

# **Short-Term Energy Outlook**

**STEO**

**September 2023**



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# Short-Term Energy Outlook

## Overview

U.S. energy market indicators	2022	2023	2024
<b>Brent crude oil spot price</b> (dollars per barrel)	<b>\$101</b>	<b>\$84</b>	<b>\$88</b>
<b>Retail gasoline price</b> (dollars per gallon)	<b>\$3.97</b>	<b>\$3.60</b>	<b>\$3.52</b>
<b>U.S. crude oil production</b> (million barrels per day)	<b>11.91</b>	<b>12.78</b>	<b>13.16</b>
<b>Natural gas price at Henry Hub</b> (dollars per million British thermal units)	<b>\$6.42</b>	<b>\$2.58</b>	<b>\$3.24</b>
<b>U.S. liquefied natural gas gross exports</b> (billion cubic feet per day)	<b>10.6</b>	<b>11.6</b>	<b>13.2</b>
<b>Shares of U.S. electricity generation</b>			
Natural gas	39%	42%	40%
Coal	20%	16%	15%
Renewables	22%	22%	25%
Nuclear	19%	19%	19%
<b>U.S. GDP</b> (percentage change)	<b>2.1%</b>	<b>2.2%</b>	<b>1.4%</b>
<b>U.S. CO<sub>2</sub> emissions</b> (billion metric tons)	<b>4.96</b>	<b>4.79</b>	<b>4.75</b>

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

- Global oil production.** This *Short-Term Energy Outlook* (STEO) incorporates Saudi Arabia's September 5 announcement to continue its voluntary crude oil production cut of 1 million barrels per day (b/d) through the end of this year. Previously, the voluntary cut was set to expire at the end of September. Global oil inventories in our forecast fall by 0.2 million b/d in the fourth quarter of 2023 (4Q23) based on the extension of this production cut.
- Crude oil prices.** We expect the Brent crude oil price to average \$93 per barrel (b) during 4Q23, up from \$86/b in August. A decline in global oil inventories in the coming months supports the Brent price in our forecast. The price eases to an average of \$87/b by the second half of 2024 because we expect global oil inventories to rise during that period.
- U.S. gasoline consumption.** We reduced our U.S. gasoline consumption forecast because the U.S. Census Bureau revised its population estimates for the United States to include fewer people of working age and more people of retirement age, who tend to drive less. The revised population estimates have also resulted in a downward revision of our [vehicle miles traveled](#) (VMT) forecast, which directly affects motor gasoline consumption. We forecast U.S. gasoline consumption will average 8.9 million b/d in 2023 and 8.7 million b/d in 2024. Our 2024 forecast is down by 0.2 million b/d from our August STEO.
- Total U.S. liquid fuels consumption.** In our forecast, U.S. liquid fuels consumption averages 20.1 million b/d in 2023, down 0.3 million b/d from last month's forecast. In addition to reduced gasoline

consumption, this forecast incorporates [changes to the Petroleum Supply Monthly](#) that reclassified natural gasoline and unfinished oils from product supplied to crude oil supply to more accurately represent the use of these products. These changes also reduce our forecast 2024 consumption by 0.5 million b/d to 20.3 million b/d.

- **Natural gas consumption.** U.S. natural gas consumption in our forecast averages 80.5 billion cubic feet per day (Bcf/d) in September, an increase of 5% from last September and a record for September. The increase follows a period of elevated natural gas-fired electricity generation from strong U.S. air-conditioning demand in response to summer heat as well as reduced generation from coal-fired plants.
- **Electricity generation.** We forecast electricity generation in 3Q23 will increase by 2% in the United States from the same period last year. The increase largely reflects warmer temperatures this summer and it follows a year-over-year 4% decline in electricity output during the first half of 2023.
- **Propane price.** Beginning with this STEO, we are publishing a forecast for the Mont Belvieu propane spot price. One of our [Between the Lines](#) supplements this month discusses this forecast in more detail.

#### Notable forecast changes

current forecast: September 12, 2023; previous forecast: August 8, 2023	2023	2024
<b>Total U.S. liquid fuels consumption (current forecast)</b> (million barrels per day)	<b>20.1</b>	<b>20.3</b>
Previous forecast	20.5	20.7
Percentage change	-1.6%	-2.2%
<b>U.S. gasoline consumption (current forecast)</b> (million barrels per day)	<b>8.9</b>	<b>8.7</b>
Previous forecast	8.9	8.9
Percentage change	-0.4%	-2.0%
<b>U.S. diesel retail price (current forecast)</b> (dollars per gallon)	<b>\$4.31</b>	<b>\$4.07</b>
Previous forecast	\$4.17	\$3.94
Percentage change	3.5%	3.4%
<b>U.S. natural gas consumption in the electric power sector (current forecast)</b> (billion cubic feet per day)	<b>35.3</b>	<b>33.9</b>
Previous forecast	34.8	33.5
Percentage change	1.5%	1.3%
<b>U.S. Real gross domestic product (current forecast)</b> (percentage)	<b>2.2%</b>	<b>1.4%</b>
Previous forecast	1.9%	1.2%
Percentage point change	0.3	0.2

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

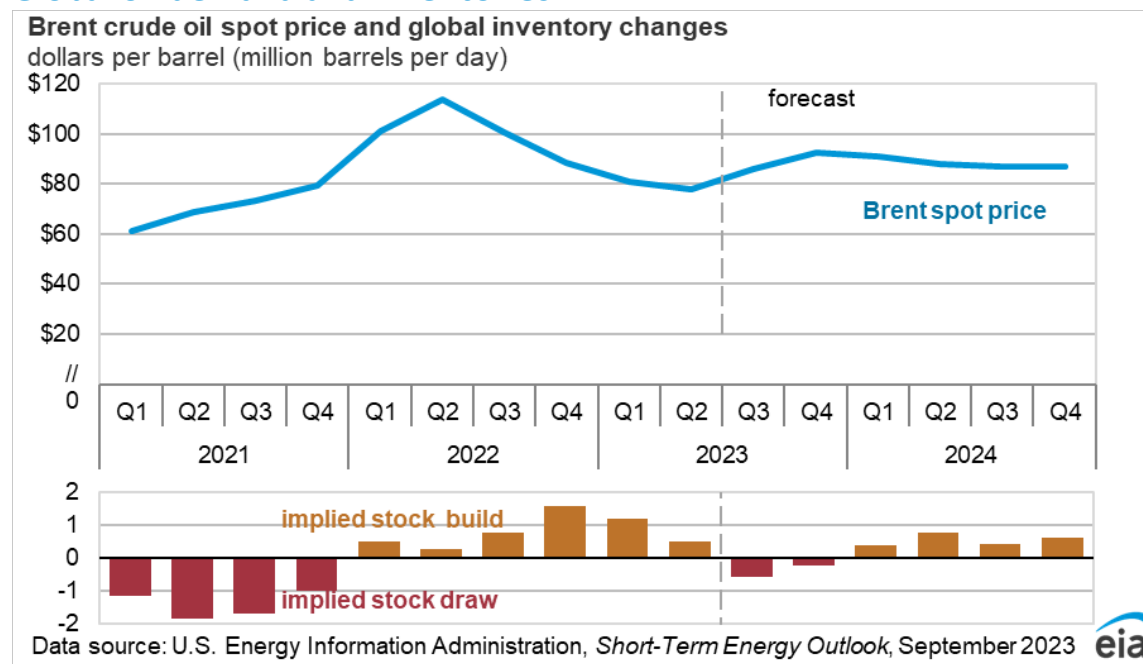
## Global Oil Markets

### Global oil prices

Following Saudi Arabia's September 5 announcement to extend its voluntary 1 million barrel per day (b/d) production cut through the end of this year, we expect that global oil inventories will fall over that period, adding upward pressure to oil prices in the coming months. The Brent crude oil spot price in our forecast averages \$93 dollars per barrel (b) in the fourth quarter of 2023 (4Q23). Prices should decline beginning in 2024 as oil inventories build, with prices averaging \$88/b next year. The inventory builds next year largely reflect slowing oil demand growth, non-OPEC oil production growth, and the end of Saudi Arabia's voluntary production cuts.

The Brent spot price averaged \$86/b in August, up \$11/b since June. Oil prices increased in August primarily because Saudi Arabia extended voluntary crude oil production cuts through September and [U.S. commercial crude oil inventories](#) ended August at their lowest level since December 2022.

### Global oil demand and inventories



Our current assessment is that global oil inventories are falling by 0.6 million b/d in 3Q23. Inventory draws moderate to 0.2 million in 4Q23, but OPEC+ cuts to oil production keep global oil production lower than global oil demand. As a result, we expect the Brent spot price will remain above \$90/b through 1Q24 before averaging \$87/b over the remaining three quarters of next year. However, the potential for continued voluntary production cuts creates some upside risk for oil prices.

### Global oil supply

We forecast global liquid fuels production will increase by 1.2 million b/d in 2023 despite recent voluntary decreases in production from OPEC+. Global production in our forecast increases by 1.7 million b/d in 2024. Non-OPEC production is the main driver of global production growth in our forecast,

increasing by 2.0 million b/d in 2023 and 1.3 million b/d in 2024, led by the United States, Brazil, Canada, and Guyana. We expect Russia's production will decline by 0.3 million b/d on average this year and remain relatively unchanged in 2024. We forecast that OPEC crude oil production will fall by 0.8 million b/d in 2023 and increase by 0.4 million b/d in 2024.

## Petroleum Products

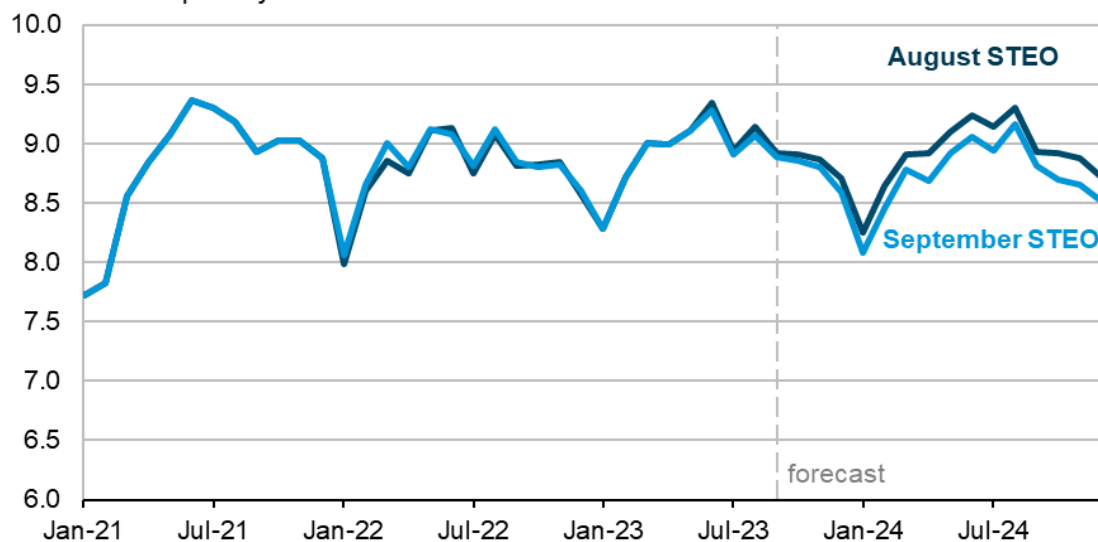
### U.S. motor gasoline consumption


We reduced our [vehicle miles traveled](#) (VMT) forecast—which directly affects motor gasoline consumption—following the release of new population estimates from the [U.S. Census Bureau](#). The revision increased the share of the U.S. population over 65, which reduced our forecast for VMT and gasoline consumption because it decreased our estimate of the working-age population commuters. In our September STEO forecast, the share of the U.S. population that will be over 65 is 18.2% in 2024, up from our August STEO forecast of 18.0%. This seemingly small increase adds 0.7 million individuals to the population of adults over 65. Although the total population remained unchanged, the U.S. Census Bureau revised the population under the age of 15 down by 0.5 million and the working-age population down by 0.2 million people. We define the working-age population as ages 15–64 because this group accounts for the bulk of the workforce and regular commuting.

In our September STEO, we forecast U.S. gasoline consumption will average 8.9 million barrels per day (b/d) in 2023 and 8.7 million b/d in 2024 (down from our August STEO forecast of 8.9 million b/d in 2024). As a result of the revisions, we forecast that gasoline consumption will decline by 1.6% in 2024 compared with this year.

#### U.S. motor gasoline consumption

million barrels per day



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

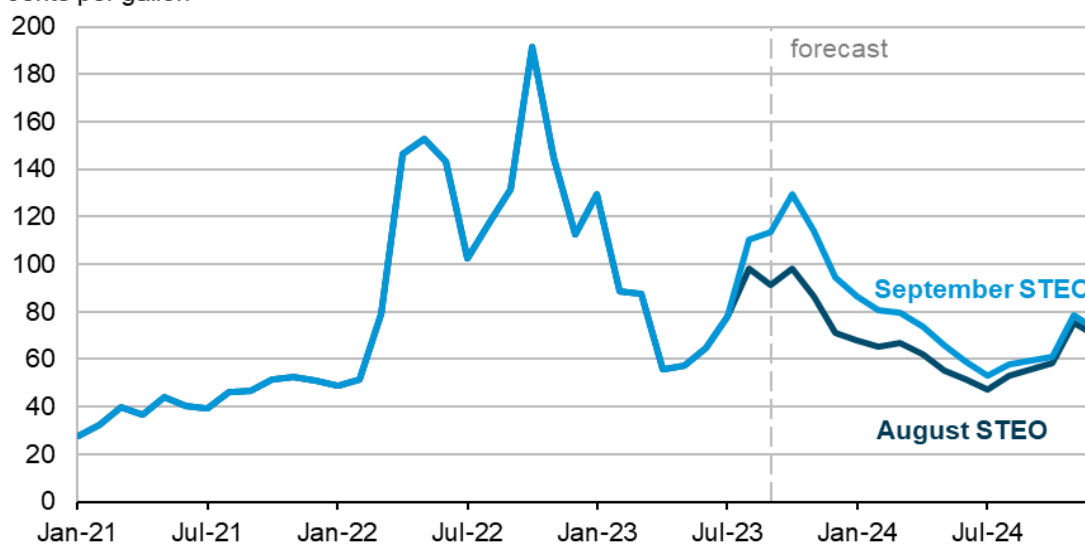
## U.S. diesel crack spread


We raised our diesel price forecast because of higher-than-expected August diesel [crack spreads](#) (the price of a gallon of diesel minus the price of a gallon of crude oil) and our expectation for lower distillate inventories in the fall. [Announced maintenance](#) at the Irving Oil refinery in St. John, New Brunswick, and at the Monroe Energy refinery in Trainer, Pennsylvania, will reduce distillate fuel oil supplies to the East Coast. Total distillate inventories in the United States have been well below average since last year, and we currently estimate U.S. distillate inventories will decline by about 11 million barrels in October, more than the average October draw from 2018–22 of nearly 8 million barrels, largely because of the maintenance. The draw will contribute to additional increases in the distillate crack spread in October, which we estimate will average \$1.29 per gallon (gal), a 31-cent increase compared with the August STEO.

Both seasonal increases in demand along with refinery maintenance will reduce distillate inventories. Increased seasonal demand will also reduce inventories. East Coast distillate demand tends to increase in the winter months because many households in the U.S. Northeast use distillate heating oil, while Midwest distillate demand tends to increase in September and October because of agricultural demand associated with the harvest season. Refinery maintenance and increased end-of-year distillate consumption are typical in most years, but our outlook for higher distillate crack spreads also reflects low global distillate inventories.

### U.S. average distillate crack spread

cents per gallon



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

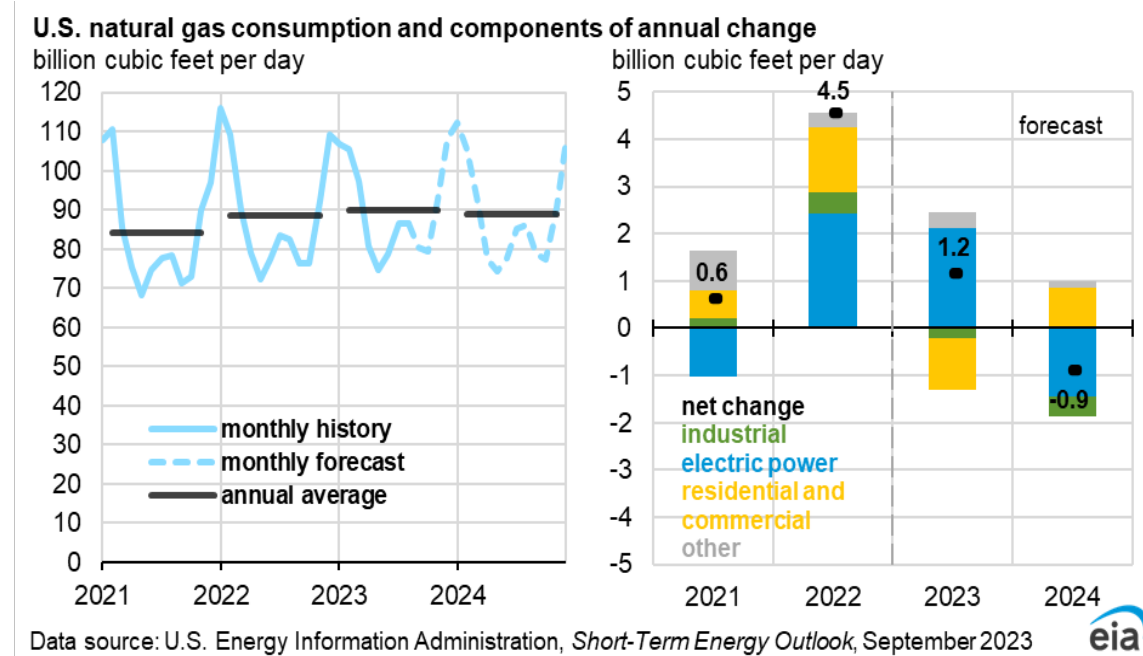
## Natural Gas

### Natural gas consumption

We forecast U.S. natural gas consumption in September to average 80.5 billion cubic feet per day (Bcf/d), a record high for September and up 5% from the previous record set in September 2022. Based

on our estimates, September would be the third straight month of record natural gas consumption in the United States, after records in July (86.5 Bcf/d) and in August (86.7 Bcf/d).

The increase in natural gas consumption in the summer has led to a slight increase in U.S. natural gas consumption in 2023. We forecast U.S. natural gas consumption to average 89.7 Bcf/d for all of 2023, up 1% from 2022. Annual U.S. natural gas consumption set its previous record high in 2022, averaging 88.6 Bcf/d for the year.



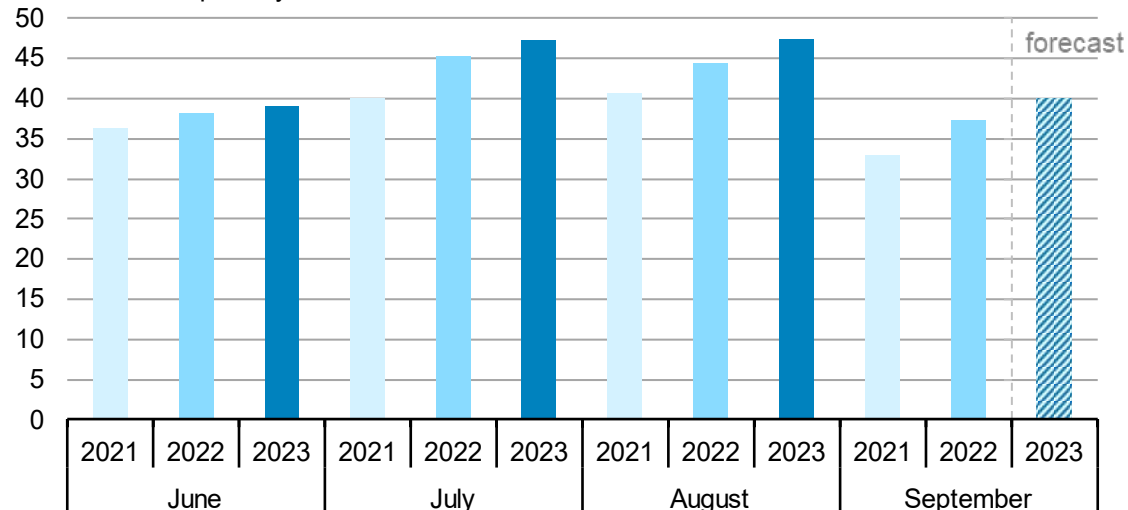
### Electric power sector consumption of natural gas

We forecast natural gas consumption in the U.S. electric power sector will average 40.1 Bcf/d in September, a record for the month and an increase of 7%, or 2.7 Bcf/d, from the previous record set in September 2022. Natural gas consumption for electric power also set monthly records of 47.3 Bcf/d in both July and August, based on STEO estimates. We forecast U.S. natural gas consumption in the electric power sector to average 35.3 Bcf/d for all of 2023, an increase of 6%, or 2.1 Bcf/d, from the previous record set in 2022.



**U.S. natural gas consumption for electric power in summer months**

billion cubic feet per day

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

Note: September 2023 is a forecast.



In the United States, natural gas provides most of the fuel for the increase in summer electricity generation. U.S. natural gas consumption for electric power has set records the past two summers as hot weather has increased demand for air conditioning across the country, particularly in largely populated areas such as Texas, Florida, and Southern California. Increases in air-conditioning demand have led to increases in overall electricity generation. The portion of electricity generation that comes from natural gas has also risen the past two summers reflecting a decline in coal-fired electricity generation, resulting from the [retirement of coal-fired power plants](#). In 2023, natural gas prices for the electric power sector have averaged about \$2.65/MMBtu from June through August, making natural gas a more competitive source of electricity generation compared with coal. In addition, [several new natural gas-fired power plants entered service in 2022 and 2023](#), which increased the electric generation capacity available from natural gas.

In 2024, we forecast annual U.S. natural gas consumption in the power sector to decline between 1 to 2 Bcf/d in (about 4%) compared with 2023. This decline reflects competition from growing electric generation capacity from renewable energy sources, and it drives a small decline in total natural gas consumption next year.

## Electricity, coal, and renewables

### Electricity generation

We expect that high temperatures over much of the nation this summer have raised U.S. electricity generation by about 2% during the third quarter of 2023 (3Q23) compared with 3Q22. The increase comes after relatively low electricity demand in the first half of 2023 reduced generation by 4%.

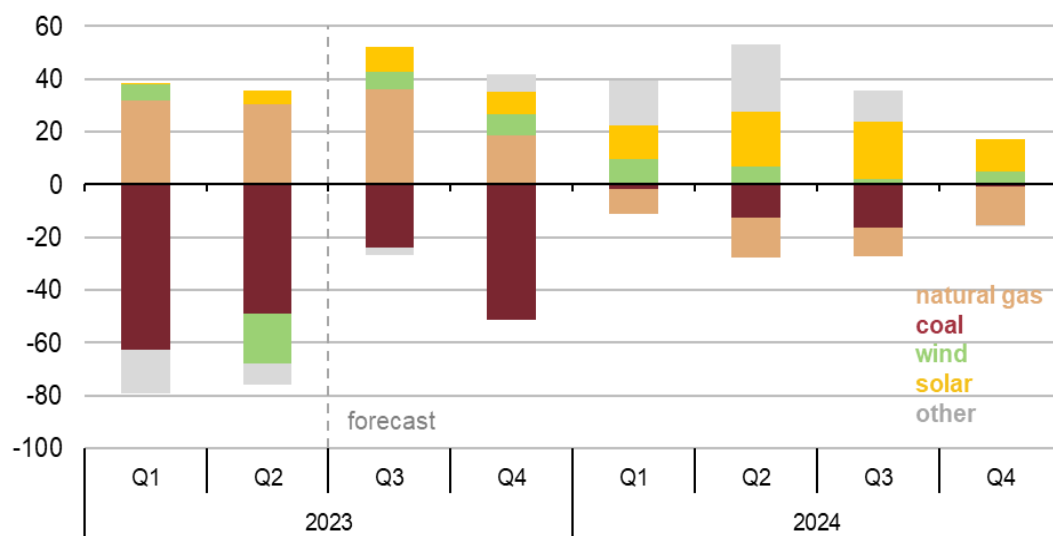
We expect U.S. natural gas-fired power plants will generate a record of more than 1,700 billion kilowatthours (kWh) in 2023, an increase of 7% from 2022. Increased U.S. natural gas generation has

been stimulated by a substantial decline in fuel costs, which we forecast to average near \$3.30 per million British thermal units (MMBtu) in 2023, down more than 50% from 2022. Between 8 gigawatts (GW) and 9 GW of [new natural gas-fired generating capacity](#) this year is also contributing to the increased generation. Although natural gas-fired generation will remain the main source of U.S. electricity in 2024, we forecast that it will decline by 3% in 2024 because of increased generation from renewable energy sources.

Solar and wind have been a [growing source of U.S. electricity generation](#) in recent years. The addition of new generating capacity from solar (up by 11 GW) and wind (up by 8 GW) slowed slightly in 2022 compared with 2021 due to supply chain issues that raised costs. However, favorable financial incentives now in place are driving increases in utility-scale solar capacity of 26 GW in 2023 and 33 GW in 2024, which would be the most solar installations for any year on record.

Renewable capacity additions tend to occur at the end of the calendar year and so affect generation trends the following year. We forecast U.S. generation from renewables other than hydropower will increase by 22 billion kWh in 2023 (up 4%) and by 91 billion kWh in 2024 (up 14%).

**Change in electricity generation from previous year**  
billion kilowatthours



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



## Electricity prices

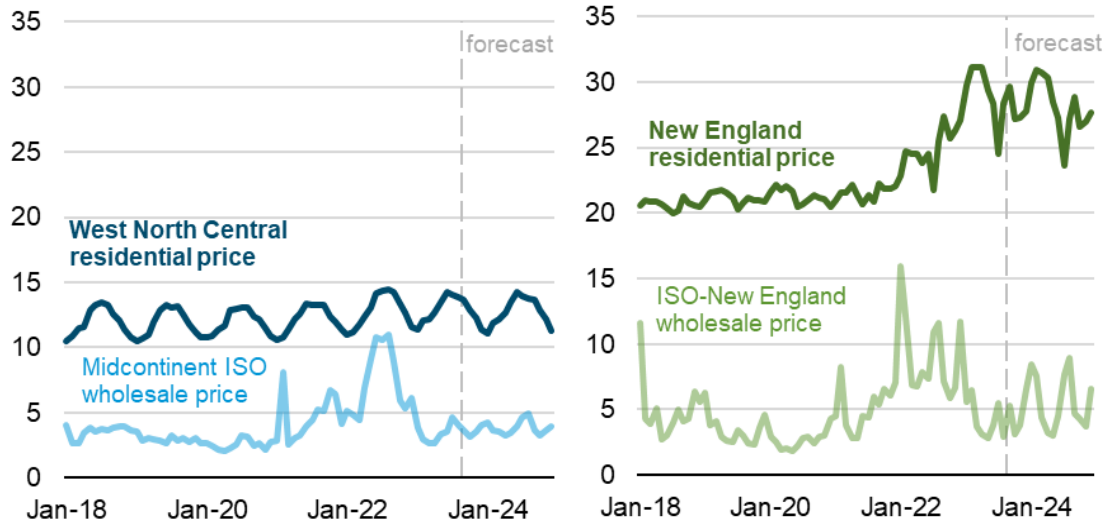
We forecast the average price of electricity to U.S. residential customers will increase by 4% in 2023 to 15.7 cents/kWh. Electricity prices rose about 11% in 2022 to 15.1 cents/kWh due to increases in the cost of producing electricity. Reductions in the wholesale price of electricity, largely due to lower natural gas prices in 2023, should help lower residential prices in the future; our forecast shows average U.S. residential electricity prices declining slightly in 2024 to 15.6 cents/kWh.


Some of the lowest retail electricity prices in the United States are in the midwestern states. For example, the residential price in the West North Central Census Division averaged about 13 cents/kWh in 2022, and wholesale prices at the Midcontinent ISO averaged 7.4 cents/kWh. In contrast, residential

electricity prices in New England averaged 25 cents/kWh in 2022, and the ISO-New England wholesale price averaged 9.2 cents/kWh.

### Residential electricity price and wholesale power price, selected regions

cents per kilowatthour



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

Wholesale power prices are good indicators of the current costs of electricity generation. But retail prices also reflect **longer-term costs** such as maintaining the transmission and distribution system and procuring capacity to supply future demand. A lag exists between when costs are incurred and when they are reflected on retail electricity bills. These longer-term cost components tend to cause retail price increases over time, despite fluctuations in wholesale electricity prices.

We forecast that wholesale prices for both the Midcontinent and New England independent system operators in 2023 and 2024 will average about 40%–50% lower than in 2022. Electricity customers in the West North Central Census Division may see slightly lower rates in 2023 and 2024, reflecting the lower near-term costs of power generation. However, long-term costs of supplying power continue to increase in New England because of capacity constraints in the region and the reliance on high-cost petroleum-fired electricity generation during periods of very cold weather. These dynamics are reflected in our expected New England retail rate increase of 16% in 2023 followed by a 2% reduction in 2024.

### Coal markets

Coal production in our forecast falls to 583 million short tons (MMst) in 2023, 2% less than the 597 MMst mined in 2022. We expect a steeper decline in 2024 when coal production drops 20% to 464 MMst. The reduction in 2024 is due largely to a 20% decrease in electric power sector coal use this year. The delayed response of production to the drop in coal-fired generation results from coal producers fulfilling supply contracts already in place for 2023 and the contracts not being renewed for 2024.

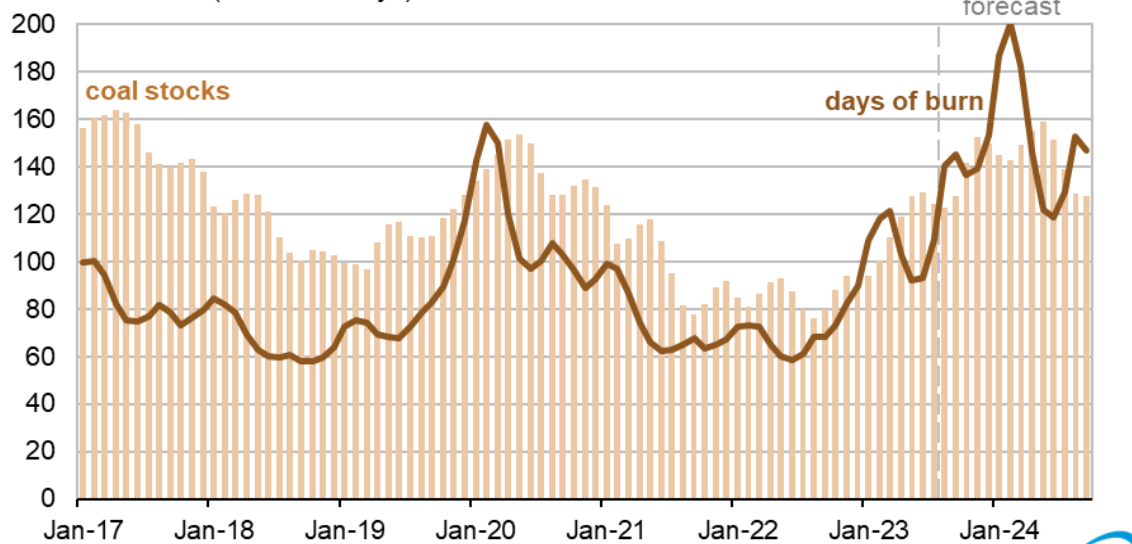
At prevailing prices, coal-fired plants are unable to compete effectively with lower-priced natural gas-fired and renewable energy generation. Poor economics for coal are also resulting in an estimated 9.8 GW (5%) of coal-fired generating capacity being permanently retired this year. Because of greatly


reduced power generation from coal, we forecast that inventories of coal held by power companies will increase 60% in 3Q23 compared with 3Q22. Even though we forecast coal stocks to decline slightly by early 2024, the gap between coal produced and consumed will remain wide in 2023 compared with 2022, when high natural gas prices increased summer demand for coal, but labor shortages slowed coal production and delivery, depleting coal stocks.

Coal stocks allow utilities to generate electricity in times of high demand and when coal production is low or coal delivery is slow. Almost 60 GW of coal-fired generation has retired since the end of 2018, a reduction of 25%, and because older units are usually retired first, the current fleet is more energy efficient and needs less stock to produce the same amount of burn days. As of the end of August, we estimate utilities held coal stocks that would cover 140 days of power burn, compared with an average of 76 days over the past five Augusts.

