	10.38	10.67
Mountain	9.60	10.32	11.19	10.55	10.52	11.03	11.83	10.93	10.70	11.08	11.82	10.96	10.47	11.13	11.19
Pacific	15.77	17.45	19.69	17.19	17.62	19.20	21.15	18.07	18.17	19.80	21.87	18.70	17.62	19.09	19.72
U.S. Average	11.49	12.28	13.44	12.59	12.70	12.75	13.44	12.36	12.59	12.82	13.66	12.60	12.49	12.84	12.96

(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 May 4, 2022.

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 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 - May 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	43.9	50.8	56.6	49.0	46.2	53.6	64.5	48.2	184.1	200.3	212.4
Coal	60.4	51.0	65.0	49.3	43.8	41.4	65.0	40.3	47.4	37.4	56.9	40.4	225.8	190.5	182.2
Nuclear	23.8	19.6	24.3	23.7	23.4	20.3	24.5	21.0	23.3	22.5	24.3	21.2	91.4	89.2	91.2
Conventional hydropower	2.8	2.7	2.5	2.3	2.6	2.9	2.4	2.2	2.5	2.9	2.4	2.2	10.3	10.1	10.0
Nonhydro renewables (d)	31.2	28.0	19.8	30.4	31.0	29.3	22.6	34.1	35.3	32.9	26.1	36.3	109.4	117.0	130.5
Other energy sources (e)	1.4	1.6	1.3	1.8	1.1	1.5	1.5	1.6	1.4	1.5	1.5	1.7	6.1	5.7	6.1
Total generation	159.0	148.5	170.2	149.3	145.9	146.2	172.5	148.2	156.1	150.7	175.5	150.0	627.0	612.9	632.4
Net energy for load (f)	167.1	163.4	182.5	158.8	158.6	159.9	185.6	158.2	164.5	162.2	187.1	159.0	671.8	662.3	672.8
Central (Southwest Power Pool)															
Natural Gas	12.5	15.3	24.8	16.4	14.8	15.6	23.8	13.4	12.9	14.7	21.8	12.3	69.0	67.6	61.7
Coal	26.2	23.5	33.8	22.8	20.2	19.3	29.3	19.2	19.3	18.7	30.0	19.4	106.3	88.0	87.4
Nuclear	4.3	4.3	3.9	2.1	4.3	4.2	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	4.2	3.7	3.1	3.6	4.2	3.7	3.1	14.6	14.4	14.5
Nonhydro renewables (d)	29.5	30.4	21.8	28.5	31.1	30.4	24.3	29.3	32.2	31.2	24.8	30.4	110.2	115.0	118.6
Other energy sources (e)	0.3	0.4	0.2	0.4	0.2	0.4	0.2	0.3	0.3	0.4	0.2	0.3	1.3	1.0	1.2
Total generation	77.0	77.7	87.7	73.5	74.1	74.1	85.5	69.6	72.5	72.2	84.8	68.9	316.0	303.3	298.4
Net energy for load (f)	67.4	67.7	81.7	66.1	66.7	68.0	80.3	63.5	65.6	66.2	79.5	63.0	282.9	278.5	274.3
Texas (ERCOT)															
Natural Gas	33.4	42.8	64.7	40.9	35.5	39.3	62.5	40.5	32.2	34.2	56.2	36.6	181.9	177.7	159.1
Coal	17.7	16.8	20.2	16.6	10.3	13.0	17.0	12.8	10.8	12.4	16.9	12.5	71.2	53.0	52.7
Nuclear	11.0	9.9	10.7	10.0	10.5	9.4	11.0	10.1	10.9	9.8	10.6	9.5	41.6	41.1	40.8
Conventional hydropower	0.2	0.1	0.0	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.5	0.7	0.6
Nonhydro renewables (d)	30.8	39.2	28.1	29.3	36.6	44.3	33.6	33.1	42.5	52.1	42.6	39.8	127.4	147.8	177.1
Other energy sources (e)	0.4	0.5	0.4	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.1	1.5	1.2	0.7
Total generation	93.5	109.3	124.1	97.2	93.3	106.5	124.6	97.1	96.7	109.0	126.6	98.6	424.1	421.5	431.0
Net energy for load (f)	95.1	111.3	126.4	97.1	93.5	106.5	124.6	97.1	96.7	109.0	126.6	98.6	429.9	421.7	431.0
Northwest															
Natural Gas	20.2	15.9	27.3	24.6	25.1	13.2	27.5	18.0	21.6	13.1	29.9	18.2	88.1	83.8	82.8
Coal	21.7	18.1	26.9	22.1	21.0	18.1	28.4	22.9	15.4	11.4	22.3	20.8	88.8	90.4	69.9
Nuclear	2.5	2.3	2.5	2.6	2.5	1.2	2.4	2.4	2.4	2.4	2.4	2.4	9.9	8.6	9.7
Conventional hydropower	38.7	35.7	34.0	26.9	26.7	33.2	28.4	27.7	34.7	39.5	30.8	28.3	135.2	116.0	133.3
Nonhydro renewables (d)	19.2	20.4	16.0	18.0	20.1	23.0	19.8	21.2	22.3	25.7	22.6	22.0	73.6	84.0	92.6
Other energy sources (e)	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.8	0.5	0.4
Total generation	102.5	92.6	106.9	94.4	95.5	88.8	106.7	92.3	96.4	92.3	108.2	91.9	396.3	383.2	388.8
Net energy for load (f)	85.2	76.8	87.4	86.8	88.7	78.8	87.5	81.5	84.3	77.5	87.2	81.3	336.2	336.5	330.4
Southwest															
Natural Gas	9.7	13.2	19.0	13.9	11.6	15.5	22.1	14.6	8.6	14.2	22.3	14.4	55.8	63.8	59.4
Coal	6.1	6.3	8.1	6.2	5.8	4.2	5.8	4.8	6.4	4.7	5.4	4.8	26.7	20.5	21.4
Nuclear	8.2	7.5	8.7	7.6	8.6	7.3	8.6	7.5	8.5	7.4	8.6	7.6	31.9	32.0	32.1
Conventional hydropower	2.0	2.1	1.8	1.4	1.5	2.6	2.6	1.5	1.9	2.3	2.0	1.6	7.4	8.2	7.8
Nonhydro renewables (d)	5.8	7.0	5.2	5.6	5.8	6.8	5.4	5.7	7.3	8.0	6.1	6.4	23.6	23.8	27.9
Other energy sources (e)	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.2	0.1
Total generation	31.8	36.0	43.0	34.7	33.3	36.4	44.6	34.1	32.7	36.6	44.5	34.9	145.5	148.4	148.7
Net energy for load (f)	27.4	34.1	42.0	28.8	28.2	33.8	45.2	29.0	27.9	34.9	45.6	29.0	132.3	136.2	137.4
California															
Natural Gas	15.7	15.2	29.4	25.5	19.3	11.8	27.1	20.2	14.4	11.7	24.1	18.5	85.9	78.5	68.8
Coal	0.5	0.7	2.4	1.9	1.3	1.0	2.7	1.7	1.0	1.0	2.6	1.8	5.5	6.8	6.4
Nuclear	4.6	4.2	5.0	3.8	4.7	4.8	4.6	4.1	4.7	3.6	4.7	4.7	17.6	18.1	17.7
Conventional hydropower	3.6	5.2	5.2	2.8	6.1	10.3	8.1	4.6	5.9	8.9	8.0	4.3	16.9	29.0	27.2
Nonhydro renewables (d)	15.4	21.5	19.4	14.8	16.1	23.1	21.5	16.1	17.5	24.0	23.8	17.1	71.2	76.8	82.4
Other energy sources (e)	0.0	-0.2	0.1	-0.2	-0.3	-0.2	0.0	-0.3	-0.5	-0.3	-0.1	-0.5	-0.2	-0.9	-1.4
Total generation	39.8	46.6	61.6	48.7	47.1	50.9	64.0	46.4	43.1	48.9	63.1	45.9	196.7	208.3	201.1
Net energy for load (f)	59.2	64.4	81.3	63.6	60.5	63.6	82.5	62.3	60.1	65.4	83.0	62.3	268.4	268.9	270.8