### U.S. electric power sector coal stocks and days of burn

million short tons (number of days)



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

## Economy, Weather, and CO<sub>2</sub>

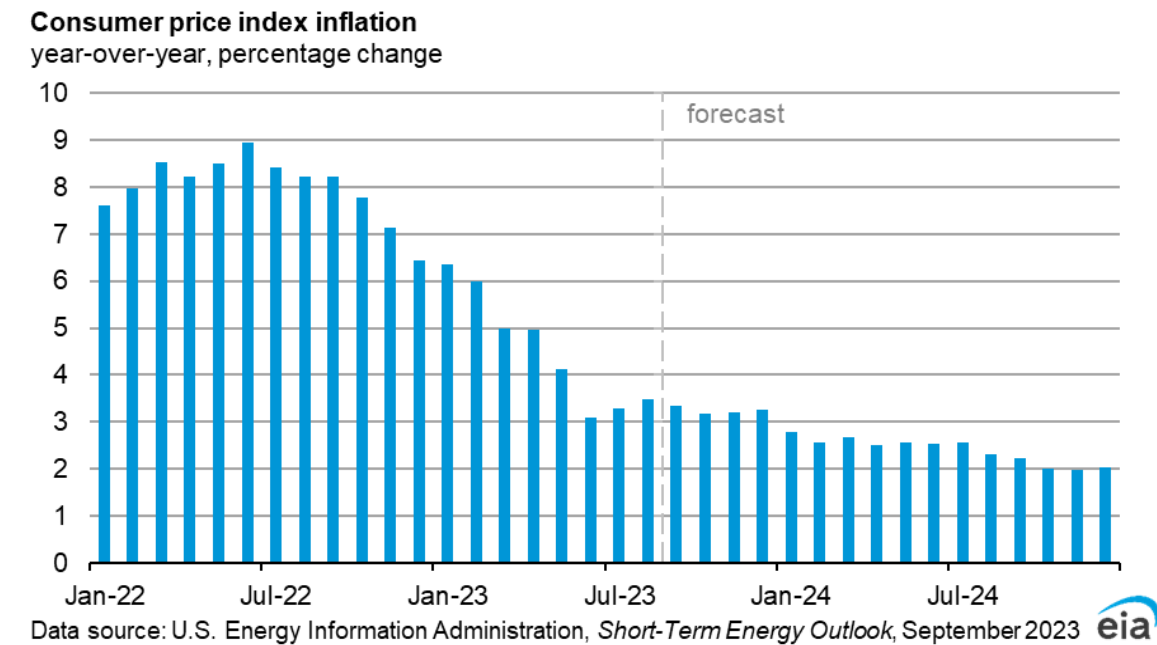
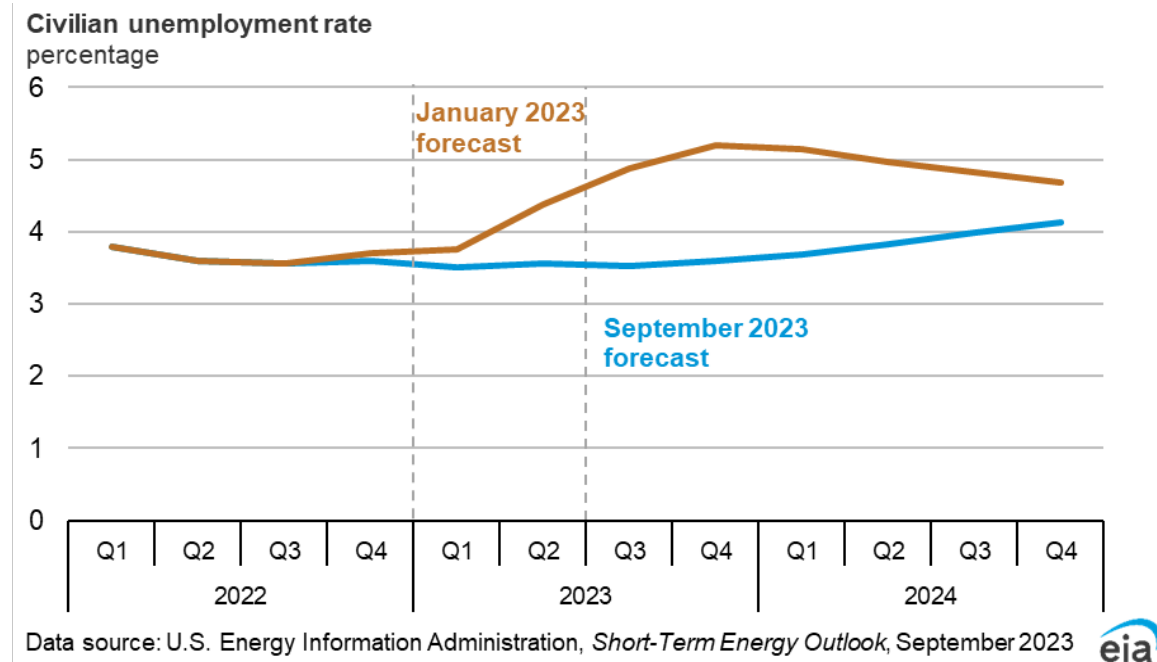
### U.S. macroeconomics

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

Our forecast assumes U.S. real GDP growth will average 2.2% in 2023 and 1.4% in 2024. We increased the GDP forecast after data for second-quarter 2023 (2Q23) GDP growth from the U.S. Bureau of Economic Analysis was stronger than what we had assumed in last month's STEO.

Inflation, measured as the 12-month growth rate of the Consumer Price Index, declined from 6.3% in January to 3.5% in August, but it remains higher than the Federal Reserve's goal of 2.0%. The decline in inflation was not accompanied by the previously expected rise in the unemployment rate. In the January 2023 STEO, our forecast showed the unemployment rate peaking at 5.2% in 4Q23. Our forecast now

assumes the unemployment rate will average 3.5% in 2023 and 3.9% in 2024. Both estimates were revised lower by 0.1 percentage point from the August STEO. Our forecast currently assumes the Federal Reserve will raise the target range for the Federal Funds rate by 0.25 percentage points to 5.50-5.75% before the end of 2024.



## Emissions

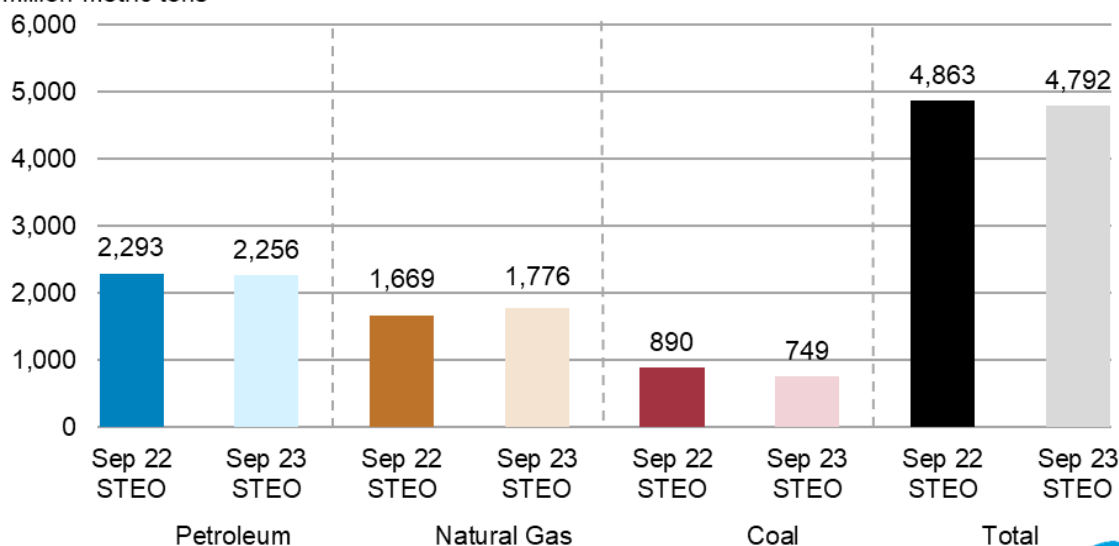
Total energy-related carbon dioxide (CO<sub>2</sub>) emissions in our forecast decrease by 3% in 2023 compared with 2022. The largest reduction in CO<sub>2</sub> emissions comes from reduced use of coal, with emissions

declining by 20% relative to 2022. Emissions from petroleum decrease by 1%, and emissions from natural gas increase by 2%.

Our current forecasts of CO<sub>2</sub> emissions in 2023 are 2% lower than what we forecast in the September 2022 STEO. The difference is primarily a result of a downward revision in coal-related emissions, which we forecast to be 16% lower than last year's estimates. The decrease in coal emissions is partially offset by an increase in natural gas emissions, which we forecast to be 6% higher than last year's forecast. The changes in the coal and natural gas forecasts are mostly due to fuel switching from coal to natural gas for electric power generation. Relative prices between natural gas and coal are often the primary consideration in switching between the two fuels. We forecast the cost of generating electric power from coal in 2023 to be 10% higher than what we predicted in September 2022, while the cost of power generation from natural gas in 2023 is nearly half of what we anticipated in the September 2022 STEO. Petroleum-related CO<sub>2</sub> emissions are about 2% lower in 2023 compared with the September 2022 STEO. This decrease largely reflects the recent reductions petroleum consumption related to our incorporation of [changes to the Petroleum Supply Monthly](#). These changes reduced our estimates of petroleum-related emissions because natural gasoline and unfinished oils we previously assessed were being consumed in the United States were actually being blended into crude oil and either exported and consumed elsewhere or run through U.S. refineries and consumed as other products. Total CO<sub>2</sub> emissions in our forecast remain relatively unchanged between 2023 and 2024.

### 2023 U.S. energy-related CO<sub>2</sub> emissions forecasts

million metric tons



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



## Weather

We forecast that the United States will average 222 [cooling degree days](#) (CDDs) in September, 22 more CDDs than during September 2022 and 18 CDDs more than the ten-year September average. As the summer comes to an end in 3Q23, we expect an average of 1,481 CDDs in all of 2023, about 5% fewer CDDs than in 2022.

# Short-Term Energy Outlook Chart Gallery



September 12, 2023

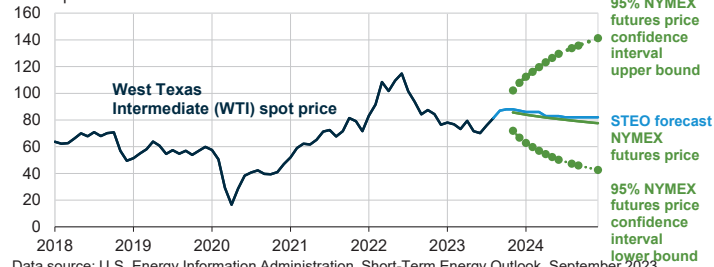


U.S. Energy Information Administration

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

dollars per barrel



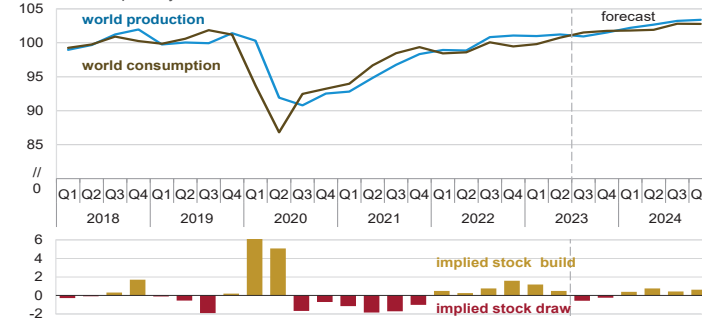
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023, CME Group, Bloomberg, L.P., and Refinitiv an LSEG Business

Note: Confidence interval derived from options market information for the five trading days ending September 7, 2023. Intervals not calculated for months with sparse trading in near-the-money options contracts.



**World liquid fuels production and consumption balance**

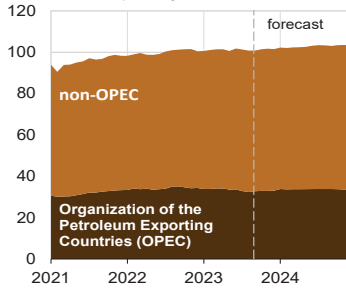
million barrels per day



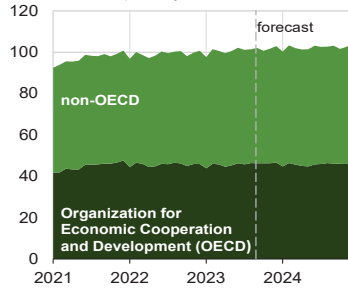
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023



**World liquid fuels production**  
million barrels per day

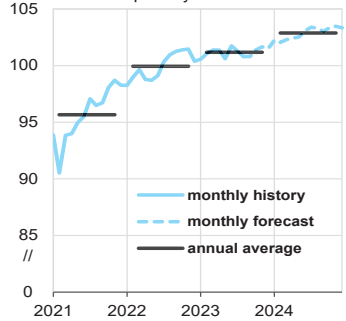


**World liquid fuels consumption**  
million barrels per day

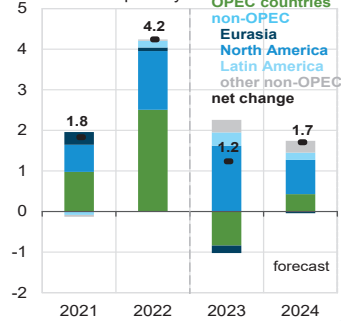


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023

**World crude oil and liquid fuels production**  
million barrels per day

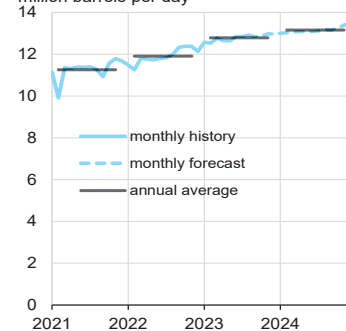


**Components of annual change**  
million barrels per day

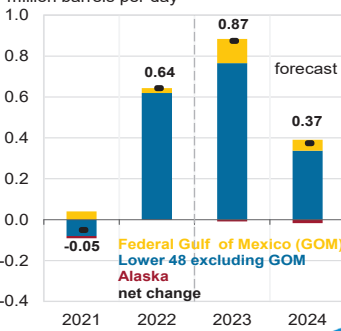


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023

**U.S. crude oil production**  
million barrels per day



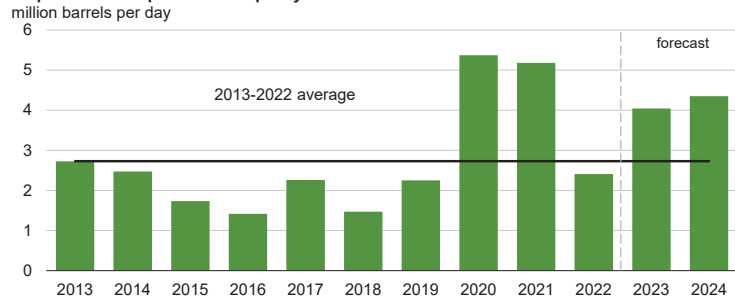
**Components of annual change**  
million barrels per day



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



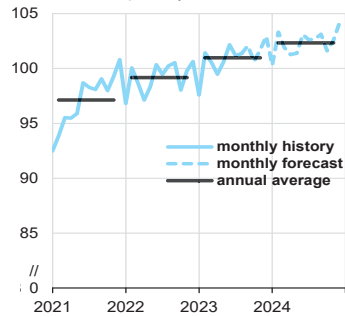
**Organization of the Petroleum Exporting Countries (OPEC)  
surplus crude oil production capacity**



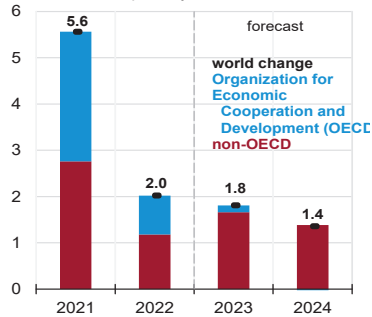
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September  
Note: Black line represents 2013-2022 average (2.7 million barrels per day).



**World liquid fuels consumption**  
million barrels per day



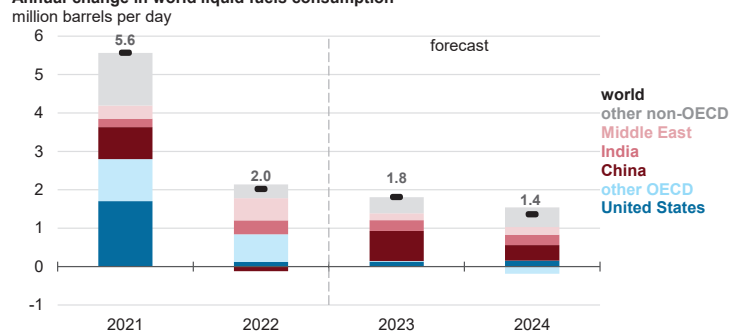
**Components of annual change**  
million barrels per day



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



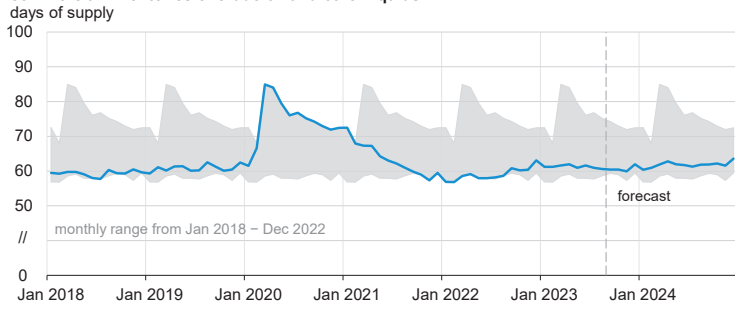
**Annual change in world liquid fuels consumption**



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



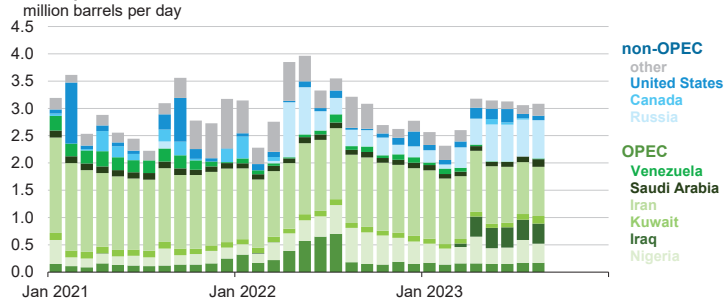
**Organization for Economic Cooperation and Development (OECD)**  
**commercial inventories of crude oil and other liquids**



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



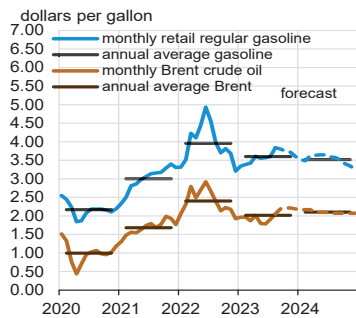
**Estimated unplanned liquid fuels production outages among OPEC and non-OPEC producers**



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

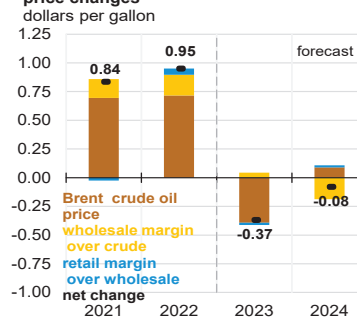


**U.S. gasoline and crude oil prices**

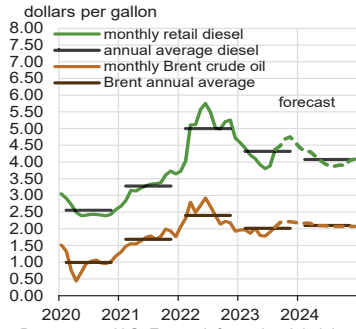


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023, and Refinitiv an LSEG Business

**Components of annual gasoline price changes**

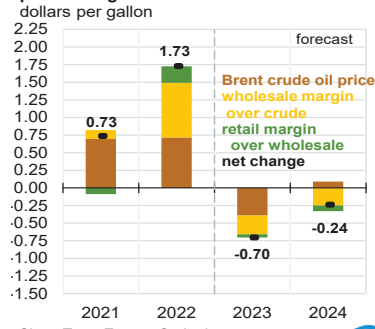


**U.S. diesel and crude oil prices**

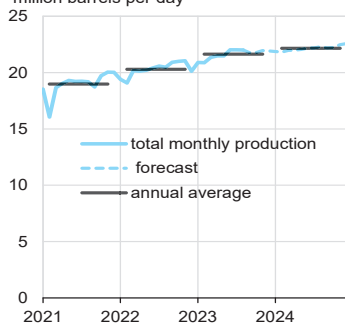


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023, and Refinitiv an LSEG Business

**Components of annual diesel price changes**

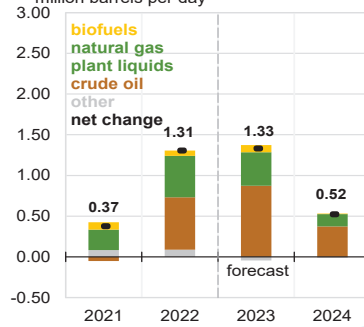


**U.S. crude oil and liquid fuels production**

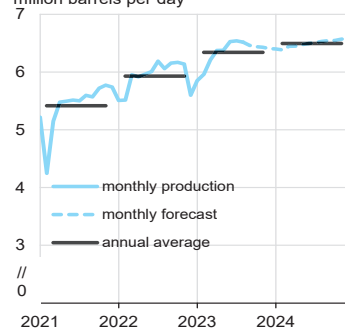


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023

**Components of annual change**

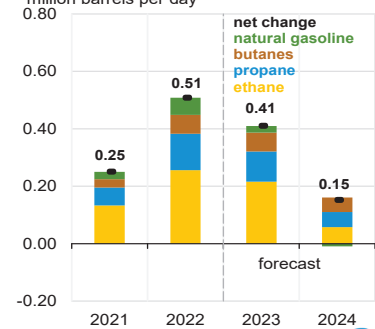


**U.S. natural gas plant liquids production**

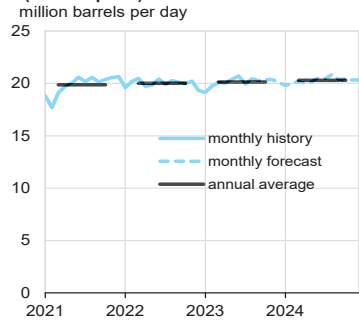


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023

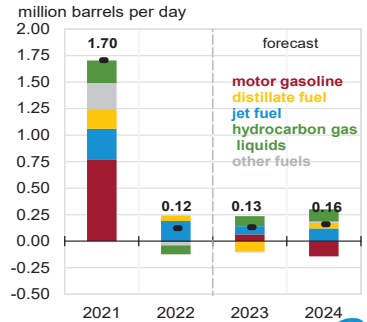
**Components of annual change**



**U.S. liquid fuels product supplied (consumption)**

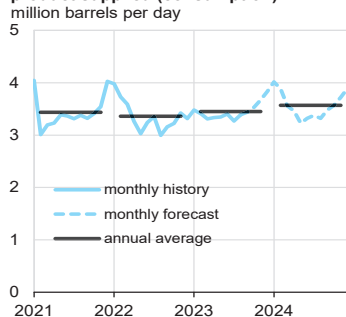


**Components of annual change**

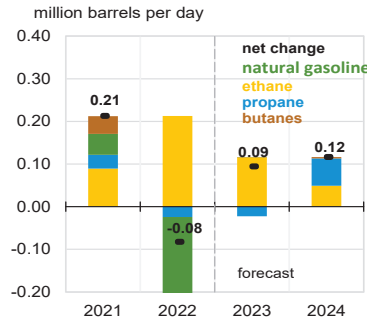


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023

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

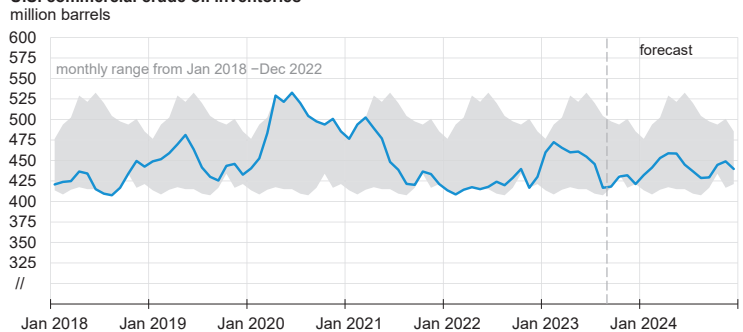


**Components of annual change**



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

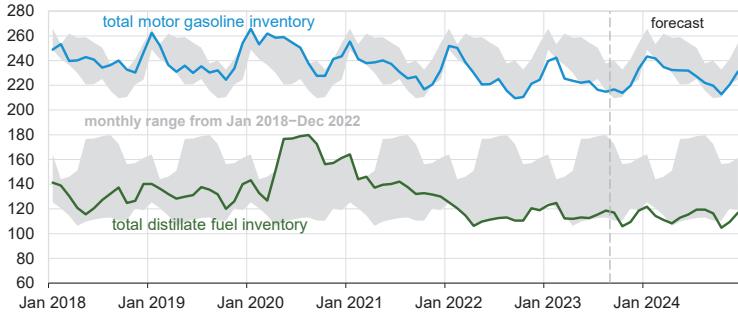
**U.S. commercial crude oil inventories**



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

### U.S. gasoline and distillate inventories

million barrels

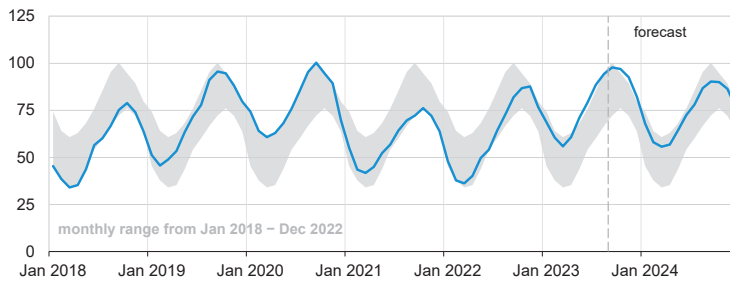


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023



### U.S. commercial propane inventories

million barrels



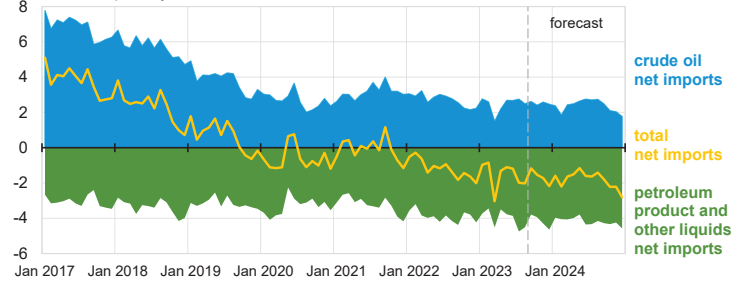
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023

Note: Excludes propylene.



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

million barrels per day



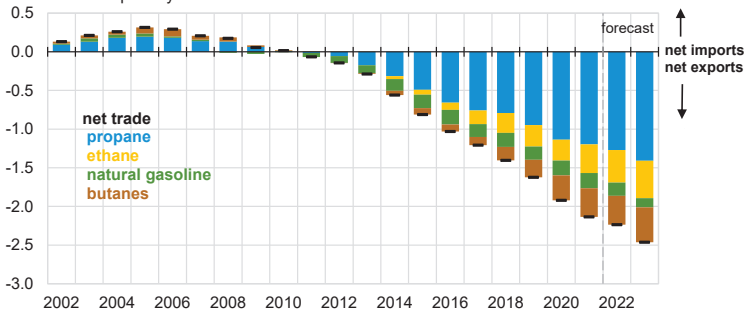
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September

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

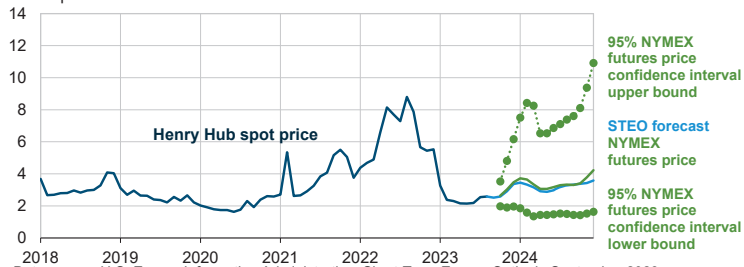


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023



**Henry Hub natural gas price and NYMEX confidence intervals**

dollars per million British thermal units



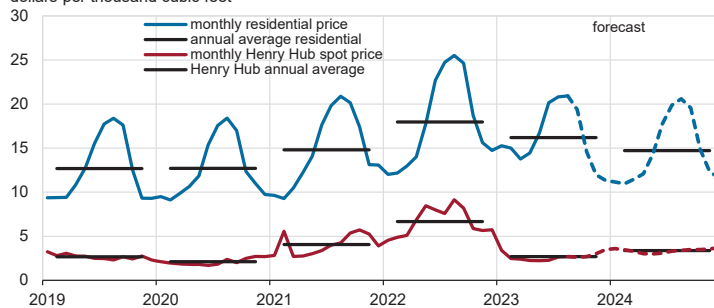
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023, CME Group, and Refinitiv an LSEG Business

Note: Confidence interval derived from options market information for the five trading days ending September 7, 2023. Intervals not calculated for months with sparse trading in near-the-money options contracts.