(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 May 4, 2022.
 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 - May 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	0.034	0.033	0.039	0.034	0.031	0.024	0.039	0.034	0.146	0.140	0.128
Hydroelectric Power (a)	0.656	0.612	0.552	0.486	0.566	0.656	0.561	0.526	0.640	0.700	0.577	0.531	2.307	2.309	2.449
Solar (b)	0.258	0.393	0.384	0.244	0.279	0.486	0.493	0.327	0.395	0.661	0.685	0.433	1.279	1.584	2.174
Waste Biomass (c)	0.055	0.053	0.053	0.052	0.052	0.051	0.051	0.050	0.051	0.051	0.051	0.050	0.213	0.203	0.203
Wood Biomass	0.051	0.046	0.055	0.047	0.046	0.043	0.052	0.045	0.047	0.044	0.053	0.046	0.200	0.185	0.189
Wind	1.052	1.070	0.713	1.007	1.119	1.106	0.780	1.074	1.198	1.148	0.803	1.116	3.842	4.078	4.265
Subtotal	2.109	2.210	1.794	1.874	2.095	2.374	1.975	2.056	2.363	2.627	2.208	2.210	7.987	8.499	9.408
Industrial Sector															
Biofuel Losses and Co-products (d)	0.203	0.203	0.197	0.206	0.199	0.203	0.201	0.202	0.203	0.204	0.203	0.210	0.808	0.805	0.820
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)	0.003	0.005	0.005	0.003	0.005	0.012	0.012	0.008	0.009	0.013	0.013	0.009	0.016	0.038	0.045
Waste Biomass (c)	0.042	0.040	0.037	0.042	0.041	0.040	0.039	0.041	0.041	0.040	0.039	0.041	0.161	0.161	0.162
Wood Biomass	0.319	0.324	0.322	0.314	0.316	0.325	0.341	0.345	0.334	0.331	0.343	0.346	1.278	1.327	1.355
Subtotal (e)	0.575	0.579	0.569	0.573	0.570	0.588	0.601	0.604	0.595	0.596	0.607	0.614	2.296	2.363	2.412
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)	0.013	0.019	0.019	0.013	0.024	0.054	0.056	0.039	0.045	0.065	0.066	0.046	0.065	0.173	0.223
Waste Biomass (c)	0.009	0.009	0.009	0.009	0.010	0.009	0.009	0.009	0.010	0.009	0.009	0.009	0.037	0.037	0.037
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	0.083
Subtotal (e)	0.057	0.063	0.064	0.057	0.068	0.099	0.100	0.082	0.089	0.109	0.110	0.090	0.240	0.348	0.398
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	0.149	0.152	0.106	0.119	0.184	0.187	0.131	0.395	0.506	0.621
Wood Biomass	0.133	0.134	0.136	0.136	0.136	0.134	0.136	0.136	0.136	0.134	0.136	0.136	0.539	0.542	0.542
Subtotal	0.221	0.260	0.263	0.230	0.244	0.294	0.297	0.252	0.265	0.328	0.333	0.277	0.974	1.087	1.203
Transportation Sector															
Biodiesel, Renewable Diesel, and Other (g) ...	0.094	0.117	0.116	0.125	0.137	0.144	0.147	0.152	0.153	0.175	0.189	0.201	0.451	0.580	0.718
Ethanol (g)	0.259	0.281	0.279	0.281	0.269	0.291	0.288	0.281	0.274	0.289	0.289	0.291	1.100	1.129	1.142
Subtotal	0.353	0.397	0.395	0.406	0.405	0.435	0.435	0.433	0.426	0.465	0.478	0.492	1.551	1.708	1.861
All Sectors Total															
Biodiesel, Renewable Diesel, and Other (g) ...	0.094	0.117	0.116	0.125	0.137	0.144	0.147	0.152	0.153	0.175	0.189	0.201	0.451	0.580	0.718
Biofuel Losses and Co-products (d)	0.203	0.203	0.197	0.206	0.199	0.203	0.201	0.202	0.203	0.204	0.203	0.210	0.808	0.805	0.820
Ethanol (f)	0.271	0.293	0.292	0.294	0.281	0.303	0.299	0.293	0.285	0.301	0.301	0.303	1.149	1.176	1.189
Geothermal	0.053	0.052	0.054	0.055	0.051	0.050	0.056	0.051	0.048	0.041	0.056	0.051	0.214	0.209	0.196
Hydroelectric Power (a)	0.659	0.615	0.555	0.489	0.569	0.658	0.564	0.529	0.643	0.703	0.579	0.533	2.317	2.319	2.459
Solar (b)(f)	0.353	0.533	0.525	0.344	0.407	0.702	0.712	0.480	0.568	0.923	0.952	0.620	1.755	2.300	3.063
Waste Biomass (c)	0.106	0.102	0.099	0.103	0.102	0.099	0.099	0.101	0.103	0.100	0.099	0.100	0.411	0.402	0.402
Wood Biomass	0.523	0.525	0.534	0.518	0.518	0.523	0.550	0.546	0.537	0.530	0.553	0.548	2.100	2.137	2.169
Wind	1.052	1.070	0.713	1.007	1.119	1.106	0.780	1.074	1.198	1.148	0.803	1.116	3.842	4.078	4.265
Total Consumption	3.313	3.509	3.084	3.139	3.382	3.788	3.408	3.427	3.738	4.125	3.735	3.682	13.044	14.004	15.281