**U.S. natural gas prices**

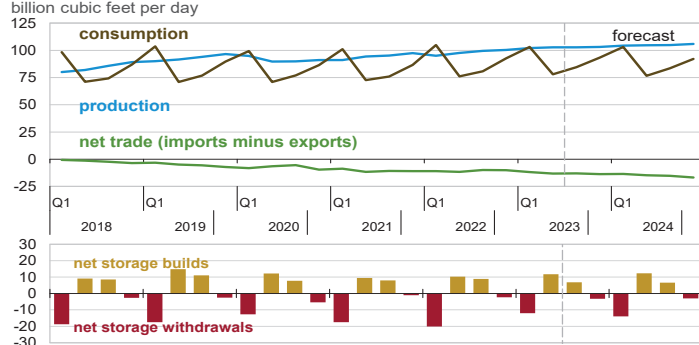
dollars per thousand cubic feet



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

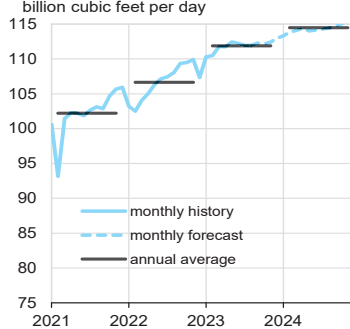


**U.S. natural gas production, consumption, and net imports**

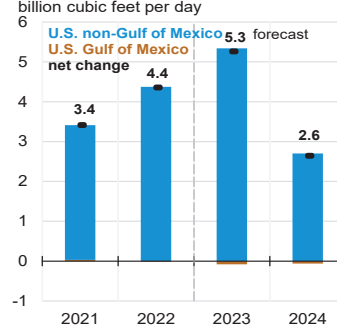


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023

**U.S. marketed natural gas production**

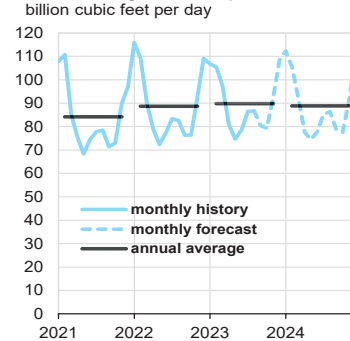


**Components of annual change**

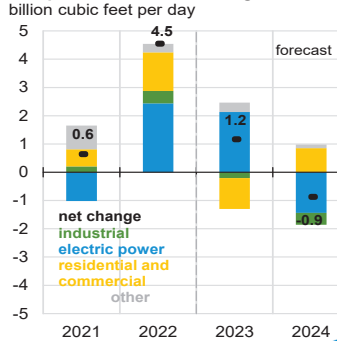


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023

**U.S. natural gas consumption**

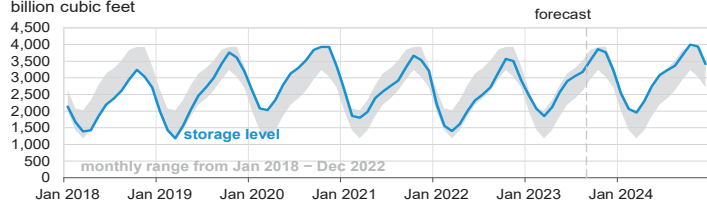


**Components of annual change**

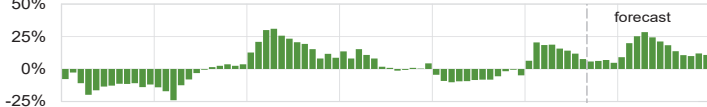


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023

**U.S. working natural gas in storage**



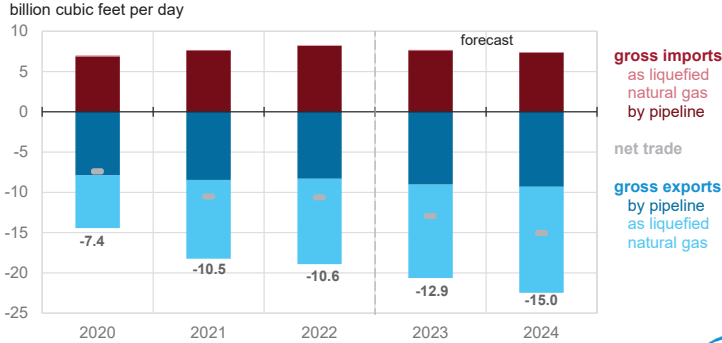
**Percentage deviation from 2018 – 2022 average**



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



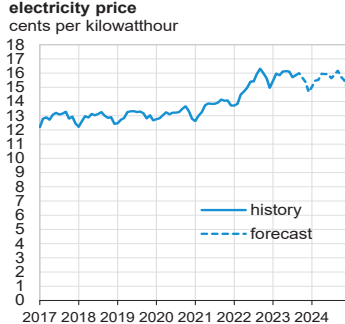
**U.S. annual natural gas trade**



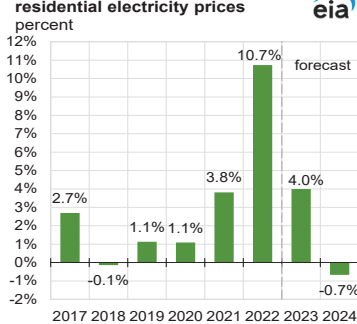
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023



**U.S. monthly nominal residential electricity price**



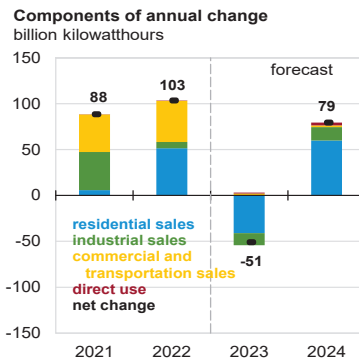
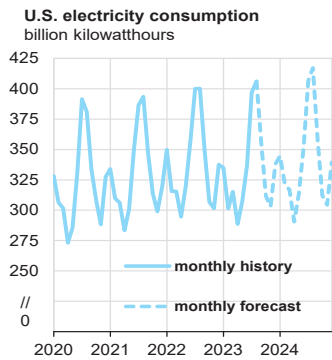
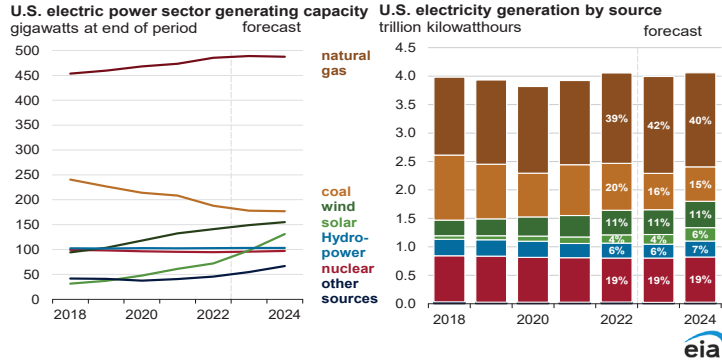
**Annual growth in nominal residential electricity prices**



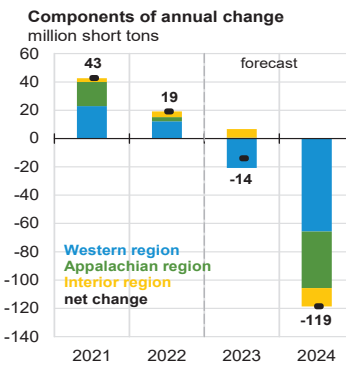
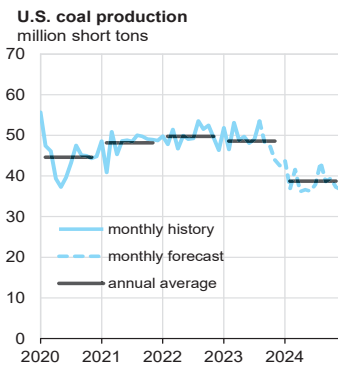
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023





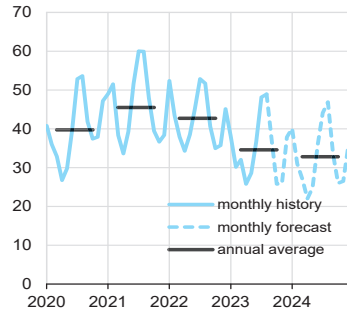


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023

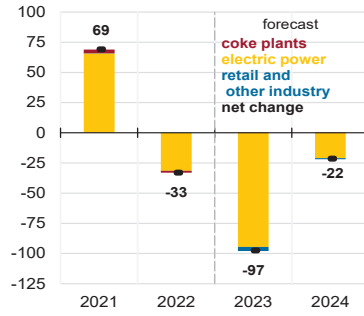


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023

**U.S. coal consumption**  
million short tons

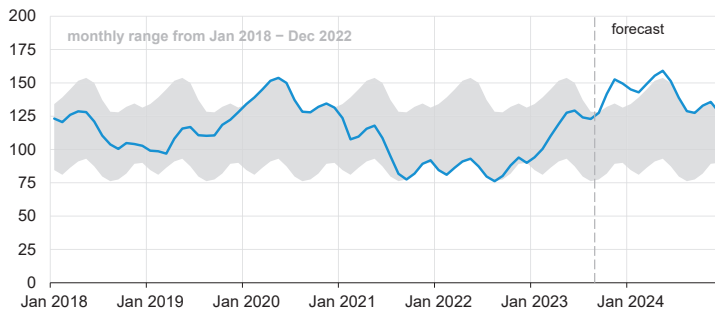


**Components of annual change**  
million short tons



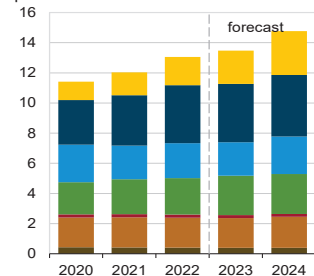
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023

**U.S. electric power coal inventories**  
million short tons

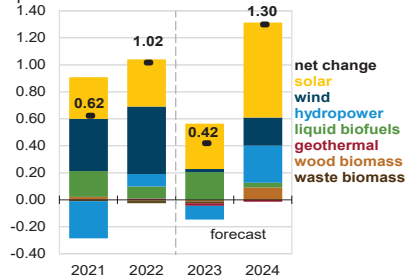


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023

**U.S. renewable energy supply**  
quadrillion British thermal units



**Components of annual change**  
quadrillion British thermal units

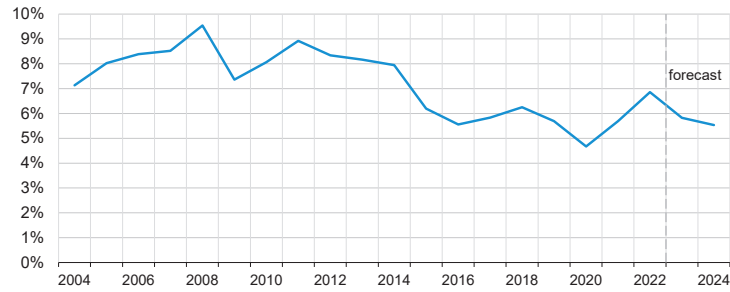


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2023

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



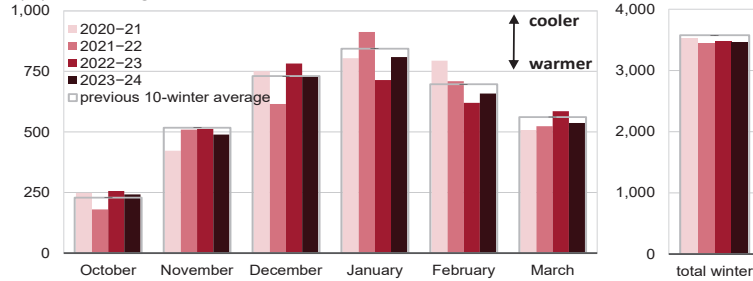
**U.S. annual energy expenditures**  
share of gross domestic product



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



**U.S. winter heating degree days**  
population-weighted

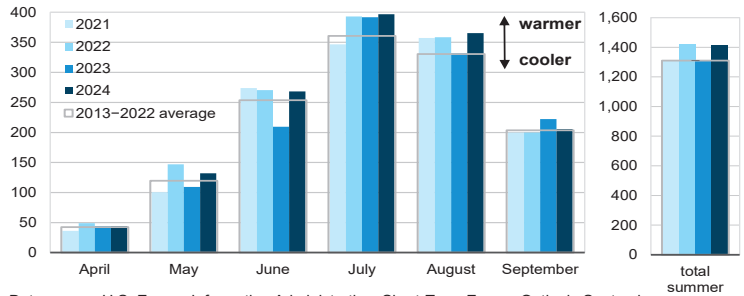


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September

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



**U.S. summer cooling degree days**  
population-weighted

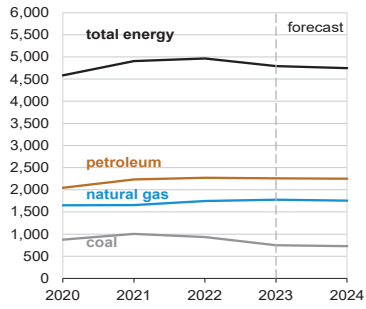


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, September

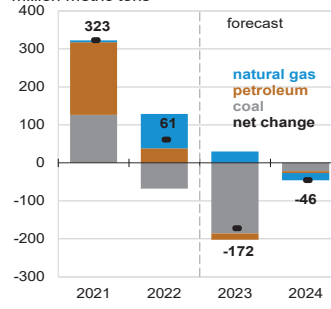
Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Projections reflect NOAA's 14-16 month outlook.




**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, September 2023 

**Table 1. U.S. Energy Markets Summary**

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Energy Production</b>															
Crude Oil Production (a) (million barrels per day) .....	<b>11.52</b>	<b>11.77</b>	<b>12.05</b>	<b>12.30</b>	<b>12.63</b>	<b>12.71</b>	<i>12.86</i>	<i>12.94</i>	<i>13.03</i>	<i>13.09</i>	<i>13.15</i>	<i>13.36</i>	<b>11.91</b>	<b>12.78</b>	<b>13.16</b>
Dry Natural Gas Production (billion cubic feet per day) .....	<b>95.1</b>	<b>97.6</b>	<b>99.5</b>	<b>100.3</b>	<b>102.1</b>	<b>102.8</b>	<i>102.7</i>	<i>103.1</i>	<i>104.3</i>	<i>104.7</i>	<i>104.9</i>	<i>105.9</i>	<b>98.1</b>	<b>102.7</b>	<b>104.9</b>
Coal Production (million short tons) .....	<b>149</b>	<b>146</b>	<b>154</b>	<b>148</b>	<b>151</b>	<b>147</b>	<i>151</i>	<i>134</i>	<i>122</i>	<i>109</i>	<i>120</i>	<i>113</i>	<b>597</b>	<b>583</b>	<b>464</b>
<b>Energy Consumption</b>															
Liquid Fuels (million barrels per day) .....	<b>20.09</b>	<b>20.00</b>	<b>20.11</b>	<b>19.85</b>	<b>19.66</b>	<b>20.38</b>	<i>20.22</i>	<i>20.29</i>	<i>20.00</i>	<i>20.25</i>	<i>20.56</i>	<i>20.37</i>	<b>20.01</b>	<b>20.14</b>	<b>20.30</b>
Natural Gas (billion cubic feet per day) .....	<b>104.9</b>	<b>76.2</b>	<b>80.8</b>	<b>92.6</b>	<b>103.1</b>	<b>78.0</b>	<i>84.6</i>	<i>93.3</i>	<i>103.2</i>	<i>76.6</i>	<i>83.5</i>	<i>92.1</i>	<b>88.6</b>	<b>89.7</b>	<b>88.8</b>
Coal (b) (million short tons) .....	<b>134</b>	<b>118</b>	<b>145</b>	<b>116</b>	<b>100</b>	<b>91</b>	<i>134</i>	<i>89</i>	<i>98</i>	<i>83</i>	<i>124</i>	<i>88</i>	<b>513</b>	<b>415</b>	<b>394</b>
Electricity (billion kilowatt hours per day) .....	<b>10.90</b>	<b>10.68</b>	<b>12.50</b>	<b>10.28</b>	<b>10.57</b>	<b>10.25</b>	<i>12.61</i>	<i>10.35</i>	<i>10.81</i>	<i>10.51</i>	<i>12.84</i>	<i>10.39</i>	<b>11.09</b>	<b>10.95</b>	<b>11.14</b>
Renewables (c) (quadrillion Btu) .....	<b>3.31</b>	<b>3.51</b>	<b>3.09</b>	<b>3.13</b>	<b>3.33</b>	<b>3.45</b>	<i>3.28</i>	<i>3.39</i>	<i>3.68</i>	<i>3.86</i>	<i>3.63</i>	<i>3.59</i>	<b>13.05</b>	<b>13.46</b>	<b>14.77</b>
Total Energy Consumption (d) (quadrillion Btu) .....	<b>0.00</b>	<b>23.43</b>	<b>24.92</b>	<b>25.14</b>	<b>25.37</b>	<b>23.56</b>	<i>25.04</i>	<i>24.94</i>	<i>26.05</i>	<i>23.51</i>	<i>25.23</i>	<i>25.01</i>	<b>0.00</b>	<b>98.91</b>	<b>99.80</b>
<b>Energy Prices</b>															
Crude Oil West Texas Intermediate Spot (dollars per barrel) .....	<b>95.18</b>	<b>108.93</b>	<b>93.07</b>	<b>82.69</b>	<b>75.96</b>	<b>73.49</b>	<i>81.48</i>	<i>87.68</i>	<i>86.00</i>	<i>83.00</i>	<i>82.00</i>	<i>82.00</i>	<b>94.91</b>	<b>79.65</b>	<b>83.22</b>
Natural Gas Henry Hub Spot (dollars per million Btu) .....	<b>4.66</b>	<b>7.48</b>	<b>7.99</b>	<b>5.55</b>	<b>2.65</b>	<b>2.16</b>	<i>2.55</i>	<i>2.95</i>	<i>3.32</i>	<i>2.92</i>	<i>3.27</i>	<i>3.46</i>	<b>6.42</b>	<b>2.58</b>	<b>3.24</b>
Coal (dollars per million Btu) .....	<b>2.18</b>	<b>2.26</b>	<b>2.50</b>	<b>2.55</b>	<b>2.57</b>	<b>2.49</b>	<i>2.46</i>	<i>2.40</i>	<i>2.41</i>	<i>2.40</i>	<i>2.40</i>	<i>2.37</i>	<b>2.37</b>	<b>2.48</b>	<b>2.40</b>
<b>Macroeconomic</b>															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR) .....	<b>19,924</b>	<b>19,895</b>	<b>20,055</b>	<b>20,182</b>	<b>20,283</b>	<b>20,404</b>	<i>20,515</i>	<i>20,592</i>	<i>20,634</i>	<i>20,692</i>	<i>20,761</i>	<i>20,838</i>	<b>20,014</b>	<b>20,448</b>	<b>20,731</b>
Percent change from prior year .....	<b>3.7</b>	<b>1.8</b>	<b>1.9</b>	<b>0.9</b>	<b>1.8</b>	<b>2.6</b>	<i>2.3</i>	<i>2.0</i>	<i>1.7</i>	<i>1.4</i>	<i>1.2</i>	<i>1.2</i>	<b>2.1</b>	<b>2.2</b>	<b>1.4</b>
GDP Implicit Price Deflator (Index, 2012=100) .....	<b>124.2</b>	<b>126.9</b>	<b>128.3</b>	<b>129.5</b>	<b>130.8</b>	<b>131.5</b>	<i>132.2</i>	<i>133.2</i>	<i>134.1</i>	<i>134.9</i>	<i>135.6</i>	<i>136.4</i>	<b>127.2</b>	<b>132.0</b>	<b>135.2</b>
Percent change from prior year .....	<b>6.9</b>	<b>7.6</b>	<b>7.1</b>	<b>6.4</b>	<b>5.3</b>	<b>3.6</b>	<i>3.1</i>	<i>2.9</i>	<i>2.5</i>	<i>2.5</i>	<i>2.6</i>	<i>2.4</i>	<b>7.0</b>	<b>3.7</b>	<b>2.5</b>
Real Disposable Personal Income (billion chained 2012 dollars - SAAR) .....	<b>15,109</b>	<b>15,022</b>	<b>15,141</b>	<b>15,236</b>	<b>15,550</b>	<b>15,644</b>	<i>15,722</i>	<i>15,809</i>	<i>15,968</i>	<i>16,098</i>	<i>16,205</i>	<i>16,290</i>	<b>15,127</b>	<b>15,681</b>	<b>16,140</b>
Percent change from prior year .....	<b>-12.8</b>	<b>-5.7</b>	<b>-3.8</b>	<b>-1.9</b>	<b>2.9</b>	<b>4.1</b>	<i>3.8</i>	<i>3.8</i>	<i>2.7</i>	<i>2.9</i>	<i>3.1</i>	<i>3.0</i>	<b>-6.2</b>	<b>3.7</b>	<b>2.9</b>
Manufacturing Production Index (Index, 2017=100) .....	<b>100.1</b>	<b>100.8</b>	<b>100.9</b>	<b>100.0</b>	<b>99.9</b>	<b>100.4</b>	<i>100.0</i>	<i>99.3</i>	<i>98.9</i>	<i>98.9</i>	<i>99.2</i>	<i>99.6</i>	<b>100.5</b>	<b>99.9</b>	<b>99.2</b>
Percent change from prior year .....	<b>4.5</b>	<b>3.6</b>	<b>2.8</b>	<b>0.7</b>	<b>-0.2</b>	<b>-0.4</b>	<i>-0.9</i>	<i>-0.7</i>	<i>-1.0</i>	<i>-1.5</i>	<i>-0.8</i>	<i>0.3</i>	<b>2.9</b>	<b>-0.6</b>	<b>-0.7</b>
<b>Weather</b>															
U.S. Heating Degree-Days .....	<b>2,145</b>	<b>490</b>	<b>54</b>	<b>1,551</b>	<b>1,920</b>	<b>485</b>	<i>58</i>	<i>1,461</i>	<i>2,004</i>	<i>472</i>	<i>75</i>	<i>1,454</i>	<b>4,240</b>	<b>3,924</b>	<b>4,005</b>
U.S. Cooling Degree-Days .....	<b>47</b>	<b>466</b>	<b>952</b>	<b>90</b>	<b>68</b>	<b>363</b>	<i>946</i>	<i>104</i>	<i>50</i>	<i>444</i>	<i>968</i>	<i>105</i>	<b>1,555</b>	<b>1,481</b>	<b>1,567</b>

(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.

- = no data available

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

Prices are not adjusted for inflation.

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

*Petroleum Supply Annual*, DOE/EIA-0340/2; *Weekly Petroleum Status Report*, DOE/EIA-0208; *Petroleum Marketing Monthly*, DOE/EIA-0380; *Natural Gas Monthly*, DOE/EIA-0130;

*Electric Power Monthly*, DOE/EIA-0226; *Quarterly Coal Report*, DOE/EIA-0121; and *International Petroleum Monthly*, DOE/EIA-0520.

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

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

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

**Table 2. Energy Prices**

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Crude Oil</b> (dollars per barrel)															
West Texas Intermediate Spot Average .....	<b>95.18</b>	<b>108.93</b>	<b>93.07</b>	<b>82.69</b>	<b>75.96</b>	<b>73.49</b>	<i>81.48</i>	<i>87.68</i>	<i>86.00</i>	<i>83.00</i>	<i>82.00</i>	<i>82.00</i>	<b>94.91</b>	<i>79.65</i>	<i>83.22</i>
Brent Spot Average .....	<b>101.17</b>	<b>113.84</b>	<b>100.53</b>	<b>88.44</b>	<b>81.04</b>	<b>78.02</b>	<i>86.09</i>	<i>92.68</i>	<i>91.00</i>	<i>88.00</i>	<i>87.00</i>	<i>87.00</i>	<b>100.94</b>	<i>84.46</i>	<i>88.22</i>
U.S. Imported Average .....	<b>90.06</b>	<b>108.10</b>	<b>92.18</b>	<b>78.14</b>	<b>69.58</b>	<b>71.15</b>	<i>78.58</i>	<i>84.92</i>	<i>83.25</i>	<i>80.25</i>	<i>79.25</i>	<i>79.25</i>	<b>92.83</b>	<i>76.26</i>	<i>80.46</i>
U.S. Refiner Average Acquisition Cost .....	<b>92.68</b>	<b>110.12</b>	<b>95.19</b>	<b>83.11</b>	<b>74.44</b>	<b>73.79</b>	<i>80.83</i>	<i>87.15</i>	<i>85.50</i>	<i>82.50</i>	<i>81.50</i>	<i>81.50</i>	<b>95.33</b>	<i>79.11</i>	<i>82.71</i>
<b>U.S. Liquid Fuels</b> (cents per gallon)															
<b>Refiner Prices for Resale</b>															
Gasoline .....	<b>278</b>	<b>376</b>	<b>311</b>	<b>267</b>	<b>262</b>	<b>265</b>	<i>291</i>	<i>277</i>	<i>266</i>	<i>275</i>	<i>267</i>	<i>247</i>	<b>309</b>	<i>274</i>	<i>264</i>
Diesel Fuel .....	<b>301</b>	<b>418</b>	<b>357</b>	<b>364</b>	<b>295</b>	<b>245</b>	<i>306</i>	<i>334</i>	<i>299</i>	<i>275</i>	<i>264</i>	<i>278</i>	<b>360</b>	<i>295</i>	<i>279</i>
Fuel Oil .....	<b>284</b>	<b>419</b>	<b>344</b>	<b>359</b>	<b>278</b>	<b>233</b>	<i>282</i>	<i>321</i>	<i>290</i>	<i>263</i>	<i>247</i>	<i>271</i>	<b>352</b>	<i>270</i>	<i>271</i>
<b>Refiner Prices to End Users</b>															
Jet Fuel .....	<b>283</b>	<b>400</b>	<b>340</b>	<b>332</b>	<b>305</b>	<b>233</b>	<i>290</i>	<i>321</i>	<i>291</i>	<i>268</i>	<i>253</i>	<i>262</i>	<b>340</b>	<i>287</i>	<i>268</i>
No. 6 Residual Fuel Oil (a) .....	<b>251</b>	<b>259</b>	<b>228</b>	<b>201</b>	<b>196</b>	<b>189</b>	<i>203</i>	<i>221</i>	<i>221</i>	<i>212</i>	<i>210</i>	<i>209</i>	<b>234</b>	<i>204</i>	<i>213</i>
<b>Retail Prices Including Taxes</b>															
Gasoline Regular Grade (b) .....	<b>371</b>	<b>450</b>	<b>408</b>	<b>357</b>	<b>338</b>	<b>358</b>	<i>375</i>	<i>369</i>	<i>354</i>	<i>364</i>	<i>356</i>	<i>334</i>	<b>397</b>	<i>360</i>	<i>352</i>
Gasoline All Grades (b) .....	<b>380</b>	<b>460</b>	<b>419</b>	<b>369</b>	<b>349</b>	<b>369</b>	<i>386</i>	<i>381</i>	<i>366</i>	<i>375</i>	<i>367</i>	<i>346</i>	<b>408</b>	<i>372</i>	<i>364</i>
On-highway Diesel Fuel .....	<b>431</b>	<b>549</b>	<b>516</b>	<b>508</b>	<b>439</b>	<b>394</b>	<i>425</i>	<i>468</i>	<i>435</i>	<i>406</i>	<i>388</i>	<i>400</i>	<b>501</b>	<i>431</i>	<i>407</i>
Heating Oil .....	<b>415</b>	<b>553</b>	<b>497</b>	<b>493</b>	<b>406</b>	<b>353</b>	<i>376</i>	<i>422</i>	<i>406</i>	<i>375</i>	<i>352</i>	<i>391</i>	<b>466</b>	<i>401</i>	<i>391</i>
<b>Propane</b>															
Mont Belvieu Spot .....	<b>130</b>	<b>125</b>	<b>108</b>	<b>80</b>	<b>82</b>	<b>68</b>	<i>68</i>	<i>76</i>	<i>78</i>	<i>78</i>	<i>78</i>	<i>79</i>	<b>111</b>	<i>74</i>	<i>78</i>
<b>Natural Gas</b>															
Henry Hub Spot (dollars per thousand cubic feet) .....	<b>4.84</b>	<b>7.77</b>	<b>8.30</b>	<b>5.76</b>	<b>2.76</b>	<b>2.25</b>	<i>2.65</i>	<i>3.07</i>	<i>3.45</i>	<i>3.03</i>	<i>3.40</i>	<i>3.59</i>	<b>6.67</b>	<i>2.68</i>	<i>3.37</i>
Henry Hub Spot (dollars per million Btu) .....	<b>4.66</b>	<b>7.48</b>	<b>7.99</b>	<b>5.55</b>	<b>2.65</b>	<b>2.16</b>	<i>2.55</i>	<i>2.95</i>	<i>3.32</i>	<i>2.92</i>	<i>3.27</i>	<i>3.46</i>	<b>6.42</b>	<i>2.58</i>	<i>3.24</i>
<b>U.S. Retail Prices</b> (dollars per thousand cubic feet)															
Industrial Sector .....	<b>6.82</b>	<b>8.24</b>	<b>9.27</b>	<b>7.53</b>	<b>6.23</b>	<b>3.81</b>	<i>3.69</i>	<i>4.31</i>	<i>5.02</i>	<i>4.14</i>	<i>4.25</i>	<i>4.83</i>	<b>7.90</b>	<i>4.58</i>	<i>4.59</i>
Commercial Sector .....	<b>10.00</b>	<b>11.71</b>	<b>14.12</b>	<b>12.14</b>	<b>11.84</b>	<b>10.53</b>	<i>10.23</i>	<i>8.56</i>	<i>8.42</i>	<i>9.03</i>	<i>9.83</i>	<i>8.67</i>	<b>11.37</b>	<i>10.41</i>	<i>8.76</i>
Residential Sector .....	<b>12.32</b>	<b>16.57</b>	<b>24.95</b>	<b>15.63</b>	<b>14.73</b>	<b>16.22</b>	<i>20.34</i>	<i>12.08</i>	<i>11.17</i>	<i>13.96</i>	<i>19.97</i>	<i>12.40</i>	<b>14.82</b>	<i>14.52</i>	<i>12.68</i>
<b>U.S. Electricity</b>															
<b>Power Generation Fuel Costs</b> (dollars per million Btu)															
Coal .....	<b>2.18</b>	<b>2.26</b>	<b>2.50</b>	<b>2.55</b>	<b>2.57</b>	<b>2.49</b>	<i>2.46</i>	<i>2.40</i>	<i>2.41</i>	<i>2.40</i>	<i>2.40</i>	<i>2.37</i>	<b>2.37</b>	<i>2.48</i>	<i>2.40</i>
Natural Gas .....	<b>5.95</b>	<b>7.39</b>	<b>8.23</b>	<b>6.90</b>	<b>4.99</b>	<b>2.64</b>	<i>2.65</i>	<i>3.23</i>	<i>3.85</i>	<i>3.08</i>	<i>3.32</i>	<i>3.77</i>	<b>7.24</b>	<i>3.28</i>	<i>3.48</i>
Residual Fuel Oil (c) .....	<b>16.81</b>	<b>26.17</b>	<b>26.53</b>	<b>21.27</b>	<b>19.24</b>	<b>17.89</b>	<i>15.79</i>	<i>17.67</i>	<i>17.59</i>	<i>17.45</i>	<i>16.15</i>	<i>16.12</i>	<b>21.80</b>	<i>17.69</i>	<i>16.81</i>
Distillate Fuel Oil .....	<b>21.23</b>	<b>30.71</b>	<b>26.79</b>	<b>24.48</b>	<b>22.84</b>	<b>38.29</b>	<i>22.16</i>	<i>25.05</i>	<i>23.15</i>	<i>21.26</i>	<i>20.17</i>	<i>21.35</i>	<b>24.89</b>	<i>26.77</i>	<i>21.66</i>
<b>Prices to Ultimate Customers</b> (cents per kilowatthour)															
Industrial Sector .....	<b>7.42</b>	<b>8.41</b>	<b>9.38</b>	<b>8.52</b>	<b>8.12</b>	<b>7.87</b>	<i>8.79</i>	<i>8.17</i>	<i>8.25</i>	<i>7.94</i>	<i>8.81</i>	<i>8.26</i>	<b>8.45</b>	<i>8.24</i>	<i>8.32</i>
Commercial Sector .....	<b>11.63</b>	<b>12.35</b>	<b>13.38</b>	<b>12.66</b>	<b>12.69</b>	<b>12.46</b>	<i>13.01</i>	<i>12.03</i>	<i>12.09</i>	<i>12.28</i>	<i>13.30</i>	<i>12.44</i>	<b>12.55</b>	<i>12.57</i>	<i>12.56</i>
Residential Sector .....	<b>13.98</b>	<b>15.07</b>	<b>15.85</b>	<b>15.48</b>	<b>15.74</b>	<b>16.12</b>	<i>15.84</i>	<i>15.19</i>	<i>15.32</i>	<i>15.94</i>	<i>15.88</i>	<i>15.29</i>	<b>15.12</b>	<i>15.73</i>	<i>15.62</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 September 7, 2023.

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

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

**Historical data:** Latest data available from Energy Information Administration databases supporting the following reports: *Petroleum Marketing Monthly*, DOE/EIA-0380; *Weekly Petroleum Status Report*, DOE/EIA-0208; *Natural Gas Monthly*, DOE/EIA-0130; *Electric Power Monthly*, DOE/EIA-0226; and *Monthly Energy Review*, DOE/EIA-0035.

WTI and Brent crude oil spot prices, the Mt. Belvieu propane spot price, and the Henry Hub natural gas spot price are from

Refinitiv, an LSEG company, via EIA ([https://www.eia.gov/dnav/pet/pet\\_pri\\_spt\\_s1\\_d.htm](https://www.eia.gov/dnav/pet/pet_pri_spt_s1_d.htm)).

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 - September 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Production (million barrels per day) (a)</b>															
OECD .....	<b>31.75</b>	<b>32.00</b>	<b>32.59</b>	<b>33.03</b>	<b>33.48</b>	<b>33.70</b>	<i>34.29</i>	<i>34.76</i>	<i>34.91</i>	<i>34.69</i>	<i>34.94</i>	<i>35.59</i>	<b>32.35</b>	<i>34.06</i>	<i>35.03</i>
U.S. (50 States) .....	<b>19.57</b>	<b>20.24</b>	<b>20.65</b>	<b>20.72</b>	<b>21.05</b>	<b>21.65</b>	<i>21.93</i>	<i>21.88</i>	<i>21.89</i>	<i>22.08</i>	<i>22.22</i>	<i>22.43</i>	<b>20.30</b>	<i>21.63</i>	<i>22.15</i>
Canada .....	<b>5.66</b>	<b>5.51</b>	<b>5.72</b>	<b>5.91</b>	<b>5.79</b>	<b>5.44</b>	<i>5.80</i>	<i>6.10</i>	<i>6.20</i>	<i>5.91</i>	<i>6.12</i>	<i>6.34</i>	<b>5.70</b>	<i>5.78</i>	<i>6.14</i>
Mexico .....	<b>1.91</b>	<b>1.89</b>	<b>1.90</b>	<b>1.90</b>	<b>2.07</b>	<b>2.16</b>	<i>2.11</i>	<i>2.11</i>	<i>2.11</i>	<i>2.08</i>	<i>2.06</i>	<i>2.03</i>	<b>1.90</b>	<i>2.11</i>	<i>2.07</i>
Other OECD .....	<b>4.61</b>	<b>4.35</b>	<b>4.32</b>	<b>4.49</b>	<b>4.56</b>	<b>4.45</b>	<i>4.45</i>	<i>4.68</i>	<i>4.72</i>	<i>4.62</i>	<i>4.54</i>	<i>4.79</i>	<b>4.44</b>	<i>4.54</i>	<i>4.67</i>
Non-OECD .....	<b>67.20</b>	<b>66.86</b>	<b>68.26</b>	<b>68.05</b>	<b>67.52</b>	<b>67.53</b>	<i>66.66</i>	<i>66.76</i>	<i>67.29</i>	<i>67.98</i>	<i>68.30</i>	<i>67.81</i>	<b>67.60</b>	<i>67.12</i>	<i>67.85</i>
OPEC .....	<b>33.75</b>	<b>33.76</b>	<b>34.71</b>	<b>34.43</b>	<b>33.95</b>	<b>33.71</b>	<i>32.70</i>	<i>32.98</i>	<i>33.76</i>	<i>33.78</i>	<i>33.87</i>	<i>33.61</i>	<b>34.17</b>	<i>33.33</i>	<i>33.76</i>
Crude Oil Portion .....	<b>28.19</b>	<b>28.33</b>	<b>29.23</b>	<b>28.92</b>	<b>28.46</b>	<b>28.37</b>	<i>27.30</i>	<i>27.54</i>	<i>28.23</i>	<i>28.38</i>	<i>28.43</i>	<i>28.13</i>	<b>28.67</b>	<i>27.91</i>	<i>28.30</i>
Other Liquids (b) .....	<b>5.56</b>	<b>5.43</b>	<b>5.48</b>	<b>5.52</b>	<b>5.49</b>	<b>5.34</b>	<i>5.40</i>	<i>5.44</i>	<i>5.53</i>	<i>5.40</i>	<i>5.44</i>	<i>5.48</i>	<b>5.50</b>	<i>5.42</i>	<i>5.46</i>
Eurasia .....	<b>14.39</b>	<b>13.39</b>	<b>13.56</b>	<b>13.90</b>	<b>14.00</b>	<b>13.56</b>	<i>13.42</i>	<i>13.56</i>	<i>13.61</i>	<i>13.59</i>	<i>13.53</i>	<i>13.65</i>	<b>13.81</b>	<i>13.63</i>	<i>13.60</i>
China .....	<b>5.18</b>	<b>5.18</b>	<b>5.05</b>	<b>5.09</b>	<b>5.32</b>	<b>5.32</b>	<i>5.25</i>	<i>5.32</i>	<i>5.27</i>	<i>5.29</i>	<i>5.29</i>	<i>5.33</i>	<b>5.12</b>	<i>5.30</i>	<i>5.30</i>
Other Non-OECD .....	<b>13.89</b>	<b>14.53</b>	<b>14.94</b>	<b>14.63</b>	<b>14.26</b>	<b>14.94</b>	<i>15.30</i>	<i>14.91</i>	<i>14.64</i>	<i>15.31</i>	<i>15.61</i>	<i>15.22</i>	<b>14.50</b>	<i>14.85</i>	<i>15.20</i>
Total World Production .....	<b>98.96</b>	<b>98.87</b>	<b>100.85</b>	<b>101.07</b>	<b>101.00</b>	<b>101.23</b>	<i>100.95</i>	<i>101.52</i>	<i>102.20</i>	<i>102.67</i>	<i>103.24</i>	<i>103.39</i>	<b>99.94</b>	<i>101.18</i>	<i>102.88</i>
Non-OPEC Production .....	<b>65.21</b>	<b>65.11</b>	<b>66.14</b>	<b>66.64</b>	<b>67.05</b>	<b>67.52</b>	<i>68.26</i>	<i>68.54</i>	<i>68.44</i>	<i>68.89</i>	<i>69.37</i>	<i>69.78</i>	<b>65.78</b>	<i>67.85</i>	<i>69.12</i>
<b>Consumption (million barrels per day) (c)</b>															
OECD .....	<b>45.63</b>	<b>45.11</b>	<b>46.22</b>	<b>45.63</b>	<b>45.19</b>	<b>45.40</b>	<i>46.16</i>	<i>46.43</i>	<i>45.60</i>	<i>45.19</i>	<i>46.14</i>	<i>46.15</i>	<b>45.65</b>	<i>45.80</i>	<i>45.77</i>
U.S. (50 States) .....	<b>20.09</b>	<b>20.00</b>	<b>20.11</b>	<b>19.85</b>	<b>19.66</b>	<b>20.38</b>	<i>20.22</i>	<i>20.29</i>	<i>20.00</i>	<i>20.25</i>	<i>20.56</i>	<i>20.37</i>	<b>20.01</b>	<i>20.14</i>	<i>20.30</i>
U.S. Territories .....	<b>0.11</b>	<b>0.12</b>	<b>0.13</b>	<b>0.12</b>	<b>0.12</b>	<b>0.12</b>	<i>0.12</i>	<i>0.12</i>	<i>0.11</i>	<i>0.11</i>	<i>0.11</i>	<i>0.11</i>	<b>0.12</b>	<i>0.12</i>	<i>0.11</i>
Canada .....	<b>2.24</b>	<b>2.21</b>	<b>2.38</b>	<b>2.30</b>	<b>2.24</b>	<b>2.25</b>	<i>2.35</i>	<i>2.33</i>	<i>2.28</i>	<i>2.23</i>	<i>2.33</i>	<i>2.31</i>	<b>2.28</b>	<i>2.29</i>	<i>2.29</i>
Europe .....	<b>13.19</b>	<b>13.43</b>	<b>14.04</b>	<b>13.35</b>	<b>13.06</b>	<b>13.37</b>	<i>13.97</i>	<i>13.73</i>	<i>13.21</i>	<i>13.36</i>	<i>13.77</i>	<i>13.53</i>	<b>13.50</b>	<i>13.54</i>	<i>13.47</i>
Japan .....	<b>3.70</b>	<b>3.03</b>	<b>3.19</b>	<b>3.56</b>	<b>3.72</b>	<b>3.02</b>	<i>3.12</i>	<i>3.45</i>	<i>3.57</i>	<i>2.96</i>	<i>3.06</i>	<i>3.39</i>	<b>3.37</b>	<i>3.32</i>	<i>3.24</i>
Other OECD .....	<b>6.30</b>	<b>6.33</b>	<b>6.37</b>	<b>6.45</b>	<b>6.39</b>	<b>6.27</b>	<i>6.38</i>	<i>6.51</i>	<i>6.42</i>	<i>6.28</i>	<i>6.30</i>	<i>6.43</i>	<b>6.36</b>	<i>6.39</i>	<i>6.36</i>
Non-OECD .....	<b>52.83</b>	<b>53.49</b>	<b>53.86</b>	<b>53.86</b>	<b>54.63</b>	<b>55.35</b>	<i>55.37</i>	<i>55.33</i>	<i>56.21</i>	<i>56.72</i>	<i>56.67</i>	<i>56.63</i>	<b>53.51</b>	<i>55.17</i>	<i>56.56</i>
Eurasia .....	<b>4.28</b>	<b>4.43</b>	<b>4.73</b>	<b>4.65</b>	<b>4.33</b>	<b>4.49</b>	<i>4.81</i>	<i>4.72</i>	<i>4.46</i>	<i>4.62</i>	<i>4.94</i>	<i>4.85</i>	<b>4.53</b>	<i>4.59</i>	<i>4.72</i>
Europe .....	<b>0.74</b>	<b>0.76</b>	<b>0.76</b>	<b>0.77</b>	<b>0.74</b>	<b>0.76</b>	<i>0.77</i>	<i>0.77</i>	<i>0.75</i>	<i>0.77</i>	<i>0.77</i>	<i>0.78</i>	<b>0.76</b>	<i>0.76</i>	<i>0.77</i>
China .....	<b>15.12</b>	<b>15.10</b>	<b>15.09</b>	<b>15.28</b>	<b>15.89</b>	<b>16.08</b>	<i>15.76</i>	<i>15.97</i>	<i>16.29</i>	<i>16.49</i>	<i>16.16</i>	<i>16.38</i>	<b>15.15</b>	<i>15.93</i>	<i>16.33</i>
Other Asia .....	<b>13.74</b>	<b>13.75</b>	<b>13.41</b>	<b>13.84</b>	<b>14.29</b>	<b>14.37</b>	<i>13.78</i>	<i>14.08</i>	<i>14.87</i>	<i>14.85</i>	<i>14.24</i>	<i>14.56</i>	<b>13.69</b>	<i>14.13</i>	<i>14.63</i>
Other Non-OECD .....	<b>18.95</b>	<b>19.45</b>	<b>19.86</b>	<b>19.32</b>	<b>19.37</b>	<b>19.66</b>	<i>20.26</i>	<i>19.79</i>	<i>19.83</i>	<i>20.00</i>	<i>20.55</i>	<i>20.07</i>	<b>19.39</b>	<i>19.77</i>	<i>20.11</i>
Total World Consumption .....	<b>98.46</b>	<b>98.60</b>	<b>100.08</b>	<b>99.49</b>	<b>99.82</b>	<b>100.75</b>	<i>101.53</i>	<i>101.75</i>	<i>101.81</i>	<i>101.91</i>	<i>102.80</i>	<i>102.78</i>	<b>99.16</b>	<i>100.97</i>	<i>102.33</i>
<b>Total Crude Oil and Other Liquids Inventory Net Withdrawals (million barrels per day)</b>															
U.S. (50 States) .....	<b>0.80</b>	<b>0.51</b>	<b>0.45</b>	<b>0.41</b>	<b>-0.08</b>	<b>-0.11</b>	<i>0.04</i>	<i>0.28</i>	<i>-0.09</i>	<i>-0.39</i>	<i>0.00</i>	<i>0.36</i>	<b>0.54</b>	<i>0.03</i>	<i>-0.03</i>
Other OECD .....	<b>-0.09</b>	<b>-0.29</b>	<b>-0.48</b>	<b>-0.26</b>	<b>0.32</b>	<b>-0.47</b>	<i>0.17</i>	<i>-0.02</i>	<i>-0.09</i>	<i>-0.12</i>	<i>-0.13</i>	<i>-0.31</i>	<b>-0.28</b>	<i>0.00</i>	<i>-0.16</i>
Other Stock Draws and Balance .....	<b>-1.20</b>	<b>-0.49</b>	<b>-0.74</b>	<b>-1.73</b>	<b>-1.42</b>	<b>0.09</b>	<i>0.37</i>	<i>-0.03</i>	<i>-0.21</i>	<i>-0.26</i>	<i>-0.30</i>	<i>-0.67</i>	<b>-1.04</b>	<i>-0.24</i>	<i>-0.36</i>
Total Stock Draw .....	<b>-0.50</b>	<b>-0.26</b>	<b>-0.77</b>	<b>-1.59</b>	<b>-1.18</b>	<b>-0.48</b>	<i>0.58</i>	<i>0.24</i>	<i>-0.39</i>	<i>-0.76</i>	<i>-0.44</i>	<i>-0.62</i>	<b>-0.78</b>	<i>-0.21</i>	<i>-0.55</i>
<b>End-of-period Commercial Crude Oil and Other Liquids Inventories (million barrels)</b>															
U.S. Commercial Inventory .....	<b>1,154</b>	<b>1,180</b>	<b>1,216</b>	<b>1,223</b>	<b>1,231</b>	<b>1,264</b>	<i>1,256</i>	<i>1,230</i>	<i>1,238</i>	<i>1,273</i>	<i>1,273</i>	<i>1,241</i>	<b>1,223</b>	<i>1,230</i>	<i>1,241</i>
OECD Commercial Inventory .....	<b>2,604</b>	<b>2,657</b>	<b>2,736</b>	<b>2,767</b>	<b>2,746</b>	<b>2,822</b>	<i>2,798</i>	<i>2,774</i>	<i>2,790</i>	<i>2,836</i>	<i>2,848</i>	<i>2,844</i>	<b>2,767</b>	<i>2,774</i>	<i>2,844</i>

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

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

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

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

- = no data available

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

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

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

**Historical data:** Latest data available from Energy Information Administration *International Energy Statistics* (<https://www.eia.gov/international/data/world>).

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 - September 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>North America</b> .....	<b>27.14</b>	<b>27.65</b>	<b>28.27</b>	<b>28.54</b>	<b>28.91</b>	<b>29.25</b>	<i>29.84</i>	<i>30.08</i>	<i>30.19</i>	<i>30.07</i>	<i>30.40</i>	<i>30.80</i>	<b>27.90</b>	<i>29.52</i>	<i>30.36</i>
Canada .....	<b>5.66</b>	<b>5.51</b>	<b>5.72</b>	<b>5.91</b>	<b>5.79</b>	<b>5.44</b>	<i>5.80</i>	<i>6.10</i>	<i>6.20</i>	<i>5.91</i>	<i>6.12</i>	<i>6.34</i>	<b>5.70</b>	<i>5.78</i>	<i>6.14</i>
Mexico .....	<b>1.91</b>	<b>1.89</b>	<b>1.90</b>	<b>1.90</b>	<b>2.07</b>	<b>2.16</b>	<i>2.11</i>	<i>2.11</i>	<i>2.11</i>	<i>2.08</i>	<i>2.06</i>	<i>2.03</i>	<b>1.90</b>	<i>2.11</i>	<i>2.07</i>
United States .....	<b>19.57</b>	<b>20.24</b>	<b>20.65</b>	<b>20.72</b>	<b>21.05</b>	<b>21.65</b>	<i>21.93</i>	<i>21.88</i>	<i>21.89</i>	<i>22.08</i>	<i>22.22</i>	<i>22.43</i>	<b>20.30</b>	<i>21.63</i>	<i>22.15</i>
<b>Central and South America</b> .....	<b>5.83</b>	<b>6.41</b>	<b>6.86</b>	<b>6.58</b>	<b>6.31</b>	<b>6.94</b>	<i>7.30</i>	<i>6.92</i>	<i>6.68</i>	<i>7.38</i>	<i>7.68</i>	<i>7.30</i>	<b>6.42</b>	<i>6.87</i>	<i>7.26</i>
Argentina .....	<b>0.77</b>	<b>0.78</b>	<b>0.79</b>	<b>0.82</b>	<b>0.81</b>	<b>0.81</b>	<i>0.84</i>	<i>0.87</i>	<i>0.85</i>	<i>0.87</i>	<i>0.89</i>	<i>0.92</i>	<b>0.79</b>	<i>0.83</i>	<i>0.88</i>
Brazil .....	<b>3.33</b>	<b>3.79</b>	<b>4.15</b>	<b>3.78</b>	<b>3.55</b>	<b>4.14</b>	<i>4.47</i>	<i>4.04</i>	<i>3.76</i>	<i>4.32</i>	<i>4.60</i>	<i>4.20</i>	<b>3.76</b>	<i>4.05</i>	<i>4.22</i>
Colombia .....	<b>0.77</b>	<b>0.77</b>	<b>0.78</b>	<b>0.79</b>	<b>0.79</b>	<b>0.81</b>	<i>0.80</i>	<i>0.79</i>	<i>0.78</i>	<i>0.78</i>	<i>0.77</i>	<i>0.78</i>	<b>0.78</b>	<i>0.80</i>	<i>0.78</i>
Ecuador .....	<b>0.48</b>	<b>0.47</b>	<b>0.49</b>	<b>0.49</b>	<b>0.46</b>	<b>0.48</b>	<i>0.48</i>	<i>0.49</i>	<i>0.49</i>	<i>0.49</i>	<i>0.49</i>	<i>0.50</i>	<b>0.48</b>	<i>0.48</i>	<i>0.49</i>
Guyana .....	<b>0.12</b>	<b>0.24</b>	<b>0.32</b>	<b>0.35</b>	<b>0.35</b>	<b>0.37</b>	<i>0.38</i>	<i>0.41</i>	<i>0.48</i>	<i>0.60</i>	<i>0.60</i>	<i>0.60</i>	<b>0.26</b>	<i>0.38</i>	<i>0.57</i>
<b>Europe</b> .....	<b>4.04</b>	<b>3.76</b>	<b>3.81</b>	<b>3.93</b>	<b>4.01</b>	<b>3.92</b>	<i>3.91</i>	<i>4.14</i>	<i>4.17</i>	<i>4.08</i>	<i>4.00</i>	<i>4.26</i>	<b>3.89</b>	<i>4.00</i>	<i>4.13</i>
Norway .....	<b>1.97</b>	<b>1.74</b>	<b>1.91</b>	<b>1.99</b>	<b>2.03</b>	<b>2.03</b>	<i>1.98</i>	<i>2.09</i>	<i>2.11</i>	<i>2.04</i>	<i>2.05</i>	<i>2.22</i>	<b>1.90</b>	<i>2.03</i>	<i>2.11</i>
United Kingdom .....	<b>0.97</b>	<b>0.91</b>	<b>0.80</b>	<b>0.84</b>	<b>0.87</b>	<b>0.79</b>	<i>0.83</i>	<i>0.92</i>	<i>0.92</i>	<i>0.91</i>	<i>0.81</i>	<i>0.89</i>	<b>0.88</b>	<i>0.85</i>	<i>0.88</i>
<b>Eurasia</b> .....	<b>14.39</b>	<b>13.39</b>	<b>13.56</b>	<b>13.90</b>	<b>14.00</b>	<b>13.56</b>	<i>13.42</i>	<i>13.56</i>	<i>13.61</i>	<i>13.59</i>	<i>13.53</i>	<i>13.65</i>	<b>13.81</b>	<i>13.63</i>	<i>13.60</i>
Azerbaijan .....	<b>0.70</b>	<b>0.67</b>	<b>0.65</b>	<b>0.67</b>	<b>0.65</b>	<b>0.62</b>	<i>0.63</i>	<i>0.64</i>	<i>0.64</i>	<i>0.64</i>	<i>0.64</i>	<i>0.65</i>	<b>0.67</b>	<i>0.63</i>	<i>0.64</i>
Kazakhstan .....	<b>2.01</b>	<b>1.77</b>	<b>1.62</b>	<b>1.92</b>	<b>2.02</b>	<b>1.97</b>	<i>1.90</i>	<i>1.97</i>	<i>1.96</i>	<i>1.94</i>	<i>1.91</i>	<i>1.99</i>	<b>1.83</b>	<i>1.96</i>	<i>1.95</i>
Russia .....	<b>11.30</b>	<b>10.59</b>	<b>10.92</b>	<b>10.95</b>	<b>10.95</b>	<b>10.57</b>	<i>10.48</i>	<i>10.54</i>	<i>10.61</i>	<i>10.61</i>	<i>10.58</i>	<i>10.61</i>	<b>10.94</b>	<i>10.64</i>	<i>10.60</i>
Turkmenistan .....	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.26</b>	<b>0.27</b>	<b>0.27</b>	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	<b>0.26</b>	<i>0.27</i>	<i>0.27</i>
<b>Middle East</b> .....	<b>3.23</b>	<b>3.29</b>	<b>3.34</b>	<b>3.28</b>	<b>3.22</b>	<b>3.21</b>	<i>3.17</i>	<i>3.18</i>	<i>3.21</i>	<i>3.20</i>	<i>3.20</i>	<i>3.20</i>	<b>3.28</b>	<i>3.20</i>	<i>3.20</i>
Oman .....	<b>1.05</b>	<b>1.07</b>	<b>1.10</b>	<b>1.08</b>	<b>1.07</b>	<b>1.06</b>	<i>1.04</i>	<i>1.03</i>	<i>1.03</i>	<i>1.03</i>	<i>1.03</i>	<i>1.03</i>	<b>1.07</b>	<i>1.05</i>	<i>1.03</i>
Qatar .....	<b>1.85</b>	<b>1.86</b>	<b>1.86</b>	<b>1.86</b>	<b>1.86</b>	<b>1.86</b>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<b>1.86</b>	<i>1.86</i>	<i>1.86</i>
<b>Asia and Oceania</b> .....	<b>9.16</b>	<b>9.17</b>	<b>8.87</b>	<b>8.98</b>	<b>9.21</b>	<b>9.24</b>	<i>9.22</i>	<i>9.27</i>	<i>9.23</i>	<i>9.23</i>	<i>9.22</i>	<i>9.25</i>	<b>9.04</b>	<i>9.24</i>	<i>9.23</i>
Australia .....	<b>0.44</b>	<b>0.47</b>	<b>0.39</b>	<b>0.43</b>	<b>0.41</b>	<b>0.40</b>	<i>0.42</i>	<i>0.42</i>	<i>0.41</i>	<i>0.41</i>	<i>0.40</i>	<i>0.40</i>	<b>0.43</b>	<i>0.42</i>	<i>0.40</i>
China .....	<b>5.18</b>	<b>5.18</b>	<b>5.05</b>	<b>5.09</b>	<b>5.32</b>	<b>5.32</b>	<i>5.25</i>	<i>5.32</i>	<i>5.27</i>	<i>5.29</i>	<i>5.29</i>	<i>5.33</i>	<b>5.12</b>	<i>5.30</i>	<i>5.30</i>
India .....	<b>0.88</b>	<b>0.89</b>	<b>0.87</b>	<b>0.85</b>	<b>0.85</b>	<b>0.90</b>	<i>0.90</i>	<i>0.89</i>	<i>0.91</i>	<i>0.91</i>	<i>0.90</i>	<i>0.90</i>	<b>0.87</b>	<i>0.89</i>	<i>0.91</i>
Indonesia .....	<b>0.84</b>	<b>0.83</b>	<b>0.81</b>	<b>0.83</b>	<b>0.82</b>	<b>0.84</b>	<i>0.83</i>	<i>0.82</i>	<i>0.81</i>	<i>0.81</i>	<i>0.80</i>	<i>0.80</i>	<b>0.83</b>	<i>0.83</i>	<i>0.80</i>
Malaysia .....	<b>0.61</b>	<b>0.60</b>	<b>0.58</b>	<b>0.61</b>	<b>0.61</b>	<b>0.58</b>	<i>0.59</i>	<i>0.59</i>	<i>0.58</i>	<i>0.58</i>	<i>0.57</i>	<i>0.57</i>	<b>0.60</b>	<i>0.59</i>	<i>0.57</i>
<b>Africa</b> .....	<b>1.40</b>	<b>1.43</b>	<b>1.44</b>	<b>1.44</b>	<b>1.38</b>	<b>1.39</b>	<i>1.39</i>	<i>1.39</i>	<i>1.34</i>	<i>1.34</i>	<i>1.33</i>	<i>1.33</i>	<b>1.43</b>	<i>1.39</i>	<i>1.34</i>
Egypt .....	<b>0.66</b>	<b>0.68</b>	<b>0.67</b>	<b>0.67</b>	<b>0.66</b>	<b>0.67</b>	<i>0.65</i>	<i>0.65</i>	<i>0.61</i>	<i>0.61</i>	<i>0.61</i>	<i>0.61</i>	<b>0.67</b>	<i>0.66</i>	<i>0.61</i>
South Sudan .....	<b>0.15</b>	<b>0.15</b>	<b>0.16</b>	<b>0.15</b>	<b>0.13</b>	<b>0.13</b>	<i>0.16</i>	<i>0.16</i>	<i>0.17</i>	<i>0.17</i>	<i>0.17</i>	<i>0.17</i>	<b>0.16</b>	<i>0.15</i>	<i>0.17</i>
<b>Total non-OPEC liquids</b> .....	<b>65.21</b>	<b>65.11</b>	<b>66.14</b>	<b>66.64</b>	<b>67.05</b>	<b>67.52</b>	<i>68.26</i>	<i>68.54</i>	<i>68.44</i>	<i>68.89</i>	<i>69.37</i>	<i>69.78</i>	<b>65.78</b>	<i>67.85</i>	<i>69.12</i>
<b>OPEC non-crude liquids</b> .....	<b>5.56</b>	<b>5.43</b>	<b>5.48</b>	<b>5.52</b>	<b>5.49</b>	<b>5.34</b>	<i>5.40</i>	<i>5.44</i>	<i>5.53</i>	<i>5.40</i>	<i>5.44</i>	<i>5.48</i>	<b>5.50</b>	<i>5.42</i>	<i>5.46</i>
<b>Non-OPEC + OPEC non-crude</b> .....	<b>70.77</b>	<b>70.54</b>	<b>71.62</b>	<b>72.16</b>	<b>72.54</b>	<b>72.86</b>	<i>73.66</i>	<i>73.98</i>	<i>73.97</i>	<i>74.29</i>	<i>74.81</i>	<i>75.26</i>	<b>71.27</b>	<i>73.26</i>	<i>74.58</i>
<b>Unplanned non-OPEC Production Outages</b> .....	<b>0.76</b>	<b>1.31</b>	<b>0.78</b>	<b>0.56</b>	<b>0.56</b>	<b>1.02</b>	-	-	-	-	-	-	<b>0.85</b>	-	-

- = no data available

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

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

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

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

**Historical data:** Latest data available from Energy Information Administration *International Energy Statistics* (<https://www.eia.gov/international/data/world>).

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 - September 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Crude Oil</b>															
Algeria .....	0.97	1.00	1.02	1.02	1.01	0.98	-	-	-	-	-	-	1.00	-	-
Angola .....	1.15	1.19	1.16	1.10	1.08	1.14	-	-	-	-	-	-	1.15	-	-
Congo (Brazzaville) .....	0.27	0.29	0.28	0.26	0.27	0.25	-	-	-	-	-	-	0.27	-	-
Equatorial Guinea .....	0.09	0.09	0.09	0.07	0.06	0.06	-	-	-	-	-	-	0.09	-	-
Gabon .....	0.19	0.19	0.20	0.21	0.20	0.21	-	-	-	-	-	-	0.20	-	-
Iran .....	2.55	2.53	2.53	2.56	2.60	2.74	-	-	-	-	-	-	2.54	-	-
Iraq .....	4.30	4.42	4.55	4.51	4.41	4.19	-	-	-	-	-	-	4.45	-	-
Kuwait .....	2.61	2.69	2.80	2.72	2.68	2.58	-	-	-	-	-	-	2.71	-	-
Libya .....	1.06	0.76	0.95	1.14	1.14	1.15	-	-	-	-	-	-	0.98	-	-
Nigeria .....	1.27	1.11	0.97	1.07	1.24	1.19	-	-	-	-	-	-	1.10	-	-
Saudi Arabia .....	10.08	10.30	10.85	10.50	10.02	10.18	-	-	-	-	-	-	10.43	-	-
United Arab Emirates .....	2.94	3.04	3.17	3.09	3.06	2.94	-	-	-	-	-	-	3.06	-	-
Venezuela .....	0.70	0.72	0.66	0.69	0.70	0.75	-	-	-	-	-	-	0.69	-	-
OPEC Total .....	28.19	28.33	29.23	28.92	28.46	28.37	27.30	27.54	28.23	28.38	28.43	28.13	28.67	27.91	28.30
<b>Other Liquids (a) .....</b>	<b>5.56</b>	<b>5.43</b>	<b>5.48</b>	<b>5.52</b>	<b>5.49</b>	<b>5.34</b>	<b>5.40</b>	<b>5.44</b>	<b>5.53</b>	<b>5.40</b>	<b>5.44</b>	<b>5.48</b>	<b>5.50</b>	<b>5.42</b>	<b>5.46</b>
<b>Total OPEC Production .....</b>	<b>33.75</b>	<b>33.76</b>	<b>34.71</b>	<b>34.43</b>	<b>33.95</b>	<b>33.71</b>	<b>32.70</b>	<b>32.98</b>	<b>33.76</b>	<b>33.78</b>	<b>33.87</b>	<b>33.61</b>	<b>34.17</b>	<b>33.33</b>	<b>33.76</b>
<b>Crude Oil Production Capacity</b>															
Middle East .....	25.48	25.46	25.55	25.66	25.90	26.17	26.30	26.32	26.78	26.88	26.93	26.93	25.54	26.17	26.88
Other .....	5.83	5.45	5.35	5.55	5.71	5.78	5.82	5.82	5.83	5.78	5.74	5.71	5.54	5.79	5.76
OPEC Total .....	31.31	30.91	30.89	31.21	31.61	31.95	32.12	32.14	32.61	32.66	32.67	32.64	31.08	31.96	32.64
<b>Surplus Crude Oil Production Capacity</b>															
Middle East .....	3.00	2.47	1.65	2.28	3.13	3.53	4.75	4.53	4.30	4.22	4.18	4.45	2.35	3.99	4.29
Other .....	0.12	0.11	0.01	0.01	0.02	0.05	0.08	0.07	0.08	0.06	0.06	0.06	0.06	0.06	0.06
OPEC Total .....	3.12	2.58	1.67	2.29	3.15	3.58	4.82	4.60	4.37	4.28	4.24	4.51	2.41	4.04	4.35
<b>Unplanned OPEC Production Outages .....</b>	<b>1.98</b>	<b>2.42</b>	<b>2.50</b>	<b>2.14</b>	<b>1.94</b>	<b>2.13</b>	-	-	-	-	-	-	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 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 September 7, 2023.

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

Forecasts are not published for individual OPEC countries.

**Historical data:** Latest data available from Energy Information Administration *International Energy Statistics* (<https://www.eia.gov/international/data/world>).