- (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 May 4, 2022.

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 - May 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	20,281	20,271	20,336	20,437	20,529	20,634	20,739	20,850	20,014	20,331	20,688
Real Personal Consumption Expend. (billion chained 2012 dollars - SAAR)	14,028	14,099	14,179	14,215	14,382	14,383	14,435	14,497	14,536	14,598	14,667	14,741	14,130	14,424	14,635
Real Private Fixed Investment (billion chained 2012 dollars - SAAR)	3,629	3,582	3,550	3,516	3,507	3,499	3,496	3,517	3,543	3,570	3,592	3,619	3,569	3,505	3,581
Business Inventory Change (billion chained 2012 dollars - SAAR)	257	145	71	162	79	48	16	24	47	64	74	80	159	42	66
Real Government Expenditures (billion chained 2012 dollars - SAAR)	3,393	3,379	3,411	3,442	3,468	3,470	3,484	3,493	3,503	3,512	3,519	3,527	3,406	3,479	3,515
Real Exports of Goods & Services (billion chained 2012 dollars - SAAR)	2,437	2,517	2,604	2,580	2,611	2,648	2,688	2,720	2,753	2,783	2,817	2,850	2,534	2,667	2,801
Real Imports of Goods & Services (billion chained 2012 dollars - SAAR)	3,926	3,947	3,873	3,818	3,853	3,885	3,894	3,923	3,959	3,996	4,031	4,071	3,891	3,889	4,014
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	15,109	15,022	15,141	15,325	15,622	15,692	15,776	15,854	15,977	16,110	16,224	16,331	15,149	15,736	16,161
Non-Farm Employment (millions)	150.8	152.0	153.3	154.3	155.3	155.8	155.8	155.8	155.8	155.9	156.0	156.1	152.6	155.7	156.0
Civilian Unemployment Rate (percent)	3.8	3.6	3.6	3.6	3.5	3.6	3.8	4.0	4.1	4.2	4.2	4.2	3.6	3.7	4.2
Housing Starts (millions - SAAR)	1.72	1.65	1.45	1.40	1.37	1.30	1.27	1.29	1.31	1.34	1.38	1.41	1.55	1.31	1.36
Industrial Production Indices (Index, 2017=100)															
Total Industrial Production	101.7	102.8	103.3	102.7	102.7	102.8	102.5	102.6	102.9	103.2	103.5	103.9	102.6	102.7	103.4
Manufacturing	100.1	100.8	100.9	100.1	100.2	99.6	99.6	100.1	100.5	101.1	101.7	102.4	100.5	99.9	101.4
Food	105.1	105.1	104.8	104.6	105.5	106.0	106.4	106.7	107.0	107.4	107.8	108.2	104.9	106.1	107.6
Paper	95.9	96.2	92.7	89.1	86.9	86.1	86.2	86.4	86.4	86.5	86.7	86.9	93.5	86.4	86.6
Petroleum and Coal Products	89.8	89.6	90.1	89.8	88.7	88.9	89.2	89.4	89.5	89.5	89.6	89.7	89.8	89.1	89.6
Chemicals	102.1	102.3	102.4	101.0	103.5	104.0	104.7	105.2	105.5	106.1	106.9	107.5	101.9	104.3	106.5