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 - September 2023

	2022				2023				2024				2022	2023	2024
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
<b>North America</b> .....	<b>24.10</b>	<b>24.20</b>	<b>24.46</b>	<b>24.11</b>	<b>23.78</b>	<b>24.54</b>	<b>24.52</b>	<b>24.58</b>	<b>24.17</b>	<b>24.39</b>	<b>24.80</b>	<b>24.61</b>	<b>24.22</b>	<b>24.36</b>	<b>24.50</b>
Canada .....	<b>2.24</b>	<b>2.21</b>	<b>2.38</b>	<b>2.30</b>	<b>2.24</b>	<b>2.25</b>	<b>2.35</b>	<b>2.33</b>	<b>2.28</b>	<b>2.23</b>	<b>2.33</b>	<b>2.31</b>	<b>2.28</b>	<b>2.29</b>	<b>2.29</b>
Mexico .....	<b>1.76</b>	<b>1.99</b>	<b>1.96</b>	<b>1.95</b>	<b>1.87</b>	<b>1.90</b>	<b>1.94</b>	<b>1.96</b>	<b>1.88</b>	<b>1.91</b>	<b>1.91</b>	<b>1.92</b>	<b>1.92</b>	<b>1.92</b>	<b>1.90</b>
United States .....	<b>20.09</b>	<b>20.00</b>	<b>20.11</b>	<b>19.85</b>	<b>19.66</b>	<b>20.38</b>	<b>20.22</b>	<b>20.29</b>	<b>20.00</b>	<b>20.25</b>	<b>20.56</b>	<b>20.37</b>	<b>20.01</b>	<b>20.14</b>	<b>20.30</b>
<b>Central and South America</b> .....	<b>6.27</b>	<b>6.43</b>	<b>6.57</b>	<b>6.54</b>	<b>6.38</b>	<b>6.54</b>	<b>6.63</b>	<b>6.56</b>	<b>6.43</b>	<b>6.58</b>	<b>6.68</b>	<b>6.61</b>	<b>6.45</b>	<b>6.53</b>	<b>6.58</b>
Brazil .....	<b>2.85</b>	<b>2.93</b>	<b>3.02</b>	<b>3.02</b>	<b>2.95</b>	<b>3.00</b>	<b>3.08</b>	<b>3.06</b>	<b>2.97</b>	<b>3.02</b>	<b>3.10</b>	<b>3.08</b>	<b>2.96</b>	<b>3.02</b>	<b>3.04</b>
<b>Europe</b> .....	<b>13.93</b>	<b>14.19</b>	<b>14.80</b>	<b>14.11</b>	<b>13.81</b>	<b>14.13</b>	<b>14.74</b>	<b>14.50</b>	<b>13.96</b>	<b>14.13</b>	<b>14.55</b>	<b>14.31</b>	<b>14.26</b>	<b>14.30</b>	<b>14.24</b>
<b>Eurasia</b> .....	<b>4.28</b>	<b>4.43</b>	<b>4.73</b>	<b>4.65</b>	<b>4.33</b>	<b>4.49</b>	<b>4.81</b>	<b>4.72</b>	<b>4.46</b>	<b>4.62</b>	<b>4.94</b>	<b>4.85</b>	<b>4.53</b>	<b>4.59</b>	<b>4.72</b>
Russia .....	<b>3.27</b>	<b>3.36</b>	<b>3.64</b>	<b>3.50</b>	<b>3.30</b>	<b>3.39</b>	<b>3.69</b>	<b>3.54</b>	<b>3.39</b>	<b>3.48</b>	<b>3.78</b>	<b>3.63</b>	<b>3.44</b>	<b>3.48</b>	<b>3.57</b>
<b>Middle East</b> .....	<b>8.92</b>	<b>9.28</b>	<b>9.67</b>	<b>9.02</b>	<b>9.17</b>	<b>9.29</b>	<b>9.88</b>	<b>9.29</b>	<b>9.48</b>	<b>9.49</b>	<b>10.03</b>	<b>9.43</b>	<b>9.23</b>	<b>9.41</b>	<b>9.61</b>
<b>Asia and Oceania</b> .....	<b>36.50</b>	<b>35.62</b>	<b>35.50</b>	<b>36.58</b>	<b>37.82</b>	<b>37.23</b>	<b>36.49</b>	<b>37.48</b>	<b>38.68</b>	<b>38.06</b>	<b>37.24</b>	<b>38.25</b>	<b>36.05</b>	<b>37.25</b>	<b>38.06</b>
China .....	<b>15.12</b>	<b>15.10</b>	<b>15.09</b>	<b>15.28</b>	<b>15.89</b>	<b>16.08</b>	<b>15.76</b>	<b>15.97</b>	<b>16.29</b>	<b>16.49</b>	<b>16.16</b>	<b>16.38</b>	<b>15.15</b>	<b>15.93</b>	<b>16.33</b>
Japan .....	<b>3.70</b>	<b>3.03</b>	<b>3.19</b>	<b>3.56</b>	<b>3.72</b>	<b>3.02</b>	<b>3.12</b>	<b>3.45</b>	<b>3.57</b>	<b>2.96</b>	<b>3.06</b>	<b>3.39</b>	<b>3.37</b>	<b>3.32</b>	<b>3.24</b>
India .....	<b>5.08</b>	<b>5.07</b>	<b>4.84</b>	<b>5.18</b>	<b>5.29</b>	<b>5.46</b>	<b>5.10</b>	<b>5.43</b>	<b>5.64</b>	<b>5.71</b>	<b>5.33</b>	<b>5.67</b>	<b>5.04</b>	<b>5.32</b>	<b>5.59</b>
<b>Africa</b> .....	<b>4.45</b>	<b>4.45</b>	<b>4.34</b>	<b>4.48</b>	<b>4.53</b>	<b>4.54</b>	<b>4.46</b>	<b>4.62</b>	<b>4.62</b>	<b>4.64</b>	<b>4.56</b>	<b>4.72</b>	<b>4.43</b>	<b>4.54</b>	<b>4.64</b>
<b>Total OECD Liquid Fuels Consumption</b> .....	<b>45.63</b>	<b>45.11</b>	<b>46.22</b>	<b>45.63</b>	<b>45.19</b>	<b>45.40</b>	<b>46.16</b>	<b>46.43</b>	<b>45.60</b>	<b>45.19</b>	<b>46.14</b>	<b>46.15</b>	<b>45.65</b>	<b>45.80</b>	<b>45.77</b>
<b>Total non-OECD Liquid Fuels Consumption</b> .....	<b>52.83</b>	<b>53.49</b>	<b>53.86</b>	<b>53.86</b>	<b>54.63</b>	<b>55.35</b>	<b>55.37</b>	<b>55.33</b>	<b>56.21</b>	<b>56.72</b>	<b>56.67</b>	<b>56.63</b>	<b>53.51</b>	<b>55.17</b>	<b>56.56</b>
<b>Total World Liquid Fuels Consumption</b> .....	<b>98.46</b>	<b>98.60</b>	<b>100.08</b>	<b>99.49</b>	<b>99.82</b>	<b>100.75</b>	<b>101.53</b>	<b>101.75</b>	<b>101.81</b>	<b>101.91</b>	<b>102.80</b>	<b>102.78</b>	<b>99.16</b>	<b>100.97</b>	<b>102.33</b>
<b>Real Gross Domestic Product (a)</b>															
World Index, 2015 Q1 = 100 .....	<b>121.9</b>	<b>122.4</b>	<b>123.5</b>	<b>124.2</b>	<b>125.2</b>	<b>126.1</b>	<b>126.9</b>	<b>127.6</b>	<b>128.1</b>	<b>129.1</b>	<b>130.2</b>	<b>131.4</b>	<b>123.0</b>	<b>126.4</b>	<b>129.7</b>
Percent change from prior year .....	<b>4.3</b>	<b>3.4</b>	<b>3.3</b>	<b>2.2</b>	<b>2.7</b>	<b>3.1</b>	<b>2.7</b>	<b>2.7</b>	<b>2.4</b>	<b>2.3</b>	<b>2.6</b>	<b>3.0</b>	<b>3.3</b>	<b>2.8</b>	<b>2.6</b>
OECD Index, 2015 = 100 .....	<b>113.4</b>	<b>114.9</b>	<b>115.6</b>	<b>116.3</b>	<b>117.0</b>	<b>117.7</b>	<b>118.4</b>	<b>119.1</b>	<b>119.8</b>	<b>120.5</b>	<b>121.2</b>	<b>121.9</b>	<b>113.4</b>	<b>114.9</b>	<b>115.6</b>
Percent change from prior year .....	<b>2.9</b>	<b>1.3</b>	<b>0.7</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>2.9</b>	<b>1.3</b>	<b>0.7</b>
Non-OECD Index, 2015 = 100 .....	<b>129.0</b>	<b>134.1</b>	<b>139.6</b>	<b>145.1</b>	<b>150.2</b>	<b>155.3</b>	<b>160.4</b>	<b>165.5</b>	<b>170.6</b>	<b>175.7</b>	<b>180.8</b>	<b>185.9</b>	<b>129.0</b>	<b>134.1</b>	<b>139.6</b>
Percent change from prior year .....	<b>3.6</b>	<b>4.0</b>	<b>4.1</b>	<b>4.2</b>	<b>4.3</b>	<b>4.4</b>	<b>4.5</b>	<b>4.6</b>	<b>4.7</b>	<b>4.8</b>	<b>4.9</b>	<b>5.0</b>	<b>3.6</b>	<b>4.0</b>	<b>4.1</b>
<b>Nominal U.S. Dollar Index (b)</b>															
Index, 2015 Q1 = 100 .....	<b>109.5</b>	<b>112.8</b>	<b>117.1</b>	<b>118.4</b>	<b>114.1</b>	<b>113.5</b>	<b>113.5</b>	<b>114.0</b>	<b>114.3</b>	<b>114.4</b>	<b>114.2</b>	<b>113.8</b>	<b>114.5</b>	<b>113.8</b>	<b>114.2</b>
Percent change from prior year .....	<b>2.8</b>	<b>6.4</b>	<b>9.0</b>	<b>8.6</b>	<b>4.2</b>	<b>0.6</b>	<b>-3.0</b>	<b>-3.7</b>	<b>0.2</b>	<b>0.8</b>	<b>0.6</b>	<b>-0.2</b>	<b>6.7</b>	<b>-0.6</b>	<b>0.4</b>

(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, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Latvia, Lithuania, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Slovenia, South Korea, Spain, Sweden, Switzerland, Türkiye, United Kingdom, and United States.

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

**Historical data:** Energy Information Administration *International Energy Statistics* (<https://www.eia.gov/international/data/world>) and Oxford Economics.

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

**Forecasts:** EIA Short-Term Integrated Forecasting System.

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Supply (million barrels per day)</b>															
Crude Oil Supply															
Domestic Production (a) .....	11.52	11.77	12.05	12.30	12.63	12.71	12.86	12.94	13.03	13.09	13.15	13.36	11.91	12.78	13.16
Alaska .....	0.45	0.44	0.42	0.44	0.44	0.43	0.41	0.43	0.43	0.41	0.40	0.41	0.44	0.43	0.41
Federal Gulf of Mexico (b) .....	1.66	1.70	1.77	1.79	1.87	1.76	1.86	1.90	1.94	1.93	1.85	1.89	1.73	1.85	1.90
Lower 48 States (excl GOM) .....	9.42	9.63	9.85	10.06	10.31	10.52	10.59	10.60	10.66	10.75	10.90	11.06	9.74	10.51	10.85
Transfers to Crude Oil Supply .....	0.41	0.37	0.42	0.48	0.39	0.51	0.49	0.38	0.36	0.38	0.38	0.36	0.42	0.44	0.37
Crude Oil Net Imports (c) .....	3.06	2.81	2.75	2.20	2.27	2.51	2.62	2.48	2.23	2.62	2.64	1.96	2.71	2.47	2.36
SPR Net Withdrawals .....	0.31	0.80	0.84	0.48	0.01	0.26	-0.05	0.00	0.00	0.00	0.00	0.00	0.61	0.05	0.00
Commercial Inventory Net Withdrawals .....	0.08	-0.04	-0.12	-0.01	-0.39	0.12	0.40	-0.04	-0.35	0.09	0.17	-0.11	-0.02	0.02	-0.05
Crude Oil Adjustment (d) .....	0.20	0.45	0.38	0.41	0.34	0.03	0.12	0.32	0.36	0.35	0.34	0.37	0.36	0.20	0.36
Total Crude Oil Input to Refineries .....	15.58	16.15	16.31	15.86	15.25	16.15	16.31	15.70	15.28	16.15	16.30	15.58	15.98	15.85	15.83
Other Supply															
Refinery Processing Gain .....	0.97	1.08	1.06	1.01	0.97	1.01	1.01	1.01	0.96	1.00	1.01	0.99	1.03	1.00	0.99
Natural Gas Plant Liquids Production .....	5.66	5.96	6.13	5.97	6.01	6.42	6.51	6.43	6.41	6.47	6.53	6.57	5.93	6.34	6.49
Renewables and Oxygenate Production (e) .....	1.20	1.20	1.18	1.23	1.24	1.29	1.33	1.29	1.28	1.30	1.32	1.29	1.20	1.29	1.29
Fuel Ethanol Production .....	1.02	1.01	0.97	1.01	1.00	1.00	1.04	1.00	0.98	0.98	0.99	0.98	1.00	1.01	0.98
Petroleum Products Adjustment (f) .....	0.22	0.23	0.22	0.22	0.20	0.22	0.22	0.22	0.21	0.22	0.22	0.22	0.22	0.21	0.22
Petroleum Products Transfers to Crude Oil Supply .....	-0.41	-0.37	-0.42	-0.48	-0.39	-0.51	-0.49	-0.38	-0.36	-0.38	-0.38	-0.36	-0.42	-0.44	-0.37
Product Net Imports (c) .....	-3.54	-4.02	-4.12	-3.90	-3.91	-3.71	-4.36	-4.29	-4.03	-4.04	-4.25	-4.38	-3.90	-4.07	-4.18
Hydrocarbon Gas Liquids .....	-2.07	-2.36	-2.25	-2.26	-2.47	-2.39	-2.48	-2.51	-2.55	-2.62	-2.58	-2.62	-2.24	-2.46	-2.59
Unfinished Oils .....	0.17	0.29	0.29	0.30	0.28	0.27	0.32	0.31	0.24	0.30	0.32	0.21	0.26	0.29	0.27
Other HC/Oxygenates .....	-0.07	-0.10	-0.06	-0.02	-0.05	-0.07	-0.06	-0.06	-0.06	-0.05	-0.04	-0.04	-0.06	-0.06	-0.05
Motor Gasoline Blend Comp. ....	0.38	0.60	0.48	0.40	0.45	0.67	0.56	0.39	0.49	0.66	0.50	0.33	0.46	0.52	0.49
Finished Motor Gasoline .....	-0.69	-0.75	-0.79	-0.84	-0.75	-0.58	-0.77	-0.74	-0.82	-0.72	-0.75	-0.74	-0.77	-0.71	-0.76
Jet Fuel .....	-0.03	-0.06	-0.10	-0.03	-0.05	0.01	-0.07	0.05	0.13	0.22	0.21	0.19	-0.06	-0.02	0.19
Distillate Fuel Oil .....	-0.74	-1.08	-1.24	-1.00	-0.76	-0.97	-1.11	-1.05	-0.83	-1.12	-1.23	-1.03	-1.02	-0.97	-1.05
Residual Fuel Oil .....	0.09	0.08	0.10	0.09	0.01	-0.04	-0.04	0.08	0.04	0.05	0.05	0.12	0.09	0.00	0.07
Other Oils (g) .....	-0.58	-0.64	-0.53	-0.54	-0.58	-0.61	-0.70	-0.76	-0.66	-0.75	-0.74	-0.79	-0.57	-0.66	-0.74
Product Inventory Net Withdrawals .....	0.42	-0.25	-0.26	-0.06	0.30	-0.49	-0.31	0.32	0.26	-0.48	-0.17	0.47	-0.04	-0.05	0.02
Total Supply .....	20.09	20.00	20.11	19.85	19.67	20.38	20.22	20.29	20.00	20.25	20.56	20.37	20.01	20.14	20.30
<b>Consumption (million barrels per day)</b>															
Hydrocarbon Gas Liquids .....	3.77	3.18	3.17	3.32	3.40	3.36	3.36	3.68	3.82	3.34	3.39	3.73	3.36	3.45	3.57
Other HC/Oxygenates .....	0.14	0.17	0.17	0.19	0.22	0.28	0.24	0.24	0.24	0.26	0.26	0.26	0.17	0.24	0.25
Unfinished Oils .....	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
Motor Gasoline .....	8.57	9.00	8.93	8.74	8.67	9.13	8.95	8.75	8.44	8.89	8.98	8.62	8.81	8.87	8.73
Fuel Ethanol blended into Motor Gasoline .....	0.88	0.93	0.92	0.93	0.90	0.94	0.95	0.91	0.87	0.92	0.94	0.90	0.91	0.93	0.91
Jet Fuel .....	1.45	1.61	1.60	1.58	1.55	1.67	1.69	1.64	1.64	1.78	1.83	1.78	1.56	1.64	1.76
Distillate Fuel Oil .....	4.22	3.97	3.91	4.00	4.01	3.93	3.81	3.97	4.06	3.95	3.89	4.02	4.03	3.93	3.98
Residual Fuel Oil .....	0.33	0.30	0.38	0.30	0.29	0.22	0.28	0.35	0.26	0.27	0.32	0.33	0.33	0.28	0.29
Other Oils (g) .....	1.61	1.78	1.94	1.70	1.53	1.79	1.90	1.66	1.55	1.77	1.90	1.63	1.76	1.72	1.71
Total Consumption .....	20.09	20.00	20.11	19.85	19.66	20.38	20.22	20.29	20.00	20.25	20.56	20.37	20.01	20.14	20.30
<b>Total Petroleum and Other Liquids Net Imports .....</b>	<b>-0.48</b>	<b>-1.21</b>	<b>-1.37</b>	<b>-1.69</b>	<b>-1.64</b>	<b>-1.20</b>	<b>-1.74</b>	<b>-1.81</b>	<b>-1.80</b>	<b>-1.42</b>	<b>-1.61</b>	<b>-2.42</b>	<b>-1.19</b>	<b>-1.60</b>	<b>-1.81</b>
<b>End-of-period Inventories (million barrels)</b>															
Commercial Inventory															
Crude Oil (excluding SPR) .....	414.2	417.8	429.0	430.1	465.4	454.7	418.1	421.4	453.1	444.9	429.4	439.5	430.1	421.4	439.5
Hydrocarbon Gas Liquids .....	142.1	186.7	243.7	211.1	174.3	225.4	271.0	227.6	188.4	235.0	273.5	228.3	211.1	227.6	228.3
Unfinished Oils .....	88.1	88.9	82.3	86.4	88.6	87.0	85.6	80.4	90.8	87.9	86.4	78.9	86.4	80.4	78.9
Other HC/Oxygenates .....	34.4	29.7	27.3	31.6	34.3	30.1	30.4	30.6	32.7	31.5	31.2	31.4	31.6	30.6	31.4
Total Motor Gasoline .....	238.5	221.0	209.5	224.4	225.3	223.2	216.7	233.6	234.8	232.0	219.7	231.1	224.4	233.6	231.1
Finished Motor Gasoline .....	17.3	17.1	17.6	17.2	14.7	17.6	17.0	17.7	15.4	16.3	18.0	20.3	17.2	17.7	20.3
Motor Gasoline Blend Comp. ....	221.2	203.9	191.9	207.2	210.6	205.6	199.7	215.9	219.4	215.7	201.8	210.8	207.2	215.9	210.8
Jet Fuel .....	35.6	39.4	36.5	35.0	37.7	42.7	41.6	41.0	39.5	41.2	42.4	39.4	35.0	41.0	39.4
Distillate Fuel Oil .....	114.7	111.3	110.5	118.9	112.3	112.6	117.0	118.7	111.0	115.5	116.5	116.9	118.9	118.7	116.9
Residual Fuel Oil .....	28.1	29.3	27.4	30.7	29.6	30.4	25.5	25.4	27.1	26.7	25.1	24.6	30.7	25.4	24.6
Other Oils (g) .....	58.6	56.3	49.3	54.3	63.3	58.3	50.5	51.8	60.8	58.6	49.3	50.7	54.3	51.8	50.7
Total Commercial Inventory .....	1154.2	1180.4	1215.6	1222.6	1230.8	1264.4	1256.3	1230.4	1238.2	1273.3	1273.6	1240.9	1222.6	1230.4	1240.9
Crude Oil in SPR .....	566.1	493.3	416.4	372.0	371.2	347.2	352.0	352.0	352.0	352.0	352.0	352.0	372.0	352.0	352.0

(a) Includes lease condensate.

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

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

(d) Crude oil adjustment equals the sum of disposition items (e.g. refinery inputs) minus the sum of supply items (e.g. production).

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

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

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

- = no data available

SPR: Strategic Petroleum Reserve

HC: Hydrocarbons

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

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

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

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

**Forecasts:** EIA Short-Term Integrated Forecasting System.

**Table 4b. U.S. Hydrocarbon Gas Liquids (HGL) and Petroleum Refinery Balances (million barrels per day, except inventories and utilization factor)**  
 U.S. Energy Information Administration | Short-Term Energy Outlook - September 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>HGL Production</b>															
<b>Natural Gas Processing Plants</b>															
Ethane .....	2.35	2.45	2.42	2.39	2.49	2.65	2.68	2.67	2.65	2.68	2.69	2.70	2.41	2.62	2.68
Propane .....	1.79	1.86	1.94	1.90	1.89	2.00	2.02	1.99	2.01	2.02	2.03	2.05	1.87	1.98	2.03
Butanes .....	0.93	0.99	1.03	1.00	0.99	1.06	1.08	1.09	1.10	1.09	1.10	1.13	0.99	1.05	1.10
Natural Gasoline (Pentanes Plus) .....	0.59	0.67	0.74	0.67	0.64	0.73	0.73	0.67	0.65	0.68	0.71	0.68	0.67	0.69	0.68
<b>Refinery and Blender Net Production</b>															
Ethane/Ethylene .....	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Propane .....	0.27	0.29	0.29	0.27	0.27	0.29	0.28	0.27	0.26	0.28	0.28	0.27	0.28	0.28	0.27
Propylene (refinery-grade) .....	0.28	0.28	0.26	0.23	0.24	0.26	0.27	0.28	0.28	0.28	0.27	0.28	0.26	0.26	0.28
Butanes/Butylenes .....	-0.07	0.26	0.19	-0.15	-0.05	0.28	0.20	-0.19	-0.08	0.27	0.20	-0.19	0.06	0.06	0.05
<b>Renewable Fuels and Oxygenate Plant Net Production</b>															
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
<b>HGL Net Imports</b>															
Ethane .....	-0.40	-0.40	-0.42	-0.45	-0.50	-0.49	-0.48	-0.47	-0.49	-0.49	-0.49	-0.52	-0.42	-0.48	-0.50
Propane/Propylene .....	-1.20	-1.34	-1.27	-1.27	-1.40	-1.40	-1.44	-1.41	-1.41	-1.47	-1.44	-1.43	-1.27	-1.41	-1.44
Butanes/Butylenes .....	-0.29	-0.45	-0.37	-0.38	-0.42	-0.41	-0.47	-0.49	-0.47	-0.51	-0.50	-0.50	-0.37	-0.45	-0.50
Natural Gasoline (Pentanes Plus) .....	-0.17	-0.17	-0.19	-0.15	-0.15	-0.09	-0.10	-0.14	-0.18	-0.15	-0.15	-0.16	-0.17	-0.12	-0.16
<b>HGL Refinery and Blender Net Inputs</b>															
Butanes/Butylenes .....	0.43	0.29	0.33	0.54	0.48	0.29	0.31	0.50	0.42	0.29	0.32	0.52	0.40	0.40	0.39
Natural Gasoline (Pentanes Plus) .....	0.17	0.17	0.19	0.17	0.18	0.20	0.25	0.21	0.18	0.18	0.19	0.18	0.17	0.21	0.18
<b>HGL Consumption</b>															
Ethane/Ethylene .....	2.10	2.06	1.99	1.94	1.99	2.19	2.18	2.18	2.18	2.17	2.18	2.21	2.02	2.14	2.19
Propane .....	1.16	0.59	0.64	0.95	0.98	0.62	0.65	1.00	1.13	0.62	0.66	1.02	0.83	0.81	0.86
Propylene (refinery-grade) .....	0.30	0.29	0.28	0.24	0.25	0.27	0.29	0.29	0.30	0.30	0.29	0.29	0.28	0.28	0.29
Butanes/Butylenes .....	0.21	0.23	0.26	0.20	0.18	0.28	0.25	0.21	0.21	0.24	0.26	0.21	0.23	0.23	0.23
Natural Gasoline (Pentanes Plus) .....	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
<b>HGL Inventories (million barrels)</b>															
Ethane .....	51.2	51.7	49.9	54.3	53.0	54.2	52.8	55.7	55.8	56.5	58.2	58.2	51.8	53.9	57.2
Propane .....	36.3	54.1	82.0	76.7	55.8	79.2	97.8	82.2	55.6	72.4	90.3	76.6	76.7	82.2	76.6
Propylene (at refineries only) .....	1.1	1.2	1.1	1.3	1.1	1.1	1.5	1.5	1.4	1.7	1.8	1.7	1.3	1.5	1.7
Butanes/Butylenes .....	35.7	58.8	81.3	54.5	40.2	70.1	90.9	62.0	53.1	80.6	98.6	69.8	54.5	62.0	69.8
Natural Gasoline (Pentanes Plus) .....	19.4	22.7	27.2	25.1	22.9	23.4	26.9	25.6	22.7	23.5	23.9	22.8	25.1	25.6	22.8
<b>Refinery and Blender Net Inputs</b>															
Crude Oil .....	15.58	16.15	16.31	15.86	15.25	16.15	16.31	15.70	15.28	16.15	16.30	15.58	15.98	15.85	15.83
Hydrocarbon Gas Liquids .....	0.59	0.45	0.52	0.70	0.66	0.49	0.56	0.71	0.60	0.46	0.51	0.70	0.57	0.61	0.57
Other Hydrocarbons/Oxygenates .....	1.13	1.20	1.19	1.17	1.13	1.20	1.22	1.17	1.14	1.20	1.22	1.16	1.17	1.18	1.18
Unfinished Oils .....	-0.06	0.21	0.24	0.15	0.19	0.21	0.18	0.32	0.09	0.31	0.32	0.29	0.14	0.22	0.25
Motor Gasoline Blend Components .....	0.30	0.81	0.64	0.29	0.34	0.85	0.71	0.44	0.57	0.80	0.75	0.45	0.51	0.59	0.64
Aviation Gasoline Blend Components .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Refinery and Blender Net Inputs .....	17.53	18.83	18.91	18.17	17.58	18.90	18.98	18.34	17.68	18.92	19.10	18.18	18.36	18.45	18.47
<b>Refinery Processing Gain</b> .....	0.97	1.08	1.06	1.01	0.97	1.01	1.01	1.01	0.96	1.00	1.01	0.99	1.03	1.00	0.99
<b>Refinery and Blender Net Production</b>															
Hydrocarbon Gas Liquids .....	0.49	0.84	0.75	0.36	0.47	0.83	0.76	0.36	0.46	0.83	0.76	0.36	0.61	0.60	0.60
Finished Motor Gasoline .....	9.21	9.74	9.74	9.58	9.28	9.83	9.75	9.66	9.32	9.68	9.80	9.56	9.57	9.63	9.59
Jet Fuel .....	1.48	1.71	1.67	1.60	1.62	1.72	1.74	1.59	1.49	1.58	1.63	1.56	1.62	1.67	1.57
Distillate Fuel .....	4.79	5.01	5.15	5.09	4.69	4.91	4.96	5.03	4.80	5.12	5.12	5.06	5.01	4.90	5.03
Residual Fuel .....	0.27	0.23	0.26	0.25	0.27	0.27	0.26	0.27	0.24	0.21	0.25	0.20	0.25	0.27	0.23
Other Oils (a) .....	2.26	2.40	2.40	2.30	2.21	2.35	2.51	2.44	2.31	2.50	2.54	2.44	2.34	2.38	2.45
Total Refinery and Blender Net Production .....	18.50	19.92	19.97	19.18	18.54	19.91	19.99	19.35	18.64	19.92	20.11	19.18	19.40	19.45	19.46
<b>Refinery Distillation Inputs</b> .....	16.12	16.66	16.82	16.34	15.78	16.75	16.79	16.09	15.68	16.54	16.73	15.98	16.48	16.35	16.23
<b>Refinery Operable Distillation Capacity</b> .....	17.93	17.93	17.98	18.01	18.12	18.27	18.31	18.31	18.31	18.31	18.32	18.33	17.96	18.25	18.32
<b>Refinery Distillation Utilization Factor</b> .....	0.90	0.93	0.94	0.91	0.87	0.92	0.92	0.88	0.86	0.90	0.91	0.87	0.92	0.90	0.89

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

- = no data available

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

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

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

**Forecasts:** EIA Short-Term Integrated Forecasting System.

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Prices (cents per gallon)</b>															
Refiner Wholesale Price .....	278	376	311	267	262	265	291	277	266	275	267	247	309	274	264
<b>Gasoline Regular Grade Retail Prices Including Taxes</b>															
PADD 1 .....	364	438	393	341	330	344	360	354	345	352	344	327	384	347	342
PADD 2 .....	352	436	397	345	324	348	358	354	341	355	347	319	383	346	341
PADD 3 .....	341	413	358	300	302	315	333	325	314	322	314	293	353	319	311
PADD 4 .....	360	446	434	358	357	359	391	375	349	365	362	340	401	371	354
PADD 5 .....	452	543	511	478	418	452	475	465	435	443	434	411	497	453	431
U.S. Average .....	371	450	408	357	338	358	375	369	354	364	356	334	397	360	352
<b>Gasoline All Grades Including Taxes</b>	<b>380</b>	<b>460</b>	<b>419</b>	<b>369</b>	<b>349</b>	<b>369</b>	<b>386</b>	<b>381</b>	<b>366</b>	<b>375</b>	<b>367</b>	<b>346</b>	<b>408</b>	<b>372</b>	<b>364</b>
<b>End-of-period Inventories (million barrels)</b>															
<b>Total Gasoline Inventories</b>															
PADD 1 .....	57.0	53.6	54.3	56.4	52.7	57.1	56.9	62.2	60.3	63.2	57.2	59.4	56.4	62.2	59.4
PADD 2 .....	56.5	46.7	44.1	46.6	49.5	45.2	45.6	49.5	48.6	43.6	44.0	51.6	46.6	49.5	51.6
PADD 3 .....	87.0	83.9	80.2	81.4	84.1	85.0	79.6	83.7	87.8	88.2	82.1	82.0	81.4	83.7	82.0
PADD 4 .....	8.1	6.4	6.4	7.4	7.8	6.8	7.4	8.3	8.4	7.1	7.0	7.7	7.4	8.3	7.7
PADD 5 .....	29.9	30.3	24.5	32.6	31.2	29.0	27.3	30.0	29.7	29.8	29.4	30.3	32.6	30.0	30.3
U.S. Total .....	238.5	221.0	209.5	224.4	225.3	223.2	216.7	233.6	234.8	232.0	219.7	231.1	224.4	233.6	231.1
<b>Finished Gasoline Inventories</b>															
U.S. Total .....	17.3	17.1	17.6	17.2	14.7	17.6	17.0	17.7	15.4	16.3	18.0	20.3	17.2	17.7	20.3
<b>Gasoline Blending Components Inventories</b>															
U.S. Total .....	221.2	203.9	191.9	207.2	210.6	205.6	199.7	215.9	219.4	215.7	201.8	210.8	207.2	215.9	210.8

- = no data available

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

Prices are not adjusted for inflation.

PADD = Petroleum Administration for Defense District (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 - September 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Supply (billion cubic feet per day)</b>															
Total Marketed Production .....	<b>103.27</b>	<b>106.18</b>	<b>108.27</b>	<b>108.90</b>	<b>110.87</b>	<b>112.14</b>	<i>112.06</i>	<i>112.52</i>	<i>113.75</i>	<i>114.20</i>	<i>114.45</i>	<i>115.53</i>	<b>106.67</b>	<i>111.90</i>	<i>114.49</i>
Alaska .....	<b>1.06</b>	<b>1.00</b>	<b>0.96</b>	<b>1.07</b>	<b>1.08</b>	<b>1.01</b>	<i>0.89</i>	<i>0.99</i>	<i>1.00</i>	<i>0.92</i>	<i>0.84</i>	<i>0.98</i>	<b>1.02</b>	<i>0.99</i>	<i>0.94</i>
Federal GOM (a) .....	<b>2.05</b>	<b>2.11</b>	<b>2.19</b>	<b>2.12</b>	<b>2.14</b>	<b>1.89</b>	<i>1.99</i>	<i>2.12</i>	<i>2.10</i>	<i>2.03</i>	<i>1.88</i>	<i>1.87</i>	<b>2.12</b>	<i>2.04</i>	<i>1.97</i>
Lower 48 States (excl GOM) .....	<b>100.16</b>	<b>103.07</b>	<b>105.12</b>	<b>105.71</b>	<b>107.65</b>	<b>109.24</b>	<i>109.19</i>	<i>109.41</i>	<i>110.65</i>	<i>111.25</i>	<i>111.72</i>	<i>112.69</i>	<b>103.53</b>	<i>108.88</i>	<i>111.58</i>
Total Dry Gas Production .....	<b>95.09</b>	<b>97.59</b>	<b>99.46</b>	<b>100.29</b>	<b>102.13</b>	<b>102.80</b>	<i>102.71</i>	<i>103.12</i>	<i>104.25</i>	<i>104.66</i>	<i>104.89</i>	<i>105.89</i>	<b>98.13</b>	<i>102.69</i>	<i>104.93</i>
LNG Gross Imports .....	<b>0.15</b>	<b>0.01</b>	<b>0.07</b>	<b>0.05</b>	<b>0.09</b>	<b>0.02</b>	<i>0.04</i>	<i>0.06</i>	<i>0.10</i>	<i>0.04</i>	<i>0.04</i>	<i>0.06</i>	<b>0.07</b>	<i>0.05</i>	<i>0.06</i>
LNG Gross Exports .....	<b>11.50</b>	<b>10.80</b>	<b>9.74</b>	<b>10.35</b>	<b>11.45</b>	<b>11.76</b>	<i>11.30</i>	<i>11.90</i>	<i>12.30</i>	<i>12.61</i>	<i>13.09</i>	<i>14.61</i>	<b>10.59</b>	<i>11.60</i>	<i>13.15</i>
Pipeline Gross Imports .....	<b>8.89</b>	<b>7.73</b>	<b>7.84</b>	<b>8.41</b>	<b>8.45</b>	<b>7.32</b>	<i>7.34</i>	<i>7.49</i>	<i>8.18</i>	<i>6.81</i>	<i>7.04</i>	<i>7.44</i>	<b>8.22</b>	<i>7.64</i>	<i>7.37</i>
Pipeline Gross Exports .....	<b>8.46</b>	<b>8.52</b>	<b>8.13</b>	<b>8.19</b>	<b>8.91</b>	<b>8.75</b>	<i>9.16</i>	<i>9.31</i>	<i>9.52</i>	<i>8.89</i>	<i>9.21</i>	<i>9.64</i>	<b>8.32</b>	<i>9.03</i>	<i>9.32</i>
Supplemental Gaseous Fuels .....	<b>0.21</b>	<b>0.17</b>	<b>0.18</b>	<b>0.16</b>	<b>0.19</b>	<b>0.15</b>	<i>0.17</i>	<i>0.17</i>	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	<b>0.18</b>	<i>0.17</i>	<i>0.18</i>
Net Inventory Withdrawals .....	<b>20.14</b>	<b>-10.25</b>	<b>-8.94</b>	<b>2.35</b>	<b>11.95</b>	<b>-11.70</b>	<i>-6.78</i>	<i>3.26</i>	<i>13.93</i>	<i>-12.34</i>	<i>-6.60</i>	<i>3.01</i>	<b>0.75</b>	<i>-0.86</i>	<i>-0.51</i>
Total Supply .....	<b>104.52</b>	<b>75.94</b>	<b>80.72</b>	<b>92.73</b>	<b>102.44</b>	<b>78.08</b>	<i>83.02</i>	<i>92.90</i>	<i>104.81</i>	<i>77.85</i>	<i>83.25</i>	<i>92.33</i>	<b>88.43</b>	<i>89.07</i>	<i>89.55</i>
Balancing Item (b) .....	<b>0.33</b>	<b>0.21</b>	<b>0.07</b>	<b>-0.09</b>	<b>0.64</b>	<b>-0.06</b>	<i>1.58</i>	<i>0.45</i>	<i>-1.61</i>	<i>-1.26</i>	<i>0.28</i>	<i>-0.24</i>	<b>0.13</b>	<i>0.65</i>	<i>-0.70</i>
Total Primary Supply .....	<b>104.85</b>	<b>76.16</b>	<b>80.80</b>	<b>92.64</b>	<b>103.08</b>	<b>78.02</b>	<i>84.60</i>	<i>93.35</i>	<i>103.20</i>	<i>76.59</i>	<i>83.52</i>	<i>92.08</i>	<b>88.56</b>	<i>89.72</i>	<i>88.84</i>
<b>Consumption (billion cubic feet per day)</b>															
Residential .....	<b>26.09</b>	<b>7.86</b>	<b>3.57</b>	<b>17.37</b>	<b>23.48</b>	<b>7.27</b>	<i>4.03</i>	<i>16.61</i>	<i>24.82</i>	<i>7.85</i>	<i>4.31</i>	<i>16.63</i>	<b>13.67</b>	<i>12.81</i>	<i>13.39</i>
Commercial .....	<b>15.61</b>	<b>6.67</b>	<b>4.74</b>	<b>11.69</b>	<b>14.53</b>	<b>6.41</b>	<i>5.14</i>	<i>11.73</i>	<i>14.83</i>	<i>6.88</i>	<i>5.31</i>	<i>11.81</i>	<b>9.66</b>	<i>9.43</i>	<i>9.70</i>
Industrial .....	<b>25.46</b>	<b>22.25</b>	<b>21.47</b>	<b>23.51</b>	<b>24.67</b>	<b>22.24</b>	<i>21.46</i>	<i>23.47</i>	<i>24.30</i>	<i>21.28</i>	<i>21.14</i>	<i>23.44</i>	<b>23.16</b>	<i>22.95</i>	<i>22.54</i>
Electric Power (c) .....	<b>28.39</b>	<b>30.99</b>	<b>42.36</b>	<b>30.94</b>	<b>30.78</b>	<b>33.34</b>	<i>44.94</i>	<i>32.14</i>	<i>29.41</i>	<i>31.75</i>	<i>43.64</i>	<i>30.69</i>	<b>33.20</b>	<i>35.33</i>	<i>33.89</i>
Lease and Plant Fuel .....	<b>5.26</b>	<b>5.41</b>	<b>5.51</b>	<b>5.55</b>	<b>5.65</b>	<b>5.71</b>	<i>5.71</i>	<i>5.73</i>	<i>5.79</i>	<i>5.82</i>	<i>5.83</i>	<i>5.88</i>	<b>5.43</b>	<i>5.70</i>	<i>5.83</i>
Pipeline and Distribution Use .....	<b>3.86</b>	<b>2.80</b>	<b>2.98</b>	<b>3.41</b>	<b>3.80</b>	<b>2.87</b>	<i>3.13</i>	<i>3.47</i>	<i>3.85</i>	<i>2.82</i>	<i>3.09</i>	<i>3.43</i>	<b>3.26</b>	<i>3.32</i>	<i>3.30</i>
Vehicle Use .....	<b>0.17</b>	<b>0.17</b>	<b>0.17</b>	<b>0.17</b>	<b>0.18</b>	<b>0.18</b>	<i>0.18</i>	<i>0.18</i>	<i>0.20</i>	<i>0.20</i>	<i>0.20</i>	<i>0.20</i>	<b>0.17</b>	<i>0.18</i>	<i>0.20</i>
Total Consumption .....	<b>104.85</b>	<b>76.16</b>	<b>80.80</b>	<b>92.64</b>	<b>103.08</b>	<b>78.02</b>	<i>84.60</i>	<i>93.35</i>	<i>103.20</i>	<i>76.59</i>	<i>83.52</i>	<i>92.08</i>	<b>88.56</b>	<i>89.72</i>	<i>88.84</i>
<b>End-of-period Inventories (billion cubic feet)</b>															
Working Gas Inventory .....	<b>1,401</b>	<b>2,325</b>	<b>3,146</b>	<b>2,927</b>	<b>1,850</b>	<b>2,900</b>	<i>3,524</i>	<i>3,224</i>	<i>1,957</i>	<i>3,080</i>	<i>3,687</i>	<i>3,410</i>	<b>2,927</b>	<i>3,224</i>	<i>3,410</i>
East Region (d) .....	<b>242</b>	<b>482</b>	<b>759</b>	<b>698</b>	<b>334</b>	<b>646</b>	<i>860</i>	<i>750</i>	<i>364</i>	<i>673</i>	<i>864</i>	<i>779</i>	<b>698</b>	<i>750</i>	<i>779</i>
Midwest Region (d) .....	<b>296</b>	<b>557</b>	<b>917</b>	<b>831</b>	<b>417</b>	<b>701</b>	<i>1,004</i>	<i>884</i>	<i>430</i>	<i>729</i>	<i>1,014</i>	<i>919</i>	<b>831</b>	<i>884</i>	<i>919</i>
South Central Region (d) .....	<b>587</b>	<b>885</b>	<b>1,006</b>	<b>1,042</b>	<b>919</b>	<b>1,136</b>	<i>1,119</i>	<i>1,113</i>	<i>831</i>	<i>1,196</i>	<i>1,232</i>	<i>1,194</i>	<b>1,042</b>	<i>1,113</i>	<i>1,194</i>
Mountain Region (d) .....	<b>90</b>	<b>137</b>	<b>184</b>	<b>158</b>	<b>79</b>	<b>171</b>	<i>235</i>	<i>196</i>	<i>127</i>	<i>166</i>	<i>226</i>	<i>196</i>	<b>158</b>	<i>196</i>	<i>196</i>
Pacific Region (d) .....	<b>165</b>	<b>240</b>	<b>247</b>	<b>169</b>	<b>74</b>	<b>216</b>	<i>274</i>	<i>250</i>	<i>180</i>	<i>287</i>	<i>317</i>	<i>293</i>	<b>169</b>	<i>250</i>	<i>293</i>
Alaska .....	<b>21</b>	<b>25</b>	<b>32</b>	<b>30</b>	<b>27</b>	<b>30</b>	<i>34</i>	<i>31</i>	<i>25</i>	<i>28</i>	<i>33</i>	<i>29</i>	<b>30</b>	<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/ngs/notes.html>).

- = no data available

LNG: liquefied natural gas.

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

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

**Forecasts:** EIA Short-Term Integrated Forecasting System.

**Table 5b. U.S. Regional Natural Gas Prices (dollars per thousand cubic feet)**

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Wholesale/Spot</b>															
Henry Hub Spot Price .....	4.84	7.77	8.30	5.76	2.76	2.25	2.65	3.07	3.45	3.03	3.40	3.59	6.67	2.68	3.37
<b>Residential Retail</b>															
New England .....	17.69	20.93	26.83	21.72	21.06	20.48	22.75	17.41	17.20	18.45	22.77	18.10	19.87	19.89	18.06
Middle Atlantic .....	12.79	15.55	23.86	16.89	15.61	16.05	20.96	13.95	12.88	14.76	21.65	14.65	15.17	15.53	14.30
E. N. Central .....	9.81	14.81	25.79	13.17	11.06	13.35	21.35	9.54	8.47	11.84	20.63	9.70	12.45	11.46	10.07
W. N. Central .....	11.40	15.25	25.08	13.42	13.34	15.53	22.35	10.42	9.05	11.66	19.37	9.99	13.23	13.18	10.28
S. Atlantic .....	13.91	22.11	32.99	17.69	17.32	20.87	25.91	13.92	13.10	17.71	25.84	14.50	17.48	17.23	15.13
E. S. Central .....	11.80	17.16	26.38	15.45	13.80	16.69	22.05	12.07	10.77	14.77	22.65	12.29	14.32	14.02	12.46
W. S. Central .....	12.61	20.91	30.98	17.56	14.59	19.75	22.88	12.03	9.70	14.71	21.74	12.50	16.35	15.13	12.13
Mountain .....	10.31	12.85	19.38	13.44	12.50	13.86	13.48	8.99	8.49	9.93	14.09	9.25	12.39	11.75	9.38
Pacific .....	17.07	17.80	20.54	18.95	20.22	17.09	16.49	14.73	15.41	15.20	16.01	14.96	18.20	17.68	15.30
U.S. Average .....	12.32	16.57	24.95	15.63	14.73	16.22	20.34	12.08	11.17	13.96	19.97	12.40	14.82	14.52	12.68
<b>Commercial Retail</b>															
New England .....	12.62	14.46	16.23	15.81	15.20	13.67	12.21	10.64	10.85	11.37	11.70	10.84	14.21	13.19	11.02
Middle Atlantic .....	10.36	10.78	12.01	11.99	11.95	9.26	7.59	7.69	8.38	7.84	7.59	8.14	11.11	9.63	8.13
E. N. Central .....	8.12	10.46	14.23	10.32	9.17	8.74	9.73	6.77	6.63	7.89	9.60	6.98	9.59	8.38	7.16
W. N. Central .....	10.22	11.73	15.07	11.32	11.69	11.46	11.19	8.25	7.99	8.42	9.88	8.04	11.12	10.58	8.21
S. Atlantic .....	10.52	12.22	14.21	13.08	13.00	11.29	10.86	9.53	9.21	9.96	10.31	9.60	12.06	11.28	9.60
E. S. Central .....	10.41	12.80	15.56	13.49	11.93	11.03	11.11	9.17	8.79	9.93	10.98	9.60	12.26	10.74	9.47
W. S. Central .....	10.09	12.86	15.00	12.73	11.11	9.84	9.66	8.33	7.62	8.56	9.43	8.60	12.01	9.81	8.32
Mountain .....	8.78	9.98	12.60	11.31	10.77	10.79	10.97	8.75	8.32	8.53	9.02	7.69	10.19	10.19	8.24
Pacific .....	13.08	13.67	15.58	14.47	16.91	12.60	12.44	11.84	12.10	11.69	12.26	12.05	14.00	13.89	12.03
U.S. Average .....	10.00	11.71	14.12	12.14	11.84	10.53	10.23	8.56	8.42	9.03	9.83	8.67	11.37	10.41	8.76
<b>Industrial Retail</b>															
New England .....	11.11	12.09	12.17	13.47	13.53	10.05	7.67	8.12	8.93	8.19	7.24	8.38	12.11	10.09	8.34
Middle Atlantic .....	10.80	10.15	11.91	12.72	7.84	4.95	7.65	7.64	8.11	7.56	7.39	7.92	11.26	7.09	7.88
E. N. Central .....	7.66	8.72	10.75	10.31	9.24	6.60	6.38	5.78	6.17	6.16	6.03	6.10	8.88	7.29	6.13
W. N. Central .....	7.96	8.58	9.59	8.62	8.80	4.87	3.91	4.57	5.36	4.53	4.56	5.28	8.64	5.64	4.97
S. Atlantic .....	7.46	8.84	11.14	9.09	7.00	4.83	4.42	4.80	5.49	4.85	5.02	5.48	9.05	5.33	5.23
E. S. Central .....	6.53	8.70	10.63	8.03	5.70	3.92	3.83	4.39	5.07	4.50	4.59	5.10	8.34	4.50	4.83
W. S. Central .....	5.58	7.69	8.45	5.87	3.59	2.30	2.77	3.27	3.69	3.15	3.55	3.83	6.92	2.98	3.56
Mountain .....	7.11	8.39	10.45	9.79	9.39	7.81	7.05	6.10	6.00	5.69	5.87	5.84	8.83	7.80	5.86
Pacific .....	8.82	9.02	9.60	9.42	10.75	8.14	7.15	6.96	7.33	6.68	6.75	7.05	9.19	8.28	7.00
U.S. Average .....	6.82	8.24	9.27	7.53	6.23	3.81	3.69	4.31	5.02	4.14	4.25	4.83	7.90	4.58	4.59

- = no data available

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

Prices are not adjusted for inflation.

Regions refer to U.S. Census divisions.

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

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

Natural gas Henry Hub spot price is from Refinitiv, an LSEG company, via EIA ([https://www.eia.gov/dnav/pet/pet\\_pri\\_spt\\_s1\\_d.htm](https://www.eia.gov/dnav/pet/pet_pri_spt_s1_d.htm)).

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 - September 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Supply (million short tons)</b>															
Production .....	149.0	145.7	154.3	148.3	151.5	146.6	150.9	134.2	122.2	109.1	119.9	113.3	597.2	583.1	464.5
Appalachia .....	40.2	40.2	40.0	38.4	41.1	40.6	41.2	36.5	34.6	31.3	27.0	26.4	158.8	159.4	119.4
Interior .....	23.8	26.0	24.7	22.9	25.5	26.1	27.1	24.9	24.5	22.1	22.9	21.2	97.4	103.6	90.7
Western .....	85.0	79.5	89.5	86.9	84.9	79.9	82.6	72.8	63.1	55.7	69.9	65.7	340.9	320.2	254.4
Primary Inventory Withdrawals .....	-1.9	0.0	3.4	-0.3	-2.0	0.0	3.4	-0.1	-1.7	0.2	3.6	0.1	1.2	1.3	2.3
Imports .....	1.3	1.6	2.0	1.4	1.0	1.0	1.4	1.1	0.7	0.8	1.1	0.7	6.3	4.5	3.2
Exports .....	20.4	23.4	21.1	21.0	24.6	24.1	24.0	25.7	25.9	26.9	25.5	26.8	86.0	98.4	105.0
Metallurgical Coal .....	10.5	13.1	11.5	11.4	12.4	12.6	12.1	13.0	13.5	14.5	13.6	14.0	46.5	50.1	55.6
Steam Coal .....	9.9	10.3	9.6	9.6	12.2	11.5	11.9	12.7	12.4	12.4	11.9	12.7	39.5	48.3	49.5
Total Primary Supply .....	128.0	123.9	138.5	128.4	125.9	123.5	131.5	109.5	95.3	83.2	99.1	87.3	518.8	490.5	364.9
Secondary Inventory Withdrawals .....	5.9	-1.0	7.0	-9.8	-20.1	-19.7	1.4	-22.0	1.0	-2.2	23.5	-0.8	2.1	-60.3	21.5
Waste Coal (a) .....	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	7.5	7.2	7.2
Total Supply .....	135.7	124.8	147.4	120.5	107.6	105.7	134.8	89.4	98.1	82.8	124.4	88.3	528.4	437.4	393.6
<b>Consumption (million short tons)</b>															
Coke Plants .....	4.2	3.9	3.9	4.0	4.0	4.0	4.1	4.2	4.1	4.1	4.2	4.3	16.0	16.4	16.7
Electric Power Sector (b) .....	122.7	107.3	134.8	105.3	89.8	81.5	125.0	79.1	87.8	73.5	115.0	78.0	469.9	375.3	354.3
Retail and Other Industry .....	6.9	6.7	6.5	6.6	6.5	5.5	5.4	6.1	6.2	5.2	5.2	6.0	26.7	23.4	22.6
Residential and Commercial .....	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.1	0.1	0.2	0.8	0.7	0.7
Other Industrial .....	6.7	6.6	6.3	6.3	6.3	5.3	5.3	5.9	5.9	5.0	5.1	5.8	25.9	22.8	21.9
Total Consumption .....	133.7	117.9	145.2	115.8	100.3	91.0	134.5	89.4	98.1	82.8	124.4	88.3	512.6	415.1	393.6
Discrepancy (c) .....	2.0	6.9	2.3	4.6	7.3	14.6	0.3	0.0	0.0	0.0	0.0	0.0	15.8	22.2	0.0
<b>End-of-period Inventories (million short tons)</b>															
Primary Inventories (d) .....	21.0	20.9	17.5	17.8	19.8	19.7	16.4	16.5	18.1	17.9	14.3	14.2	17.8	16.5	14.2
Secondary Inventories .....	90.5	91.5	84.5	94.3	114.3	134.0	132.6	154.5	153.5	155.7	132.2	133.0	94.3	154.5	133.0
Electric Power Sector .....	86.3	87.3	80.1	90.0	110.1	129.2	127.5	149.5	149.3	151.2	127.4	128.3	90.0	149.5	128.3
Retail and General Industry .....	2.4	2.4	2.5	2.5	2.5	3.0	3.2	3.2	2.7	2.8	3.0	3.0	2.5	3.2	3.0
Coke Plants .....	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.6	1.5	1.6	1.6	1.6	1.6	1.6	1.6
Commercial & Institutional .....	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1
<b>Coal Market Indicators</b>															
Coal Miner Productivity															
(Tons per hour) .....	6.05	6.05	6.05	6.05	5.98	5.98	5.98	5.98	5.80	5.80	5.80	5.80	6.05	5.98	5.80
Total Raw Steel Production															
(Million short tons per day) .....	0.253	0.253	0.247	0.235	0.236	0.244	0.330	0.306	0.286	0.277	0.280	0.273	0.247	0.279	0.279
Cost of Coal to Electric Utilities															
(Dollars per million Btu) .....	2.18	2.26	2.50	2.55	2.57	2.49	2.46	2.40	2.41	2.40	2.40	2.37	2.37	2.48	2.40

(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 September 7, 2023.

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

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

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

**Forecasts:** EIA Short-Term Integrated Forecasting System.



**Table 7a. U.S. Electricity Industry Overview**

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Electricity Supply (billion kilowatthours)</b>															
Electricity generation (a) .....	<b>1,029</b>	<b>1,026</b>	<b>1,187</b>	<b>1,001</b>	<b>987</b>	<b>985</b>	<i>1,215</i>	<i>992</i>	<i>1,017</i>	<i>1,012</i>	<i>1,223</i>	<i>994</i>	<b>4,243</b>	<i>4,180</i>	<i>4,246</i>
Electric power sector .....	<b>990</b>	<b>989</b>	<b>1,148</b>	<b>963</b>	<b>950</b>	<b>949</b>	<i>1,174</i>	<i>953</i>	<i>978</i>	<i>975</i>	<i>1,182</i>	<i>954</i>	<b>4,090</b>	<i>4,026</i>	<i>4,089</i>
Industrial sector .....	<b>36</b>	<b>34</b>	<b>36</b>	<b>35</b>	<b>35</b>	<b>33</b>	<i>37</i>	<i>36</i>	<i>35</i>	<i>34</i>	<i>37</i>	<i>36</i>	<b>140</b>	<i>141</i>	<i>143</i>
Commercial sector .....	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>4</b>	<i>4</i>	<i>3</i>	<i>4</i>	<i>4</i>	<i>4</i>	<i>3</i>	<b>13</b>	<i>14</i>	<i>14</i>
Net imports .....	<b>7</b>	<b>10</b>	<b>15</b>	<b>10</b>	<b>8</b>	<b>7</b>	<i>8</i>	<i>7</i>	<i>10</i>	<i>11</i>	<i>14</i>	<i>11</i>	<b>41</b>	<i>31</i>	<i>46</i>
Total utility-scale power supply .....	<b>1,036</b>	<b>1,036</b>	<b>1,203</b>	<b>1,010</b>	<b>995</b>	<b>993</b>	<i>1,223</i>	<i>1,000</i>	<i>1,027</i>	<i>1,024</i>	<i>1,237</i>	<i>1,004</i>	<b>4,284</b>	<i>4,211</i>	<i>4,292</i>
Losses and Unaccounted for (b) .....	<b>55</b>	<b>64</b>	<b>53</b>	<b>64</b>	<b>44</b>	<b>60</b>	<i>63</i>	<i>47</i>	<i>44</i>	<i>68</i>	<i>56</i>	<i>48</i>	<b>236</b>	<i>214</i>	<i>216</i>
Small-scale solar generation (c) .....	<b>12</b>	<b>17</b>	<b>17</b>	<b>12</b>	<b>15</b>	<b>22</b>	<i>22</i>	<i>15</i>	<i>17</i>	<i>25</i>	<i>25</i>	<i>17</i>	<b>59</b>	<i>73</i>	<i>85</i>
Residential sector .....	<b>7</b>	<b>11</b>	<b>11</b>	<b>8</b>	<b>10</b>	<b>15</b>	<i>14</i>	<i>10</i>	<i>11</i>	<i>17</i>	<i>17</i>	<i>12</i>	<b>37</b>	<i>49</i>	<i>57</i>
Commercial sector .....	<b>4</b>	<b>5</b>	<b>5</b>	<b>3</b>	<b>4</b>	<b>6</b>	<i>6</i>	<i>4</i>	<i>5</i>	<i>7</i>	<i>7</i>	<i>5</i>	<b>17</b>	<i>20</i>	<i>23</i>
Industrial sector .....	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>	<b>4</b>	<i>4</i>	<i>5</i>
<b>Electricity Consumption (billion kilowatthours unless noted)</b>															
Sales to Ultimate Customers .....	<b>945</b>	<b>938</b>	<b>1,114</b>	<b>911</b>	<b>917</b>	<b>900</b>	<i>1,123</i>	<i>917</i>	<i>948</i>	<i>922</i>	<i>1,144</i>	<i>920</i>	<b>3,909</b>	<i>3,857</i>	<i>3,933</i>
Residential Sector .....	<b>380</b>	<b>347</b>	<b>458</b>	<b>338</b>	<b>357</b>	<b>320</b>	<i>462</i>	<i>341</i>	<i>379</i>	<i>336</i>	<i>481</i>	<i>345</i>	<b>1,522</b>	<i>1,481</i>	<i>1,541</i>
Commercial Sector .....	<b>322</b>	<b>335</b>	<b>389</b>	<b>327</b>	<b>321</b>	<b>330</b>	<i>395</i>	<i>329</i>	<i>326</i>	<i>333</i>	<i>393</i>	<i>324</i>	<b>1,373</b>	<i>1,375</i>	<i>1,377</i>
Industrial Sector .....	<b>242</b>	<b>255</b>	<b>266</b>	<b>245</b>	<b>238</b>	<b>248</b>	<i>264</i>	<i>245</i>	<i>241</i>	<i>251</i>	<i>268</i>	<i>249</i>	<b>1,008</b>	<i>994</i>	<i>1,009</i>
Transportation Sector .....	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<b>7</b>	<i>7</i>	<i>7</i>
Direct Use (d) .....	<b>35</b>	<b>34</b>	<b>36</b>	<b>35</b>	<b>35</b>	<b>33</b>	<i>37</i>	<i>36</i>	<i>36</i>	<i>34</i>	<i>38</i>	<i>36</i>	<b>139</b>	<i>140</i>	<i>143</i>
Total Consumption .....	<b>981</b>	<b>972</b>	<b>1,150</b>	<b>946</b>	<b>952</b>	<b>933</b>	<i>1,160</i>	<i>952</i>	<i>983</i>	<i>956</i>	<i>1,181</i>	<i>956</i>	<b>4,048</b>	<i>3,997</i>	<i>4,077</i>
Average residential electricity usage per customer (kWh) .....	<b>2,711</b>	<b>2,476</b>	<b>3,268</b>	<b>2,411</b>	<b>2,522</b>	<b>2,264</b>	<i>3,268</i>	<i>2,412</i>	<i>2,653</i>	<i>2,355</i>	<i>3,364</i>	<i>2,412</i>	<b>10,866</b>	<i>10,467</i>	<i>10,784</i>
<b>End-of-period Fuel Inventories Held by Electric Power Sector</b>															
Coal (mmst) .....	<b>86.3</b>	<b>87.3</b>	<b>80.1</b>	<b>90.0</b>	<b>110.1</b>	<b>129.2</b>	<i>127.5</i>	<i>149.5</i>	<i>149.3</i>	<i>151.2</i>	<i>127.4</i>	<i>128.3</i>	<b>90.0</b>	<i>149.5</i>	<i>128.3</i>
Residual Fuel (mmb) .....	<b>5.6</b>	<b>5.9</b>	<b>5.7</b>	<b>5.4</b>	<b>5.7</b>	<b>5.7</b>	<i>3.5</i>	<i>3.9</i>	<i>2.5</i>	<i>2.8</i>	<i>1.0</i>	<i>1.8</i>	<b>5.4</b>	<i>3.9</i>	<i>1.8</i>
Distillate Fuel (mmb) .....	<b>17.6</b>	<b>17.7</b>	<b>16.7</b>	<b>15.9</b>	<b>17.0</b>	<b>17.2</b>	<i>17.0</i>	<i>17.1</i>	<i>16.9</i>	<i>16.6</i>	<i>16.6</i>	<i>16.8</i>	<b>15.9</b>	<i>17.1</i>	<i>16.8</i>
<b>Prices</b>															
<b>Power Generation Fuel Costs (dollars per million Btu)</b>															
Coal .....	<b>2.18</b>	<b>2.26</b>	<b>2.50</b>	<b>2.55</b>	<b>2.57</b>	<b>2.49</b>	<i>2.46</i>	<i>2.40</i>	<i>2.41</i>	<i>2.40</i>	<i>2.40</i>	<i>2.37</i>	<b>2.37</b>	<i>2.48</i>	<i>2.40</i>
Natural Gas .....	<b>5.95</b>	<b>7.39</b>	<b>8.23</b>	<b>6.90</b>	<b>4.99</b>	<b>2.64</b>	<i>2.65</i>	<i>3.23</i>	<i>3.85</i>	<i>3.08</i>	<i>3.32</i>	<i>3.77</i>	<b>7.24</b>	<i>3.28</i>	<i>3.48</i>
Residual Fuel Oil .....	<b>16.81</b>	<b>26.17</b>	<b>26.53</b>	<b>21.27</b>	<b>19.24</b>	<b>17.89</b>	<i>15.79</i>	<i>17.67</i>	<i>17.59</i>	<i>17.45</i>	<i>16.15</i>	<i>16.12</i>	<b>21.80</b>	<i>17.69</i>	<i>16.81</i>
Distillate Fuel Oil .....	<b>21.23</b>	<b>30.71</b>	<b>26.79</b>	<b>24.48</b>	<b>22.84</b>	<b>38.29</b>	<i>22.16</i>	<i>25.05</i>	<i>23.15</i>	<i>21.26</i>	<i>20.17</i>	<i>21.35</i>	<b>24.89</b>	<i>26.77</i>	<i>21.66</i>
<b>Prices to Ultimate Customers (cents per kilowatthour)</b>															
Residential Sector .....	<b>13.98</b>	<b>15.07</b>	<b>15.85</b>	<b>15.48</b>	<b>15.74</b>	<b>16.12</b>	<i>15.84</i>	<i>15.19</i>	<i>15.32</i>	<i>15.94</i>	<i>15.88</i>	<i>15.29</i>	<b>15.12</b>	<i>15.73</i>	<i>15.62</i>
Commercial Sector .....	<b>11.63</b>	<b>12.35</b>	<b>13.38</b>	<b>12.66</b>	<b>12.69</b>	<b>12.46</b>	<i>13.01</i>	<i>12.03</i>	<i>12.09</i>	<i>12.28</i>	<i>13.30</i>	<i>12.44</i>	<b>12.55</b>	<i>12.57</i>	<i>12.56</i>
Industrial Sector .....	<b>7.42</b>	<b>8.41</b>	<b>9.38</b>	<b>8.52</b>	<b>8.12</b>	<b>7.87</b>	<i>8.79</i>	<i>8.17</i>	<i>8.25</i>	<i>7.94</i>	<i>8.81</i>	<i>8.26</i>	<b>8.45</b>	<i>8.24</i>	<i>8.32</i>
<b>Wholesale Electricity Prices (dollars per megawatthour)</b>															
ERCOT North hub .....	<b>42.73</b>	<b>83.19</b>	<b>130.71</b>	<b>53.01</b>	<b>28.05</b>	<b>57.27</b>	<i>166.57</i>	<i>31.80</i>	<i>31.09</i>	<i>27.83</i>	<i>40.94</i>	<i>27.69</i>	<b>77.41</b>	<i>70.92</i>	<i>31.89</i>
CAISO SP15 zone .....	<b>45.20</b>	<b>60.34</b>	<b>110.03</b>	<b>135.13</b>	<b>92.54</b>	<b>30.00</b>	<i>70.67</i>	<i>61.38</i>	<i>70.87</i>	<i>45.49</i>	<i>84.60</i>	<i>59.34</i>	<b>87.67</b>	<i>63.65</i>	<i>65.08</i>
ISO-NE Internal hub .....	<b>116.48</b>	<b>73.28</b>	<b>99.14</b>	<b>80.77</b>	<b>52.63</b>	<b>32.55</b>	<i>45.65</i>	<i>45.23</i>	<i>68.02</i>	<i>35.84</i>	<i>71.10</i>	<i>48.62</i>	<b>92.42</b>	<i>44.02</i>	<i>55.90</i>
NYISO Hudson Valley zone .....	<b>100.10</b>	<b>79.72</b>	<b>104.71</b>	<b>77.17</b>	<b>44.65</b>	<b>31.38</b>	<i>43.56</i>	<i>36.30</i>	<i>46.33</i>	<i>33.33</i>	<i>60.65</i>	<i>40.24</i>	<b>90.42</b>	<i>38.97</i>	<i>45.14</i>
PJM Western hub .....	<b>58.33</b>	<b>93.00</b>	<b>110.99</b>	<b>71.60</b>	<b>36.49</b>	<b>35.41</b>	<i>41.54</i>	<i>33.79</i>	<i>41.09</i>	<i>35.15</i>	<i>43.69</i>	<i>37.62</i>	<b>83.48</b>	<i>36.81</i>	<i>39.39</i>
Midcontinent ISO Illinois hub .....	<b>47.88</b>	<b>89.21</b>	<b>101.80</b>	<b>57.87</b>	<b>31.39</b>	<b>32.13</b>	<i>41.07</i>	<i>35.66</i>	<i>38.19</i>	<i>35.35</i>	<i>43.76</i>	<i>35.93</i>	<b>74.19</b>	<i>35.06</i>	<i>38.31</i>
SPP ISO South hub .....	<b>37.25</b>	<b>72.85</b>	<b>109.97</b>	<b>55.87</b>	<b>28.96</b>	<b>34.56</b>	<i>46.55</i>	<i>35.89</i>	<i>37.51</i>	<i>36.43</i>	<i>45.88</i>	<i>36.40</i>	<b>68.98</b>	<i>36.49</i>	<i>39.05</i>
SERC index, Into Southern .....	<b>42.45</b>	<b>84.96</b>	<b>94.82</b>	<b>59.33</b>	<b>30.53</b>	<b>31.66</b>	<i>37.58</i>	<i>32.26</i>	<i>33.51</i>	<i>31.67</i>	<i>37.78</i>	<i>32.43</i>	<b>70.39</b>	<i>33.01</i>	<i>33.85</i>
FRCC index, Florida Reliability .....	<b>41.11</b>	<b>78.70</b>	<b>92.71</b>	<b>58.54</b>	<b>30.31</b>	<b>33.06</b>	<i>37.33</i>	<i>31.64</i>	<i>33.32</i>	<i>33.99</i>	<i>37.46</i>	<i>34.23</i>	<b>67.77</b>	<i>33.08</i>	<i>34.75</i>
Northwest index, Mid-Columbia .....	<b>39.85</b>	<b>59.39</b>	<b>137.82</b>	<b>151.39</b>	<b>105.99</b>	<b>58.61</b>	<i>78.18</i>	<i>68.88</i>	<i>93.53</i>	<i>67.94</i>	<i>84.08</i>	<i>59.32</i>	<b>97.11</b>	<i>77.92</i>	<i>76.22</i>
Southwest index, Palo Verde .....	<b>39.02</b>	<b>60.50</b>	<b>128.25</b>	<b>130.12</b>	<b>84.19</b>	<b>31.60</b>	<i>75.96</i>	<i>55.60</i>	<i>61.64</i>	<i>50.21</i>	<i>66.46</i>	<i>54.42</i>	<b>89.47</b>	<i>61.84</i>	<i>58.18</i>

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

kWh = kilowatthours. Btu = British thermal units.