Nonmetallic Mineral Products	107.1	108.0	109.7	110.6	111.9	112.2	112.5	112.8	113.3	113.9	114.6	115.3	108.9	112.4	114.3
Primary Metals	94.9	96.4	95.7	92.6	92.8	92.4	93.8	94.1	93.7	94.1	95.0	95.6	94.9	93.3	94.6
Coal-weighted Manufacturing (a)	97.4	97.7	97.2	95.2	95.8	95.7	96.4	96.6	96.5	96.8	97.4	97.8	96.9	96.1	97.1
Distillate-weighted Manufacturing (a)	100.0	100.5	100.4	99.2	99.3	99.1	99.3	99.6	99.9	100.3	101.0	101.5	100.0	99.3	100.7
Electricity-weighted Manufacturing (a)	98.5	98.8	98.2	96.0	96.5	96.4	96.9	97.3	97.4	97.8	98.5	99.0	97.9	96.8	98.2
Natural Gas-weighted Manufacturing (a)	97.0	96.7	95.6	92.7	93.9	93.8	94.5	94.7	94.6	94.9	95.4	95.9	95.5	94.2	95.2
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	3.08	3.09	3.11	3.12	3.14	2.93	3.04	3.12
Producer Price Index: All Commodities (index, 1982=1.00)	2.53	2.72	2.70	2.63	2.53	2.46	2.44	2.43	2.43	2.41	2.41	2.41	2.64	2.46	2.41
Producer Price Index: Petroleum (index, 1982=1.00)	3.16	4.21	3.74	3.44	3.10	2.52	2.41	2.36	2.36	2.37	2.33	2.24	3.64	2.60	2.33
GDP Implicit Price Deflator (index, 2012=100)	124.2	126.9	128.3	129.5	130.7	131.5	132.4	133.4	134.2	135.0	135.7	136.3	127.2	132.0	135.3
Miscellaneous															
Vehicle Miles Traveled (b) (million miles/day)	8,143	8,914	9,066	8,601	8,373	9,133	9,254	8,887	8,459	9,290	9,419	9,010	8,683	8,914	9,045
Air Travel Capacity (Available ton-miles/day, thousands)	656	686	692	700	670	705	719	696	665	709	731	711	684	698	704
Aircraft Utilization (Revenue ton-miles/day, thousands)	356	419	422	407	375	429	439	410	388	434	441	421	401	414	421
Airline Ticket Price Index (index, 1982-1984=100)	225.6	328.7	293.1	285.2	277.6	331.6	311.5	317.5	310.5	349.0	318.1	312.5	283.1	309.5	322.5
Raw Steel Production (million short tons per day)	0.253	0.253	0.247	0.235	0.236	0.241	0.246	0.244	0.240	0.245	0.250	0.248	0.247	0.242	0.246
Carbon Dioxide (CO2) Emissions (million metric tons)															
Petroleum	562	564	576	571	549	572	577	578	566	575	581	581	2,273	2,276	2,303
Natural Gas	510	374	401	461	494	376	401	451	498	362	397	445	1,746	1,722	1,702
Coal	244	215	264	212	189	188	265	179	192	175	246	179	935	820	791
Total Energy (c)	1,319	1,155	1,244	1,246	1,235	1,139	1,246	1,211	1,258	1,114	1,227	1,208	4,964	4,830	4,807

(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 May 4, 2022.

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 9c. U.S. Regional Weather Data