Prices are not adjusted for inflation.

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

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

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

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

**Historical data:** Latest data available from EIA databases supporting the following reports: Electric Power Monthly and Electric Power Annual (electricity supply and consumption, fuel inventories and costs, and retail electricity prices); S&P Global Market Intelligence (wholesale electricity prices).

Minor discrepancies with published historical data are due to independent rounding and possible revisions not yet reflected in the STEO.

**Forecast data:** 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 - September 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Residential Sector</b>															
New England .....	13.1	10.5	13.9	10.9	12.2	9.8	13.1	11.1	13.1	10.2	13.9	11.2	48.4	46.2	48.5
Middle Atlantic .....	36.1	30.0	42.6	30.3	33.2	27.5	40.4	30.5	35.4	28.9	42.9	30.3	138.9	131.7	137.5
E. N. Central .....	50.8	43.8	54.8	43.1	46.5	39.8	55.1	44.2	50.8	42.6	59.3	44.4	192.5	185.6	197.2
W. N. Central .....	30.6	24.7	31.3	25.7	29.4	24.1	32.2	26.0	30.7	24.3	33.7	26.5	112.3	111.7	115.2
S. Atlantic .....	96.0	91.5	116.3	87.7	88.4	85.0	118.7	89.0	96.9	91.8	125.6	90.2	391.4	381.1	404.5
E. S. Central .....	32.6	27.7	37.0	26.5	29.2	25.4	37.7	27.0	32.9	26.5	39.3	27.1	123.8	119.4	125.9
W. S. Central .....	56.9	58.8	81.3	51.3	52.0	52.9	86.9	53.2	56.4	54.2	84.1	54.0	248.3	244.9	248.7
Mountain .....	24.1	26.2	36.1	24.3	25.2	24.5	36.5	23.9	24.5	26.2	37.9	24.2	110.7	110.2	112.7
Pacific contiguous .....	38.4	32.4	43.2	36.8	39.4	30.2	40.6	35.0	37.2	30.5	42.7	35.3	150.7	145.2	145.8
AK and HI .....	1.3	1.1	1.2	1.3	1.2	1.1	1.2	1.3	1.3	1.1	1.1	1.3	4.8	4.8	4.8
Total .....	379.8	346.7	457.7	337.7	356.8	320.3	462.4	341.3	379.1	336.4	480.6	344.6	1,521.9	1,480.8	1,540.7
<b>Commercial Sector</b>															
New England .....	12.1	11.8	13.9	11.7	11.9	11.5	13.7	11.7	12.1	11.6	13.7	11.5	49.4	48.9	48.9
Middle Atlantic .....	36.0	34.3	40.5	34.6	35.0	33.1	39.7	34.3	35.3	33.4	40.3	34.0	145.3	142.2	143.0
E. N. Central .....	43.3	42.9	48.8	42.2	42.4	41.9	49.0	42.0	43.1	42.3	49.6	41.7	177.1	175.3	176.7
W. N. Central .....	25.1	24.5	28.0	24.7	25.0	25.0	28.7	24.9	25.5	24.9	28.8	24.8	102.4	103.5	103.9
S. Atlantic .....	75.1	82.5	93.5	78.9	75.5	83.1	95.8	80.1	77.9	85.7	96.8	79.8	330.0	334.5	340.2
E. S. Central .....	21.0	22.4	26.8	21.0	20.5	21.8	27.5	21.5	21.1	22.0	27.5	21.1	91.3	91.4	91.7
W. S. Central .....	47.0	52.1	61.2	48.6	46.7	50.7	63.7	49.0	47.2	49.2	59.7	46.6	208.9	210.1	202.5
Mountain .....	23.2	25.4	29.6	24.3	23.7	25.0	30.3	24.5	23.8	25.6	30.5	24.4	102.6	103.5	104.2
Pacific contiguous .....	37.7	37.9	45.4	39.7	38.8	37.0	45.1	39.3	38.9	36.9	45.1	39.0	160.7	160.3	159.9
AK and HI .....	1.3	1.3	1.4	1.4	1.3	1.3	1.4	1.4	1.3	1.3	1.4	1.4	5.4	5.3	5.4
Total .....	321.8	335.2	389.0	327.0	320.8	330.4	394.9	328.8	326.2	332.8	393.2	324.3	1,373.0	1,374.9	1,376.5
<b>Industrial Sector</b>															
New England .....	3.9	3.9	4.1	3.8	3.7	3.7	4.1	3.8	3.7	3.6	4.0	3.7	15.7	15.2	15.0
Middle Atlantic .....	17.5	18.2	19.4	18.2	17.3	17.8	19.3	18.1	17.6	18.0	19.5	18.3	73.3	72.4	73.4
E. N. Central .....	45.9	47.0	48.8	45.3	44.9	46.1	48.3	45.2	45.0	45.9	48.5	45.7	187.1	184.4	185.2
W. N. Central .....	24.0	24.8	26.9	25.0	24.4	25.7	26.3	24.8	24.7	26.1	27.0	25.6	100.7	101.3	103.5
S. Atlantic .....	36.3	37.5	38.7	36.4	34.6	35.8	37.7	36.1	34.9	36.1	38.4	36.8	148.9	144.1	146.1
E. S. Central .....	24.7	25.8	25.6	23.4	23.3	23.9	24.8	23.1	23.2	23.7	24.7	23.1	99.5	95.1	94.8
W. S. Central .....	49.8	53.3	53.8	50.6	50.3	53.0	55.0	52.0	52.3	55.5	57.8	54.1	207.6	210.3	219.7
Mountain .....	19.9	21.7	24.0	20.9	19.8	21.6	24.5	21.4	20.4	22.1	24.9	21.7	86.5	87.4	89.2
Pacific contiguous .....	19.0	21.0	23.4	20.0	18.4	19.3	22.4	19.2	17.8	18.6	21.9	18.9	83.4	79.2	77.1
AK and HI .....	1.1	1.2	1.3	1.2	1.1	1.2	1.3	1.2	1.2	1.2	1.3	1.2	4.8	4.8	4.8
Total .....	242.2	254.5	265.9	244.9	237.7	248.1	263.6	244.9	240.8	250.8	268.0	249.4	1,007.5	994.3	1,008.9
<b>Total All Sectors (a)</b>															
New England .....	29.2	26.3	32.0	26.5	27.9	25.1	31.0	26.7	29.0	25.5	31.8	26.6	114.0	110.7	112.9
Middle Atlantic .....	90.4	83.3	103.3	84.0	86.4	79.3	100.3	83.8	89.3	81.2	103.5	83.6	360.9	349.8	357.5
E. N. Central .....	140.2	133.8	152.5	130.7	133.9	127.9	152.6	131.5	139.1	130.9	157.6	132.0	557.2	545.8	559.6
W. N. Central .....	79.7	74.1	86.3	75.4	78.8	74.8	87.2	75.8	80.8	75.4	89.5	76.9	315.4	316.6	322.6
S. Atlantic .....	207.7	211.8	248.7	203.2	198.7	204.2	252.5	205.5	210.0	213.8	261.1	207.1	871.3	860.8	892.0
E. S. Central .....	78.4	76.0	89.4	70.9	73.0	71.1	90.1	71.7	77.3	72.2	91.6	71.4	314.6	305.9	312.5
W. S. Central .....	153.7	164.2	196.4	150.5	149.0	156.6	205.6	154.3	155.9	158.9	201.6	154.7	664.9	665.5	671.1
Mountain .....	67.2	73.4	89.8	69.5	68.8	71.2	91.3	69.8	68.8	73.8	93.3	70.4	299.9	301.2	306.3
Pacific contiguous .....	95.3	91.6	112.2	96.6	96.8	86.7	108.3	93.8	94.1	86.3	109.9	93.4	395.7	385.5	383.7
AK and HI .....	3.7	3.6	3.8	3.9	3.7	3.6	3.8	3.9	3.8	3.6	3.8	3.9	15.0	14.9	15.0
Total .....	945.5	938.0	1,114.3	911.2	917.1	900.3	1,122.6	916.7	947.9	921.6	1,143.6	920.0	3,909.1	3,856.8	3,933.1

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

Electricity sales to ultimate customers are sold by electric utilities and power marketers for direct consumption by the customer and not available for resale. Includes electric sales to end users by third-party owners of behind-the-meter solar photovoltaic systems.

Regions refer to U.S. Census divisions ([https://www.eia.gov/tools/glossary/index.php?id=C# census\\_division](https://www.eia.gov/tools/glossary/index.php?id=C# census_division)).

(a) Total includes sales of electricity to ultimate customers in transportation sector (not shown), as well as residential, commercial, and industrial sectors.

**Historical data:** Latest data available from EIA databases supporting the following reports: Electric Power Monthly and Electric Power Annual.

Minor discrepancies with published historical data are due to independent rounding and possible revisions not yet reflected in the STEO.

**Forecast data:** 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 - September 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Residential Sector</b>															
New England .....	<b>23.96</b>	<b>24.31</b>	<b>24.76</b>	<b>26.39</b>	<b>30.63</b>	<b>29.56</b>	<i>27.33</i>	<i>27.42</i>	<i>30.50</i>	<i>28.64</i>	<i>26.42</i>	<i>27.12</i>	<b>24.81</b>	<i>28.70</i>	<i>28.15</i>
Middle Atlantic .....	<b>17.20</b>	<b>18.29</b>	<b>18.95</b>	<b>19.50</b>	<b>19.68</b>	<b>19.10</b>	<i>18.86</i>	<i>18.79</i>	<i>19.35</i>	<i>19.15</i>	<i>19.21</i>	<i>19.47</i>	<b>18.47</b>	<i>19.10</i>	<i>19.29</i>
E. N. Central .....	<b>14.21</b>	<b>15.50</b>	<b>16.18</b>	<b>16.13</b>	<b>16.12</b>	<b>16.56</b>	<i>16.17</i>	<i>15.60</i>	<i>15.31</i>	<i>15.93</i>	<i>15.85</i>	<i>15.74</i>	<b>15.49</b>	<i>16.11</i>	<i>15.70</i>
W. N. Central .....	<b>11.28</b>	<b>13.26</b>	<b>14.36</b>	<b>12.39</b>	<b>11.85</b>	<b>13.52</b>	<i>13.87</i>	<i>12.04</i>	<i>11.63</i>	<i>13.56</i>	<i>13.81</i>	<i>12.00</i>	<b>12.83</b>	<i>12.84</i>	<i>12.76</i>
S. Atlantic .....	<b>12.68</b>	<b>13.61</b>	<b>14.27</b>	<b>13.85</b>	<b>14.34</b>	<b>14.80</b>	<i>14.38</i>	<i>13.31</i>	<i>13.44</i>	<i>14.09</i>	<i>13.96</i>	<i>13.14</i>	<b>13.63</b>	<i>14.21</i>	<i>13.68</i>
E. S. Central .....	<b>11.97</b>	<b>13.08</b>	<b>13.78</b>	<b>13.40</b>	<b>13.17</b>	<b>13.20</b>	<i>13.12</i>	<i>12.87</i>	<i>12.95</i>	<i>13.45</i>	<i>13.32</i>	<i>13.12</i>	<b>13.06</b>	<i>13.09</i>	<i>13.21</i>
W. S. Central .....	<b>11.86</b>	<b>12.97</b>	<b>13.84</b>	<b>13.97</b>	<b>13.57</b>	<b>13.57</b>	<i>13.78</i>	<i>14.00</i>	<i>13.60</i>	<i>13.74</i>	<i>13.99</i>	<i>13.91</i>	<b>13.21</b>	<i>13.74</i>	<i>13.83</i>
Mountain .....	<b>12.14</b>	<b>12.85</b>	<b>13.23</b>	<b>12.98</b>	<b>12.96</b>	<b>13.89</b>	<i>14.19</i>	<i>13.60</i>	<i>13.20</i>	<i>13.83</i>	<i>14.01</i>	<i>13.63</i>	<b>12.85</b>	<i>13.72</i>	<i>13.71</i>
Pacific .....	<b>18.12</b>	<b>20.60</b>	<b>22.03</b>	<b>18.82</b>	<b>19.40</b>	<b>22.31</b>	<i>22.38</i>	<i>18.85</i>	<i>19.57</i>	<i>23.32</i>	<i>23.63</i>	<i>19.65</i>	<b>19.95</b>	<i>20.70</i>	<i>21.57</i>
U.S. Average .....	<b>13.98</b>	<b>15.07</b>	<b>15.85</b>	<b>15.48</b>	<b>15.74</b>	<b>16.12</b>	<i>15.84</i>	<i>15.19</i>	<i>15.32</i>	<i>15.94</i>	<i>15.88</i>	<i>15.29</i>	<b>15.12</b>	<i>15.73</i>	<i>15.62</i>
<b>Commercial Sector</b>															
New England .....	<b>18.47</b>	<b>17.46</b>	<b>18.32</b>	<b>18.55</b>	<b>20.55</b>	<b>18.42</b>	<i>18.30</i>	<i>18.03</i>	<i>19.63</i>	<i>17.67</i>	<i>18.00</i>	<i>18.33</i>	<b>18.21</b>	<i>18.81</i>	<i>18.40</i>
Middle Atlantic .....	<b>14.05</b>	<b>14.96</b>	<b>16.60</b>	<b>15.26</b>	<b>14.84</b>	<b>14.85</b>	<i>15.51</i>	<i>13.69</i>	<i>13.56</i>	<i>14.45</i>	<i>15.81</i>	<i>14.15</i>	<b>15.26</b>	<i>14.75</i>	<i>14.54</i>
E. N. Central .....	<b>11.06</b>	<b>11.84</b>	<b>12.12</b>	<b>11.87</b>	<b>12.01</b>	<b>12.06</b>	<i>11.59</i>	<i>11.01</i>	<i>11.22</i>	<i>11.77</i>	<i>11.73</i>	<i>11.33</i>	<b>11.73</b>	<i>11.66</i>	<i>11.52</i>
W. N. Central .....	<b>9.65</b>	<b>10.71</b>	<b>11.70</b>	<b>10.15</b>	<b>10.02</b>	<b>10.71</b>	<i>11.18</i>	<i>9.57</i>	<i>9.70</i>	<i>10.87</i>	<i>11.46</i>	<i>9.69</i>	<b>10.59</b>	<i>10.40</i>	<i>10.47</i>
S. Atlantic .....	<b>10.30</b>	<b>10.87</b>	<b>11.52</b>	<b>11.23</b>	<b>11.37</b>	<b>10.91</b>	<i>10.93</i>	<i>10.25</i>	<i>10.29</i>	<i>10.26</i>	<i>10.62</i>	<i>10.13</i>	<b>11.01</b>	<i>10.86</i>	<i>10.34</i>
E. S. Central .....	<b>11.69</b>	<b>12.20</b>	<b>13.02</b>	<b>12.59</b>	<b>12.60</b>	<b>12.10</b>	<i>12.68</i>	<i>12.25</i>	<i>12.52</i>	<i>12.40</i>	<i>13.12</i>	<i>12.61</i>	<b>12.41</b>	<i>12.42</i>	<i>12.69</i>
W. S. Central .....	<b>8.68</b>	<b>9.63</b>	<b>10.47</b>	<b>9.91</b>	<b>9.51</b>	<b>8.95</b>	<i>9.46</i>	<i>8.98</i>	<i>9.11</i>	<i>9.43</i>	<i>10.61</i>	<i>9.97</i>	<b>9.73</b>	<i>9.23</i>	<i>9.83</i>
Mountain .....	<b>9.57</b>	<b>10.32</b>	<b>10.97</b>	<b>10.42</b>	<b>10.35</b>	<b>11.08</b>	<i>11.50</i>	<i>10.67</i>	<i>10.33</i>	<i>10.87</i>	<i>11.40</i>	<i>10.76</i>	<b>10.36</b>	<i>10.94</i>	<i>10.88</i>
Pacific .....	<b>16.13</b>	<b>17.81</b>	<b>20.34</b>	<b>18.00</b>	<b>18.07</b>	<b>18.90</b>	<i>22.07</i>	<i>19.03</i>	<i>18.45</i>	<i>18.92</i>	<i>22.72</i>	<i>20.16</i>	<b>18.18</b>	<i>19.62</i>	<i>20.18</i>
U.S. Average .....	<b>11.63</b>	<b>12.35</b>	<b>13.38</b>	<b>12.66</b>	<b>12.69</b>	<b>12.46</b>	<i>13.01</i>	<i>12.03</i>	<i>12.09</i>	<i>12.28</i>	<i>13.30</i>	<i>12.44</i>	<b>12.55</b>	<i>12.57</i>	<i>12.56</i>
<b>Industrial Sector</b>															
New England .....	<b>15.12</b>	<b>15.17</b>	<b>15.93</b>	<b>15.36</b>	<b>16.21</b>	<b>15.20</b>	<i>15.50</i>	<i>14.70</i>	<i>15.32</i>	<i>14.45</i>	<i>15.13</i>	<i>14.83</i>	<b>15.40</b>	<i>15.40</i>	<i>14.94</i>
Middle Atlantic .....	<b>7.88</b>	<b>8.29</b>	<b>9.30</b>	<b>8.46</b>	<b>8.31</b>	<b>7.89</b>	<i>8.54</i>	<i>7.93</i>	<i>8.30</i>	<i>7.87</i>	<i>8.65</i>	<i>7.97</i>	<b>8.51</b>	<i>8.17</i>	<i>8.20</i>
E. N. Central .....	<b>7.72</b>	<b>8.55</b>	<b>8.99</b>	<b>8.50</b>	<b>8.33</b>	<b>7.97</b>	<i>8.26</i>	<i>8.11</i>	<i>8.50</i>	<i>8.10</i>	<i>8.41</i>	<i>8.26</i>	<b>8.45</b>	<i>8.17</i>	<i>8.32</i>
W. N. Central .....	<b>7.17</b>	<b>8.00</b>	<b>8.70</b>	<b>7.46</b>	<b>7.39</b>	<b>7.75</b>	<i>8.46</i>	<i>7.39</i>	<i>7.63</i>	<i>7.91</i>	<i>8.58</i>	<i>7.48</i>	<b>7.85</b>	<i>7.76</i>	<i>7.91</i>
S. Atlantic .....	<b>6.85</b>	<b>8.10</b>	<b>9.11</b>	<b>8.05</b>	<b>7.70</b>	<b>7.37</b>	<i>8.01</i>	<i>7.50</i>	<i>7.87</i>	<i>7.45</i>	<i>8.07</i>	<i>7.58</i>	<b>8.04</b>	<i>7.65</i>	<i>7.75</i>
E. S. Central .....	<b>6.35</b>	<b>7.36</b>	<b>8.41</b>	<b>7.53</b>	<b>6.98</b>	<b>6.67</b>	<i>7.53</i>	<i>7.07</i>	<i>7.10</i>	<i>6.73</i>	<i>7.63</i>	<i>7.17</i>	<b>7.42</b>	<i>7.07</i>	<i>7.16</i>
W. S. Central .....	<b>6.19</b>	<b>7.28</b>	<b>8.08</b>	<b>7.37</b>	<b>6.71</b>	<b>6.12</b>	<i>7.10</i>	<i>6.79</i>	<i>6.82</i>	<i>5.92</i>	<i>6.68</i>	<i>6.77</i>	<b>7.25</b>	<i>6.68</i>	<i>6.54</i>
Mountain .....	<b>6.58</b>	<b>7.27</b>	<b>8.41</b>	<b>7.88</b>	<b>7.66</b>	<b>7.63</b>	<i>8.88</i>	<i>8.10</i>	<i>7.92</i>	<i>8.07</i>	<i>9.13</i>	<i>8.32</i>	<b>7.57</b>	<i>8.10</i>	<i>8.39</i>
Pacific .....	<b>10.37</b>	<b>11.98</b>	<b>14.16</b>	<b>12.65</b>	<b>11.78</b>	<b>12.47</b>	<i>14.89</i>	<i>13.10</i>	<i>12.27</i>	<i>13.23</i>	<i>15.60</i>	<i>13.66</i>	<b>12.38</b>	<i>13.14</i>	<i>13.79</i>
U.S. Average .....	<b>7.42</b>	<b>8.41</b>	<b>9.38</b>	<b>8.52</b>	<b>8.12</b>	<b>7.87</b>	<i>8.79</i>	<i>8.17</i>	<i>8.25</i>	<i>7.94</i>	<i>8.81</i>	<i>8.26</i>	<b>8.45</b>	<i>8.24</i>	<i>8.32</i>
<b>All Sectors (a)</b>															
New England .....	<b>20.46</b>	<b>19.83</b>	<b>20.79</b>	<b>21.27</b>	<b>24.35</b>	<b>22.25</b>	<i>21.72</i>	<i>21.44</i>	<i>23.95</i>	<i>21.58</i>	<i>21.30</i>	<i>21.51</i>	<b>20.59</b>	<i>22.43</i>	<i>22.09</i>
Middle Atlantic .....	<b>14.09</b>	<b>14.68</b>	<b>16.17</b>	<b>15.29</b>	<b>15.39</b>	<b>14.76</b>	<i>15.50</i>	<i>14.29</i>	<i>14.81</i>	<i>14.65</i>	<i>15.85</i>	<i>14.71</i>	<b>15.10</b>	<i>15.02</i>	<i>15.05</i>
E. N. Central .....	<b>11.10</b>	<b>11.88</b>	<b>12.57</b>	<b>12.10</b>	<b>12.20</b>	<b>11.98</b>	<i>12.19</i>	<i>11.55</i>	<i>11.83</i>	<i>11.83</i>	<i>12.26</i>	<i>11.75</i>	<b>11.93</b>	<i>11.99</i>	<i>11.93</i>
W. N. Central .....	<b>9.53</b>	<b>10.65</b>	<b>11.73</b>	<b>10.02</b>	<b>9.89</b>	<b>10.60</b>	<i>11.35</i>	<i>9.70</i>	<i>9.80</i>	<i>10.71</i>	<i>11.47</i>	<i>9.75</i>	<b>10.51</b>	<i>10.41</i>	<i>10.47</i>
S. Atlantic .....	<b>10.79</b>	<b>11.56</b>	<b>12.43</b>	<b>11.79</b>	<b>12.05</b>	<b>11.90</b>	<i>12.11</i>	<i>11.09</i>	<i>11.34</i>	<i>11.43</i>	<i>11.85</i>	<i>10.98</i>	<b>11.68</b>	<i>11.81</i>	<i>11.43</i>
E. S. Central .....	<b>10.12</b>	<b>10.88</b>	<b>12.01</b>	<b>11.22</b>	<b>11.04</b>	<b>10.66</b>	<i>11.45</i>	<i>10.81</i>	<i>11.07</i>	<i>10.93</i>	<i>11.72</i>	<i>11.04</i>	<b>11.09</b>	<i>11.02</i>	<i>11.22</i>
W. S. Central .....	<b>9.05</b>	<b>10.06</b>	<b>11.21</b>	<b>10.44</b>	<b>9.98</b>	<b>9.55</b>	<i>10.65</i>	<i>9.97</i>	<i>9.96</i>	<i>9.67</i>	<i>10.89</i>	<i>10.23</i>	<b>10.25</b>	<i>10.09</i>	<i>10.23</i>
Mountain .....	<b>9.60</b>	<b>10.32</b>	<b>11.19</b>	<b>10.55</b>	<b>10.53</b>	<b>11.00</b>	<i>11.87</i>	<i>10.89</i>	<i>10.64</i>	<i>11.08</i>	<i>11.85</i>	<i>10.99</i>	<b>10.47</b>	<i>11.13</i>	<i>11.20</i>
Pacific .....	<b>15.77</b>	<b>17.45</b>	<b>19.69</b>	<b>17.19</b>	<b>17.41</b>	<b>18.65</b>	<i>20.68</i>	<i>17.73</i>	<i>17.71</i>	<i>19.23</i>	<i>21.64</i>	<i>18.63</i>	<b>17.62</b>	<i>18.68</i>	<i>19.40</i>
U.S. Average .....	<b>11.49</b>	<b>12.28</b>	<b>13.44</b>	<b>12.59</b>	<b>12.69</b>	<b>12.50</b>	<i>13.18</i>	<i>12.18</i>	<i>12.40</i>	<i>12.43</i>	<i>13.33</i>	<i>12.37</i>	<b>12.49</b>	<i>12.67</i>	<i>12.67</i>

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

Historical data for average price of electricity to ultimate consumers represents the cost per unit of electricity sold and is calculated by dividing electric revenue from ultimate consumers by the corresponding sales of electricity.

Prices are not adjusted for inflation.

Regions refer to U.S. Census divisions ([https://www.eia.gov/tools/glossary/index.php?id=C#census\\_division](https://www.eia.gov/tools/glossary/index.php?id=C#census_division)).

(a) Average price to all sectors is weighted by sales of electricity to ultimate customers in the residential, commercial, industrial and transportation (not shown) sectors.

**Historical data:** Latest data available from EIA databases supporting the following reports: Electric Power Monthly and Electric Power Annual.

Minor discrepancies with published historical data are due to independent rounding and possible revisions not yet reflected in the STEO.

**Forecast data:** EIA Short-Term Integrated Forecasting System.

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

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>United States</b>															
Natural Gas .....	336.4	365.3	509.3	375.2	368.1	395.9	545.4	393.6	359.1	380.8	534.5	378.7	1,586.2	1,703.1	1,653.1
Coal .....	217.6	189.1	234.6	182.1	155.1	140.1	210.5	130.9	153.3	127.6	194.2	130.4	823.4	636.6	605.4
Nuclear .....	195.6	184.4	201.5	190.1	194.5	182.9	204.3	195.2	199.8	193.1	208.6	193.2	771.5	777.0	794.7
Renewable Energy Sources: .....	233.0	245.1	197.8	207.2	227.5	226.4	208.3	227.4	260.9	269.4	240.2	246.0	883.1	889.6	1,016.4
Conventional Hydropower .....	74.2	69.2	62.4	55.0	62.6	65.3	58.0	59.1	73.1	80.9	65.8	60.7	260.8	244.9	280.5
Wind .....	119.0	121.0	80.6	113.9	125.4	102.3	87.2	122.3	134.9	109.1	89.5	127.2	434.5	437.1	460.7
Solar (a) .....	29.2	44.4	43.4	27.6	29.6	49.5	52.7	35.9	42.5	70.4	74.3	48.0	144.6	167.7	235.2
Biomass .....	6.6	6.5	7.1	6.5	6.0	5.5	6.4	6.0	6.3	5.9	6.6	6.1	26.7	23.9	24.8
Geothermal .....	4.1	3.9	4.2	4.2	3.9	3.9	4.0	4.1	4.1	3.1	4.0	4.0	16.5	16.0	15.2
Pumped Storage Hydropower .....	-1.2	-1.3	-2.0	-1.5	-1.6	-1.4	-1.9	-1.3	-1.6	-1.4	-2.0	-1.5	-6.0	-6.1	-6.5
Petroleum (b) .....	6.4	4.1	4.5	7.4	3.8	3.4	4.6	5.2	5.0	3.5	4.5	5.6	22.4	17.0	18.5
Other gases .....	0.8	0.9	1.0	0.8	0.8	0.7	0.9	0.8	0.8	0.8	0.9	0.8	3.5	3.2	3.3
Other Nonrenewable Fuels (c) .....	1.6	1.6	1.6	1.5	1.3	1.2	1.5	1.4	1.0	0.8	1.1	1.0	6.2	5.4	4.0
Total Generation .....	990.0	989.3	1,148.2	962.7	949.6	949.3	1,173.7	953.2	978.2	974.6	1,182.0	954.2	4,090.3	4,025.8	4,088.9
<b>New England (ISO-NE)</b>															
Natural Gas .....	12.1	12.6	17.4	11.4	11.7	12.6	16.7	11.9	11.8	10.6	16.8	11.8	53.4	53.0	51.0
Coal .....	0.3	0.0	0.0	0.0	0.1	0.0	0.3	0.1	0.3	0.1	0.4	0.2	0.3	0.5	0.9
Nuclear .....	7.1	5.6	7.3	7.4	7.1	3.4	7.0	6.1	7.1	7.1	7.2	5.6	27.4	23.7	27.1
Conventional hydropower .....	1.7	1.5	1.0	1.3	1.7	1.2	0.9	1.7	2.0	2.2	1.2	1.7	5.5	5.4	7.1
Nonhydro renewables (d) .....	3.2	3.2	3.0	3.0	2.9	3.0	3.2	3.1	2.9	3.3	3.6	3.7	12.4	12.1	13.6
Other energy sources (e) .....	1.4	0.3	0.3	0.8	0.4	0.3	0.2	0.5	0.7	0.3	0.3	0.5	2.8	1.5	1.9
Total generation .....	25.7	23.1	29.2	23.9	24.0	20.5	28.3	23.5	24.9	23.7	29.4	23.6	101.8	96.3	101.5
Net energy for load (f) .....	30.6	26.8	33.5	28.0	29.0	25.6	32.6	28.3	30.2	27.5	34.1	29.0	118.9	115.5	120.8
<b>New York (NYISO)</b>															
Natural Gas .....	14.1	15.5	21.2	14.3	13.3	14.1	21.0	13.5	13.8	13.3	20.5	13.8	65.0	61.9	61.4
Coal .....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nuclear .....	6.4	7.0	6.4	7.0	6.8	6.6	7.3	7.2	6.5	7.1	7.1	6.7	26.8	27.9	27.3
Conventional hydropower .....	7.3	6.9	6.6	6.6	7.1	6.5	6.4	6.8	6.8	6.8	6.8	7.0	27.4	26.8	27.3
Nonhydro renewables (d) .....	2.2	2.1	1.8	2.2	2.2	2.2	2.4	2.7	2.7	2.8	2.5	2.9	8.2	9.5	11.0
Other energy sources (e) .....	1.1	0.1	0.1	0.8	0.3	0.1	0.2	0.4	0.6	0.1	0.3	0.4	2.2	1.0	1.4
Total generation .....	31.0	31.6	36.1	30.9	29.7	29.5	37.2	30.6	30.4	30.1	37.2	30.8	129.6	127.0	128.4
Net energy for load (f) .....	38.1	35.0	44.0	35.6	36.1	33.3	43.3	35.6	37.6	36.0	45.3	36.5	152.7	148.3	155.4
<b>Mid-Atlantic (PJM)</b>															
Natural Gas .....	76.8	74.3	103.8	79.9	86.0	82.0	111.4	89.9	88.4	83.5	112.4	79.6	334.8	369.2	363.9
Coal .....	48.6	35.3	42.2	30.7	27.9	22.5	34.1	18.5	29.4	21.3	28.9	23.7	156.8	103.1	103.4
Nuclear .....	69.0	65.1	69.7	66.8	67.6	65.7	71.2	68.5	69.0	64.7	71.9	68.5	270.6	273.0	274.1
Conventional hydropower .....	2.7	2.4	1.4	2.0	2.7	1.8	1.3	2.0	2.6	2.6	1.7	2.1	8.6	7.9	9.0
Nonhydro renewables (d) .....	13.2	13.0	9.7	12.5	12.9	11.9	10.3	13.5	15.4	14.7	13.3	15.7	48.4	48.6	59.1
Other energy sources (e) .....	0.7	0.4	0.2	1.3	0.3	0.0	0.3	0.8	0.4	0.2	0.3	0.9	2.6	1.4	1.9
Total generation .....	211.1	190.3	227.1	193.3	197.4	183.9	228.6	193.4	205.3	187.1	228.4	190.6	821.8	803.2	811.4
Net energy for load (f) .....	203.4	185.4	216.7	189.7	192.5	176.3	218.1	184.7	198.2	180.5	220.0	183.8	795.1	771.6	782.5
<b>Southeast (SERC)</b>															
Natural Gas .....	63.0	66.9	86.2	64.5	64.1	65.9	86.7	70.4	69.1	73.0	95.2	74.8	280.6	287.1	312.1
Coal .....	32.3	32.8	32.0	28.1	23.6	26.4	35.9	17.3	24.8	21.0	31.8	15.1	125.1	103.2	92.7
Nuclear .....	51.4	51.1	55.4	51.1	51.7	52.7	56.8	56.5	55.9	57.5	59.4	54.6	209.0	217.7	227.4
Conventional hydropower .....	10.3	8.3	6.1	8.0	10.3	6.5	6.0	8.5	11.4	9.0	8.0	9.1	32.7	31.4	37.5
Nonhydro renewables (d) .....	5.0	7.0	6.6	4.7	5.0	7.2	7.6	5.6	5.8	8.5	8.7	6.5	23.3	25.3	29.5
Other energy sources (e) .....	-0.2	-0.3	-0.6	-0.1	-0.3	-0.2	-0.7	-0.2	-0.2	-0.4	-0.8	-0.3	-1.2	-1.4	-1.8
Total generation .....	161.8	165.8	185.7	156.3	154.4	158.6	192.2	158.2	166.8	168.6	202.3	159.8	669.6	663.4	697.4
Net energy for load (f) .....	157.0	158.2	170.6	151.0	149.1	149.2	175.7	149.9	158.0	157.5	188.6	151.8	636.7	623.9	655.9
<b>Florida (FRCC)</b>															
Natural Gas .....	38.7	47.8	57.3	41.3	37.9	49.2	60.4	43.7	37.7	46.1	57.0	41.8	185.0	191.2	182.6
Coal .....	3.5	4.2	3.7	4.1	2.8	2.5	3.9	1.6	2.1	2.0	1.9	1.6	15.5	10.9	7.5
Nuclear .....	7.3	7.9	7.5	8.1	7.4	7.5	7.6	7.8	7.3	7.9	8.0	6.8	30.8	30.2	30.0
Conventional hydropower .....	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.2
Nonhydro renewables (d) .....	2.9	3.8	3.5	2.7	3.5	4.3	3.9	3.0	4.8	5.8	4.9	3.9	12.9	14.7	19.4
Other energy sources (e) .....	0.7	0.6	0.7	0.7	0.7	0.6	0.7	0.6	0.7	0.6	0.7	0.6	2.6	2.5	2.5
Total generation .....	53.2	64.2	72.7	56.8	52.3	64.1	76.5	56.8	52.7	62.4	72.4	54.8	247.0	249.7	242.2
Net energy for load (f) .....	52.2	63.6	73.9	57.8	54.4	65.5	75.5	56.6	52.0	63.2	73.9	55.1	247.5	252.0	244.2

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

The electric power sector includes utility-scale generating power plants (total capacity is larger than 1 megawatt) operated by electric utilities and independent power producers whose primary business is to sell electricity over the transmission grid for consumption by the public.