U.S. Energy Information Administration | Short-Term Energy Outlook - May 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	3,139	788	116	1,984	2,712	807	132	2,062	2,981	829	132	2,054	6,026	5,713	5,995
Middle Atlantic	2,936	668	72	1,962	2,458	640	87	1,887	2,756	662	87	1,881	5,638	5,073	5,385
E. N. Central	3,268	753	99	2,226	2,726	773	122	2,160	3,038	710	122	2,155	6,347	5,781	6,026
W. N. Central	3,486	792	112	2,516	3,166	777	154	2,363	3,183	708	154	2,360	6,905	6,461	6,406
South Atlantic	1,341	189	13	978	1,055	207	13	898	1,295	181	13	892	2,521	2,173	2,380
E. S. Central	1,827	249	22	1,338	1,392	306	20	1,247	1,712	236	19	1,242	3,435	2,964	3,210
W. S. Central	1,335	57	2	801	927	128	5	775	1,106	86	5	772	2,195	1,835	1,968
Mountain	2,294	734	84	2,015	2,559	751	152	1,820	2,139	701	152	1,815	5,127	5,283	4,807
Pacific	1,405	606	49	1,298	1,822	628	94	1,148	1,424	576	94	1,144	3,358	3,692	3,239
U.S. Average	2,147	491	54	1,552	1,919	509	75	1,461	2,005	472	75	1,455	4,244	3,965	4,007
Heating Degree Days, Prior 10-year Average															
New England	3,100	853	107	2,103	3,151	859	106	2,093	3,110	855	103	2,070	6,163	6,209	6,138
Middle Atlantic	2,881	681	70	1,904	2,939	689	69	1,907	2,890	684	65	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	743	94	2,139	6,119	6,218	6,134
W. N. Central	3,221	726	125	2,358	3,319	754	121	2,374	3,295	741	126	2,338	6,430	6,568	6,500
South Atlantic	1,381	187	11	907	1,403	190	10	905	1,356	189	10	896	2,486	2,508	2,452
E. S. Central	1,764	244	15	1,229	1,811	251	14	1,231	1,757	253	15	1,214	3,251	3,307	3,238
W. S. Central	1,144	93	3	753	1,188	95	3	762	1,163	94	3	738	1,993	2,048	1,999
Mountain	2,173	681	131	1,810	2,193	697	128	1,834	2,207	699	131	1,817	4,794	4,851	4,853
Pacific	1,457	523	79	1,138	1,442	523	75	1,150	1,468	536	77	1,142	3,196	3,190	3,223
U.S. Average	2,095	478	62	1,472	2,132	485	60	1,477	2,102	485	60	1,457	4,107	4,155	4,104
Cooling Degree Days															
New England	0	80	560	0	0	98	503	1	0	99	509	1	640	603	609
Middle Atlantic	0	153	686	1	0	183	657	5	0	185	663	5	840	845	853
E. N. Central	1	257	555	2	0	228	604	7	1	249	608	7	814	839	865
W. N. Central	3	306	734	8	1	277	731	11	5	298	735	11	1,050	1,021	1,049
South Atlantic	154	709	1,197	230	205	686	1,277	254	138	711	1,285	257	2,291	2,422	2,390
E. S. Central	28	598	1,063	37	63	494	1,124	67	34	545	1,129	68	1,726	1,749	1,775
W. S. Central	57	1,093	1,665	173	152	897	1,619	209	104	923	1,626	210	2,988	2,877	2,862
Mountain	17	472	1,021	66	3	425	1,024	83	21	456	1,031	84	1,577	1,535	1,591
Pacific	31	220	757	80	26	176	712	78	28	205	719	79	1,087	993	1,030
U.S. Average	46	466	950	89	69	420	960	104	50	444	968	105	1,552	1,552	1,566
Cooling Degree Days, Prior 10-year Average															
New England	0	87	472	2	0	87	480	2	0	87	485	2	561	569	575
Middle Atlantic	0	163	612	8	0	160	617	8	0	163	631	8	783	785	801
E. N. Central	3	238	571	9	1	234	561	10	1	235	574	10	821	805	820
W. N. Central	7	299	682	11	4	292	674	12	4	297	682	12	999	982	995
South Atlantic	146	667	1,188	268	143	674	1,192	272	153	683	1,216	272	2,269	2,282	2,324
E. S. Central	44	517	1,056	83	36	520	1,058	83	41	524	1,079	84	1,701	1,697	1,728
W. S. Central	113	852	1,537	224	101	860	1,549	223	109	872	1,559	227	2,726	2,733	2,767
Mountain	24	463	954	85	24	460	959	83	22	455	969	86	1,526	1,526	1,532
Pacific	31	208	664	85	32	213	675	86	32	209	686	89	988	1,005	1,016
U.S. Average	53	413	890	109	50	415	895	109	53	420	910	111	1,464	1,470	1,495

- = no data available

Notes: EIA completed modeling and analysis for this report on May 4, 2022.

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: Based on forecasts by the NOAA Climate Prediction Center (<http://www.cpc.ncep.noaa.gov/pacdir/DDdir/NHOME3.shtml>).