(a) Generation from utility-scale (larger than 1 megawatt) solar photovoltaic and solar thermal power plants. Excludes generation from small-scale solar photovoltaic systems (see Table 7a).

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

**Historical data:** Latest data available from EIA databases supporting the following reports: Electric Power Monthly and Electric Power Annual.

Minor discrepancies with published historical data are due to independent rounding and possible revisions not yet reflected in the STEO.

**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 - September 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Midwest (MISO)</b>															
Natural Gas .....	39.4	45.6	57.3	41.8	45.4	54.2	64.2	49.6	46.7	53.5	67.7	48.0	184.1	213.4	215.8
Coal .....	60.4	51.0	65.0	49.3	43.0	38.0	56.0	37.3	45.5	36.8	55.1	38.0	225.8	174.4	175.4
Nuclear .....	23.8	19.6	24.3	23.7	23.4	21.1	23.4	20.6	23.3	22.5	24.4	23.3	91.4	88.5	93.5
Conventional hydropower .....	2.8	2.7	2.5	2.3	2.5	2.2	1.9	2.0	2.5	2.9	2.4	2.2	10.3	8.6	9.9
Nonhydro renewables (d) .....	31.2	28.0	19.8	30.4	29.9	26.2	22.4	34.0	33.7	29.6	25.9	36.6	109.4	112.5	125.8
Other energy sources (e) .....	1.4	1.6	1.3	1.8	0.9	0.7	1.5	1.6	1.4	1.2	1.5	1.7	6.1	4.7	5.7
Total generation .....	159.0	148.5	170.2	149.3	145.0	142.5	169.5	145.1	153.0	146.5	176.9	149.8	627.0	602.1	626.1
Net energy for load (f) .....	167.1	163.4	182.5	158.8	158.6	157.9	187.9	159.5	164.4	159.6	190.2	159.2	671.8	663.8	673.4
<b>Central (Southwest Power Pool)</b>															
Natural Gas .....	12.5	15.3	24.8	16.4	15.4	21.1	27.7	15.1	14.4	19.3	24.6	15.8	69.0	79.3	74.1
Coal .....	26.2	23.5	33.8	22.8	20.4	17.2	29.2	17.3	17.8	18.2	28.6	15.3	106.3	84.0	79.9
Nuclear .....	4.3	4.3	3.9	2.1	4.3	4.3	4.3	4.3	4.3	3.0	4.3	3.5	14.6	17.2	15.1
Conventional hydropower .....	4.3	3.9	3.2	3.1	3.5	3.2	2.8	2.8	3.5	4.2	3.7	3.1	14.6	12.2	14.4
Nonhydro renewables (d) .....	29.5	30.4	21.8	28.5	31.1	25.6	24.1	30.4	32.6	26.8	24.1	30.9	110.2	111.2	114.5
Other energy sources (e) .....	0.3	0.4	0.2	0.4	0.2	0.2	0.2	0.3	0.3	0.1	0.2	0.3	1.3	0.9	0.9
Total generation .....	77.0	77.7	87.7	73.5	74.8	71.4	88.4	70.2	72.8	71.6	85.5	68.8	316.0	304.8	298.7
Net energy for load (f) .....	67.4	67.7	81.7	66.0	66.6	66.6	81.3	63.1	65.2	65.6	80.0	62.8	282.8	277.7	273.6
<b>Texas (ERCOT)</b>															
Natural Gas .....	33.4	42.8	64.7	40.9	36.2	49.8	71.9	42.6	32.6	41.9	61.2	38.9	181.9	200.5	174.7
Coal .....	17.7	16.8	20.2	16.6	10.5	15.2	18.4	12.2	10.2	11.7	16.2	11.7	71.2	56.3	49.9
Nuclear .....	11.0	9.9	10.7	10.0	10.5	9.0	11.0	10.1	10.9	9.8	10.6	9.5	41.6	40.6	40.8
Conventional hydropower .....	0.2	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.5	0.5	0.6
Nonhydro renewables (d) .....	30.8	39.2	28.1	29.3	36.5	33.8	32.3	32.8	42.3	43.6	40.5	38.7	127.4	135.3	165.0
Other energy sources (e) .....	0.4	0.5	0.4	0.3	0.2	0.3	0.4	0.4	0.3	0.3	0.2	0.2	1.5	1.3	1.0
Total generation .....	93.5	109.3	124.1	97.2	94.1	108.2	134.0	98.2	96.5	107.5	128.9	99.1	424.1	434.5	432.0
Net energy for load (f) .....	95.1	111.3	126.4	97.1	94.1	109.8	134.0	98.2	96.5	107.5	128.9	99.1	429.9	436.1	432.0
<b>Northwest</b>															
Natural Gas .....	20.2	15.9	27.3	24.6	25.6	18.9	32.0	21.5	19.6	12.2	28.6	18.7	88.1	98.0	79.1
Coal .....	21.7	18.1	26.9	22.1	20.0	14.5	23.5	19.5	16.9	11.9	22.0	18.4	88.8	77.5	69.3
Nuclear .....	2.5	2.3	2.5	2.6	2.4	1.0	2.5	2.4	2.4	2.4	2.4	2.4	9.9	8.4	9.7
Conventional hydropower .....	38.7	35.7	34.0	26.9	26.4	30.2	26.4	26.4	34.1	40.6	30.6	28.3	135.2	109.3	133.5
Nonhydro renewables (d) .....	19.2	20.4	16.0	18.0	19.1	19.4	19.1	20.2	21.2	21.7	21.3	22.1	73.6	77.8	86.3
Other energy sources (e) .....	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.8	0.6	0.6
Total generation .....	102.5	92.6	106.9	94.4	93.7	84.3	103.5	90.2	94.5	88.9	105.1	90.0	396.3	371.7	378.5
Net energy for load (f) .....	85.2	76.8	87.4	86.8	88.7	76.7	88.8	81.9	84.3	75.7	87.8	81.4	336.1	336.2	329.3
<b>Southwest</b>															
Natural Gas .....	9.7	13.2	19.0	13.9	11.5	15.7	24.2	14.8	10.1	14.2	23.7	15.0	55.8	66.2	63.0
Coal .....	6.1	6.3	8.1	6.2	5.5	3.1	6.8	4.8	4.4	4.3	6.6	4.3	26.7	20.2	19.6
Nuclear .....	8.2	7.5	8.7	7.6	8.6	6.8	8.5	7.5	8.5	7.4	8.6	7.5	31.9	31.3	32.0
Conventional hydropower .....	2.0	2.1	1.8	1.4	1.5	2.5	2.2	1.6	1.8	2.2	1.9	1.6	7.4	7.7	7.4
Nonhydro renewables (d) .....	5.8	7.0	5.2	5.6	6.4	6.6	5.6	6.7	8.8	8.5	6.9	7.6	23.6	25.3	31.8
Other energy sources (e) .....	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.1
Total generation .....	31.8	36.0	43.0	34.7	33.6	34.7	47.4	35.2	33.6	36.6	47.7	36.0	145.5	150.9	153.9
Net energy for load (f) .....	27.4	34.2	42.0	28.8	28.3	32.9	46.0	29.3	28.1	34.2	46.1	29.1	132.4	136.6	137.6
<b>California</b>															
Natural Gas .....	15.7	15.2	29.4	25.5	20.4	11.6	28.5	19.7	14.1	12.7	26.3	19.7	85.9	80.2	72.7
Coal .....	0.5	0.7	2.4	1.9	1.1	0.6	2.0	1.7	1.5	-0.1	2.3	1.6	5.5	5.4	5.3
Nuclear .....	4.6	4.2	5.0	3.8	4.7	4.9	4.7	4.1	4.7	3.6	4.7	4.7	17.6	18.4	17.8
Conventional hydropower .....	3.6	5.2	5.2	2.8	6.4	10.6	9.7	6.8	7.9	10.0	9.0	5.1	16.9	33.6	32.0
Nonhydro renewables (d) .....	15.4	21.5	19.4	14.8	14.9	20.6	19.1	15.9	16.9	22.6	22.1	16.1	71.2	70.5	77.7
Other energy sources (e) .....	0.0	-0.2	0.1	-0.2	-0.6	-0.3	0.3	-0.2	-0.7	-0.5	0.1	-0.3	-0.2	-0.7	-1.4
Total generation .....	39.8	46.6	61.6	48.7	46.9	48.0	64.3	48.1	44.3	48.3	64.5	47.0	196.7	207.3	204.1
Net energy for load (f) .....	59.2	64.4	81.3	63.6	60.5	59.9	79.0	62.2	60.0	63.9	83.5	62.4	268.4	261.6	269.7

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

The electric power sector includes utility-scale generating power plants (total capacity is larger than 1 megawatt) operated by electric utilities and independent power producers whose primary business is to sell electricity over the transmission grid for consumption by the public.

(a) Generation from utility-scale (larger than 1 megawatt) solar photovoltaic and solar thermal power plants. Excludes generation from small-scale solar photovoltaic systems (see Table 7a).

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

**Historical data:** Latest data available from EIA databases supporting the following reports: Electric Power Monthly and Electric Power Annual.

Minor discrepancies with published historical data are due to independent rounding and possible revisions not yet reflected in the STEO.

**Table 7e. U.S. Electric Generating Capacity (gigawatts at end of period)**  
 U.S. Energy Information Administration | Short-Term Energy Outlook - September 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Electric power sector (power plants larger than one megawatt)</b>															
Fossil fuel energy sources															
Natural gas .....	481.2	484.6	485.5	485.4	487.1	489.1	489.3	489.1	488.3	486.7	487.3	487.5	485.4	489.1	487.5
Coal .....	199.5	194.5	191.0	187.9	186.3	182.6	180.7	178.1	177.5	177.0	177.0	177.0	187.9	178.1	177.0
Petroleum .....	28.2	27.9	27.8	27.8	27.8	27.6	27.6	27.2	27.2	27.2	27.2	27.2	27.8	27.2	27.2
Other gases .....	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Renewable energy sources															
Wind .....	134.7	137.6	137.6	141.0	142.8	144.2	145.9	149.2	149.6	152.4	152.4	155.2	141.0	149.2	155.2
Solar photovoltaic .....	62.1	64.5	66.6	70.7	73.1	76.7	83.9	96.6	103.9	111.2	114.1	129.5	70.7	96.6	129.5
Solar thermal .....	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Geothermal .....	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Waste biomass .....	3.3	3.3	3.2	3.2	3.1	3.1	3.2	3.2	3.1	3.2	3.2	3.2	3.2	3.2	3.2
Wood biomass .....	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Conventional hydroelectric .....	79.7	79.7	79.7	79.7	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.8	79.7	79.8	79.8
Pumped storage hydroelectric .....	23.0	23.0	23.0	23.0	23.2	23.2	23.2	23.2	23.3	23.3	23.3	23.3	23.0	23.2	23.3
Nuclear .....	95.5	94.8	94.8	94.8	94.8	94.8	95.9	95.9	97.1	97.1	97.1	97.1	94.8	95.9	97.1
Battery storage .....	5.3	6.6	8.0	9.0	9.4	10.8	15.3	18.9	19.9	23.7	25.3	30.9	9.0	18.9	30.9
Other nonrenewable sources (a) .....	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
<b>Industrial and commercial sectors (combined heat and power plants larger than one megawatt)</b>															
Fossil fuel energy sources															
Natural gas .....	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.9	18.9	18.9	18.8	18.8	18.9
Coal .....	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Petroleum .....	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Other gases .....	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.3	1.3
Renewable energy sources															
Wood biomass .....	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Waste biomass .....	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Solar .....	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.6	0.8	0.8
Wind .....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Geothermal .....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Conventional hydroelectric .....	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Battery storage .....	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other nonrenewable sources (a) .....	1.3	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.3	1.3
<b>Small-scale solar photovoltaic capacity (systems smaller than one megawatt)</b>															
Residential sector .....	22.3	23.5	24.9	26.3	28.2	29.7	31.0	32.3	33.6	35.0	36.4	37.8	26.3	32.3	37.8
Commercial sector .....	10.2	10.4	10.7	10.9	11.6	11.9	12.4	12.8	13.3	13.8	14.2	14.8	10.9	12.8	14.8
Industrial sector .....	2.2	2.3	2.3	2.3	2.4	2.5	2.5	2.6	2.6	2.7	2.8	2.8	2.3	2.6	2.8
All sectors total .....	34.7	36.2	37.9	39.5	42.1	44.1	45.8	47.7	49.5	51.4	53.4	55.4	39.5	47.7	55.4

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

Capacity values represent the amount of generating capacity that is operating (or expected to be operating) at the end of each period.

Changes in capacity reflect various factors including new generators coming online, retiring generators, capacity uprates and derates, delayed planned capacity projects, cancelled projects, and other factors.

(a) Other sources include hydrogen, pitch, chemicals, sulfur, purchased steam, nonrenewable waste, and miscellaneous technologies.

**Historical data:** Form EIA-860 Annual Electric Generator Report (final data for utility-scale capacity through 2021); Form EIA-860M Preliminary Monthly Electric Generator Inventory, June 2023 edition (preliminary utility-scale capacity estimates for recent months); and Form EIA-861M Monthly Electric Power Industry Report (small-scale solar capacity).

Historical capacity data may differ from other EIA publications due to frequent updates to the Preliminary Monthly Electric Generator Inventory.

**Table 8a. U.S. Renewable Energy Consumption (Quadrillion Btu)**  
 U.S. Energy Information Administration | Short-Term Energy Outlook - September 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Electric Power Sector</b>															
Geothermal	<b>0.036</b>	<b>0.035</b>	<b>0.037</b>	<b>0.037</b>	<b>0.035</b>	<b>0.020</b>	<i>0.032</i>	<i>0.032</i>	<i>0.030</i>	<i>0.022</i>	<i>0.030</i>	<i>0.029</i>	<b>0.146</b>	<i>0.119</i>	<i>0.111</i>
Hydroelectric Power (a)	<b>0.656</b>	<b>0.612</b>	<b>0.552</b>	<b>0.486</b>	<b>0.554</b>	<b>0.616</b>	<i>0.513</i>	<i>0.522</i>	<i>0.646</i>	<i>0.716</i>	<i>0.582</i>	<i>0.537</i>	<b>2.307</b>	<i>2.205</i>	<i>2.481</i>
Solar (b)	<b>0.258</b>	<b>0.393</b>	<b>0.384</b>	<b>0.244</b>	<b>0.262</b>	<b>0.437</b>	<i>0.466</i>	<i>0.318</i>	<i>0.375</i>	<i>0.622</i>	<i>0.657</i>	<i>0.425</i>	<b>1.279</b>	<i>1.483</i>	<i>2.080</i>
Waste Biomass (c)	<b>0.055</b>	<b>0.053</b>	<b>0.053</b>	<b>0.052</b>	<b>0.051</b>	<b>0.046</b>	<i>0.049</i>	<i>0.048</i>	<i>0.050</i>	<i>0.048</i>	<i>0.050</i>	<i>0.049</i>	<b>0.213</b>	<i>0.195</i>	<i>0.196</i>
Wood Biomass	<b>0.051</b>	<b>0.046</b>	<b>0.055</b>	<b>0.047</b>	<b>0.045</b>	<b>0.039</b>	<i>0.050</i>	<i>0.044</i>	<i>0.048</i>	<i>0.043</i>	<i>0.054</i>	<i>0.046</i>	<b>0.200</b>	<i>0.179</i>	<i>0.191</i>
Wind	<b>1.052</b>	<b>1.070</b>	<b>0.713</b>	<b>1.007</b>	<b>1.109</b>	<b>0.905</b>	<i>0.771</i>	<i>1.081</i>	<i>1.193</i>	<i>0.965</i>	<i>0.791</i>	<i>1.125</i>	<b>3.842</b>	<i>3.866</i>	<i>4.074</i>
Subtotal	<b>2.109</b>	<b>2.210</b>	<b>1.794</b>	<b>1.874</b>	<b>2.055</b>	<b>2.064</b>	<i>1.882</i>	<i>2.046</i>	<i>2.343</i>	<i>2.416</i>	<i>2.164</i>	<i>2.210</i>	<b>7.987</b>	<i>8.046</i>	<i>9.133</i>
<b>Industrial Sector</b>															
Biofuel Losses and Co-products (d)	<b>0.203</b>	<b>0.203</b>	<b>0.197</b>	<b>0.206</b>	<b>0.199</b>	<b>0.201</b>	<i>0.201</i>	<i>0.204</i>	<i>0.199</i>	<i>0.198</i>	<i>0.203</i>	<i>0.199</i>	<b>0.808</b>	<i>0.804</i>	<i>0.799</i>
Geothermal	<b>0.001</b>	<b>0.001</b>	<b>0.001</b>	<b>0.001</b>	<b>0.001</b>	<b>0.001</b>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<b>0.004</b>	<i>0.004</i>	<i>0.004</i>
Hydroelectric Power (a)	<b>0.002</b>	<b>0.002</b>	<b>0.002</b>	<b>0.002</b>	<b>0.002</b>	<b>0.002</b>	<i>0.002</i>	<i>0.002</i>	<i>0.002</i>	<i>0.002</i>	<i>0.002</i>	<i>0.002</i>	<b>0.008</b>	<i>0.008</i>	<i>0.007</i>
Solar (b)	<b>0.008</b>	<b>0.011</b>	<b>0.011</b>	<b>0.008</b>	<b>0.008</b>	<b>0.012</b>	<i>0.013</i>	<i>0.009</i>	<i>0.009</i>	<i>0.013</i>	<i>0.013</i>	<i>0.009</i>	<b>0.038</b>	<i>0.042</i>	<i>0.046</i>
Waste Biomass (c)	<b>0.042</b>	<b>0.040</b>	<b>0.037</b>	<b>0.042</b>	<b>0.042</b>	<b>0.040</b>	<i>0.039</i>	<i>0.041</i>	<i>0.041</i>	<i>0.040</i>	<i>0.039</i>	<i>0.041</i>	<b>0.161</b>	<i>0.163</i>	<i>0.162</i>
Wood Biomass	<b>0.319</b>	<b>0.324</b>	<b>0.322</b>	<b>0.314</b>	<b>0.309</b>	<b>0.302</b>	<i>0.324</i>	<i>0.341</i>	<i>0.334</i>	<i>0.332</i>	<i>0.344</i>	<i>0.346</i>	<b>1.278</b>	<i>1.276</i>	<i>1.356</i>
Subtotal (e)	<b>0.579</b>	<b>0.585</b>	<b>0.575</b>	<b>0.577</b>	<b>0.566</b>	<b>0.563</b>	<i>0.584</i>	<i>0.603</i>	<i>0.591</i>	<i>0.591</i>	<i>0.607</i>	<i>0.604</i>	<b>2.316</b>	<i>2.316</i>	<i>2.392</i>
<b>Commercial Sector</b>															
Geothermal	<b>0.006</b>	<b>0.006</b>	<b>0.006</b>	<b>0.006</b>	<b>0.006</b>	<b>0.006</b>	<i>0.006</i>	<i>0.006</i>	<i>0.006</i>	<i>0.006</i>	<i>0.006</i>	<i>0.006</i>	<b>0.024</b>	<i>0.025</i>	<i>0.025</i>
Solar (b)	<b>0.032</b>	<b>0.047</b>	<b>0.047</b>	<b>0.031</b>	<b>0.036</b>	<b>0.054</b>	<i>0.055</i>	<i>0.038</i>	<i>0.044</i>	<i>0.063</i>	<i>0.064</i>	<i>0.044</i>	<b>0.157</b>	<i>0.183</i>	<i>0.215</i>
Waste Biomass (c)	<b>0.009</b>	<b>0.009</b>	<b>0.009</b>	<b>0.009</b>	<b>0.010</b>	<b>0.010</b>	<i>0.009</i>	<i>0.009</i>	<i>0.010</i>	<i>0.011</i>	<i>0.009</i>	<i>0.009</i>	<b>0.037</b>	<i>0.038</i>	<i>0.040</i>
Wood Biomass	<b>0.020</b>	<b>0.021</b>	<b>0.021</b>	<b>0.021</b>	<b>0.020</b>	<b>0.020</b>	<i>0.021</i>	<i>0.021</i>	<i>0.020</i>	<i>0.020</i>	<i>0.021</i>	<i>0.021</i>	<b>0.083</b>	<i>0.083</i>	<i>0.082</i>
Subtotal (e)	<b>0.076</b>	<b>0.090</b>	<b>0.091</b>	<b>0.074</b>	<b>0.080</b>	<b>0.098</b>	<i>0.099</i>	<i>0.082</i>	<i>0.087</i>	<i>0.109</i>	<i>0.108</i>	<i>0.087</i>	<b>0.331</b>	<i>0.358</i>	<i>0.391</i>
<b>Residential Sector</b>															
Geothermal	<b>0.010</b>	<b>0.010</b>	<b>0.010</b>	<b>0.010</b>	<b>0.010</b>	<b>0.010</b>	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	<b>0.040</b>	<i>0.040</i>	<i>0.040</i>
Solar (f)	<b>0.078</b>	<b>0.116</b>	<b>0.117</b>	<b>0.084</b>	<b>0.099</b>	<b>0.151</b>	<i>0.147</i>	<i>0.102</i>	<i>0.112</i>	<i>0.170</i>	<i>0.170</i>	<i>0.117</i>	<b>0.395</b>	<i>0.499</i>	<i>0.570</i>
Wood Biomass	<b>0.104</b>	<b>0.105</b>	<b>0.106</b>	<b>0.106</b>	<b>0.111</b>	<b>0.110</b>	<i>0.106</i>	<i>0.106</i>	<i>0.111</i>	<i>0.110</i>	<i>0.106</i>	<i>0.106</i>	<b>0.422</b>	<i>0.434</i>	<i>0.434</i>
Subtotal	<b>0.192</b>	<b>0.231</b>	<b>0.233</b>	<b>0.200</b>	<b>0.220</b>	<b>0.271</b>	<i>0.264</i>	<i>0.218</i>	<i>0.233</i>	<i>0.290</i>	<i>0.287</i>	<i>0.234</i>	<b>0.857</b>	<i>0.972</i>	<i>1.043</i>
<b>Transportation Sector</b>															
Biodiesel, Renewable Diesel, and Other (g)	<b>0.094</b>	<b>0.117</b>	<b>0.116</b>	<b>0.125</b>	<b>0.140</b>	<b>0.173</b>	<i>0.165</i>	<i>0.168</i>	<i>0.165</i>	<i>0.178</i>	<i>0.180</i>	<i>0.181</i>	<b>0.451</b>	<i>0.646</i>	<i>0.704</i>
Ethanol (g)	<b>0.262</b>	<b>0.281</b>	<b>0.281</b>	<b>0.283</b>	<b>0.268</b>	<b>0.284</b>	<i>0.292</i>	<i>0.277</i>	<i>0.264</i>	<i>0.279</i>	<i>0.287</i>	<i>0.274</i>	<b>1.108</b>	<i>1.121</i>	<i>1.104</i>
Subtotal	<b>0.356</b>	<b>0.398</b>	<b>0.397</b>	<b>0.408</b>	<b>0.408</b>	<b>0.457</b>	<i>0.457</i>	<i>0.446</i>	<i>0.429</i>	<i>0.456</i>	<i>0.467</i>	<i>0.456</i>	<b>1.559</b>	<i>1.767</i>	<i>1.808</i>
<b>All Sectors Total</b>															
Biodiesel, Renewable Diesel, and Other (g)	<b>0.094</b>	<b>0.117</b>	<b>0.116</b>	<b>0.125</b>	<b>0.140</b>	<b>0.173</b>	<i>0.165</i>	<i>0.168</i>	<i>0.165</i>	<i>0.178</i>	<i>0.180</i>	<i>0.181</i>	<b>0.451</b>	<i>0.646</i>	<i>0.704</i>
Biofuel Losses and Co-products (d)	<b>0.203</b>	<b>0.203</b>	<b>0.197</b>	<b>0.206</b>	<b>0.199</b>	<b>0.201</b>	<i>0.201</i>	<i>0.204</i>	<i>0.199</i>	<i>0.198</i>	<i>0.203</i>	<i>0.199</i>	<b>0.808</b>	<i>0.804</i>	<i>0.799</i>
Ethanol (f)	<b>0.273</b>	<b>0.293</b>	<b>0.293</b>	<b>0.295</b>	<b>0.279</b>	<b>0.296</b>	<i>0.304</i>	<i>0.289</i>	<i>0.274</i>	<i>0.290</i>	<i>0.299</i>	<i>0.286</i>	<b>1.153</b>	<i>1.167</i>	<i>1.149</i>
Geothermal	<b>0.053</b>	<b>0.052</b>	<b>0.054</b>	<b>0.055</b>	<b>0.052</b>	<b>0.045</b>	<i>0.049</i>	<i>0.049</i>	<i>0.047</i>	<i>0.039</i>	<i>0.047</i>	<i>0.046</i>	<b>0.214</b>	<i>0.195</i>	<i>0.180</i>
Hydroelectric Power (a)	<b>0.659</b>	<b>0.615</b>	<b>0.555</b>	<b>0.489</b>	<b>0.556</b>	<b>0.619</b>	<i>0.515</i>	<i>0.525</i>	<i>0.649</i>	<i>0.718</i>	<i>0.584</i>	<i>0.539</i>	<b>2.317</b>	<i>2.215</i>	<i>2.491</i>
Solar (b)(f)	<b>0.377</b>	<b>0.568</b>	<b>0.559</b>	<b>0.366</b>	<b>0.405</b>	<b>0.655</b>	<i>0.681</i>	<i>0.466</i>	<i>0.541</i>	<i>0.869</i>	<i>0.905</i>	<i>0.595</i>	<b>1.870</b>	<i>2.207</i>	<i>2.909</i>
Waste Biomass (c)	<b>0.106</b>	<b>0.102</b>	<b>0.099</b>	<b>0.103</b>	<b>0.103</b>	<b>0.098</b>	<i>0.098</i>	<i>0.099</i>	<i>0.101</i>	<i>0.100</i>	<i>0.098</i>	<i>0.099</i>	<b>0.411</b>	<i>0.398</i>	<i>0.399</i>
Wood Biomass	<b>0.494</b>	<b>0.496</b>	<b>0.505</b>	<b>0.489</b>	<b>0.486</b>	<b>0.471</b>	<i>0.503</i>	<i>0.513</i>	<i>0.513</i>	<i>0.505</i>	<i>0.525</i>	<i>0.520</i>	<b>1.984</b>	<i>1.972</i>	<i>2.063</i>
Wind	<b>1.052</b>	<b>1.070</b>	<b>0.713</b>	<b>1.007</b>	<b>1.109</b>	<b>0.905</b>	<i>0.771</i>	<i>1.081</i>	<i>1.193</i>	<i>0.965</i>	<i>0.791</i>	<i>1.125</i>	<b>3.842</b>	<i>3.866</i>	<i>4.074</i>
<b>Total Consumption</b>	<b>3.311</b>	<b>3.515</b>	<b>3.091</b>	<b>3.134</b>	<b>3.328</b>	<b>3.453</b>	<i>3.285</i>	<i>3.395</i>	<i>3.683</i>	<i>3.862</i>	<i>3.633</i>	<i>3.591</i>	<b>13.051</b>	<i>13.460</i>	<i>14.768</i>

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

(a) Energy consumption for conventional hydroelectric power only. Hydroelectricity generated by pumped storage is not included in renewable energy and energy consumption by small-scale solar photovoltaic systems (less than 1 megawatts in size).

(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 solar photovoltaic systems (<1 megawatt), and it includes solar heating consumption in all sectors. Some biomass-based diesel may be consumed in the residential sector in heating oil.

**Historical data:** Latest data available from EIA databases supporting the following reports: Electric Power Monthly, Electric Power Annual,

Minor discrepancies with published historical data are due to independent rounding and possible revisions not yet reflected in the STEO.

**Forecast data:** EIA Short-Term Integrated Forecasting System.

**Table 9a. U.S. Macroeconomic Indicators and CO2 Emissions**

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Macroeconomic</b>															
Real Gross Domestic Product															
(billion chained 2012 dollars - SAAR)	19,924	19,895	20,055	20,182	20,283	20,404	20,515	20,592	20,634	20,692	20,761	20,838	20,014	20,448	20,731
Real Personal Consumption Expend.															
(billion chained 2012 dollars - SAAR)	14,028	14,099	14,179	14,215	14,360	14,419	14,483	14,543	14,580	14,622	14,671	14,725	14,130	14,451	14,650
Real Private Fixed Investment															
(billion chained 2012 dollars - SAAR)	3,629	3,582	3,550	3,516	3,512	3,554	3,570	3,586	3,591	3,597	3,604	3,615	3,569	3,556	3,602
Business Inventory Change															
(billion chained 2012 dollars - SAAR)	257	145	71	162	12	23	19	22	27	38	49	61	159	19	44
Real Government Expenditures															
(billion chained 2012 dollars - SAAR)	3,393	3,379	3,411	3,442	3,484	3,507	3,526	3,540	3,549	3,556	3,561	3,566	3,406	3,514	3,558
Real Exports of Goods & Services															
(billion chained 2012 dollars - SAAR)	2,437	2,517	2,604	2,580	2,628	2,554	2,585	2,624	2,662	2,695	2,730	2,767	2,534	2,598	2,714
Real Imports of Goods & Services															
(billion chained 2012 dollars - SAAR)	3,926	3,947	3,873	3,818	3,837	3,760	3,785	3,847	3,908	3,950	3,989	4,032	3,891	3,807	3,970
Real Disposable Personal Income															
(billion chained 2012 dollars - SAAR)	15,109	15,022	15,141	15,236	15,550	15,644	15,722	15,809	15,968	16,098	16,205	16,290	15,127	15,681	16,140
Non-Farm Employment															
(millions)	150.8	152.0	153.3	154.3	155.2	155.9	156.5	156.8	156.8	156.8	156.7	156.6	152.6	156.1	156.7
Civilian Unemployment Rate															
(percent)	3.8	3.6	3.6	3.6	3.5	3.6	3.5	3.6	3.7	3.8	4.0	4.1	3.6	3.5	3.9
Housing Starts															
(millions - SAAR)	1.72	1.64	1.45	1.41	1.39	1.45	1.44	1.40	1.37	1.37	1.39	1.40	1.55	1.42	1.38
<b>Industrial Production Indices (Index, 2017=100)</b>															
Total Industrial Production	101.7	102.8	103.3	102.7	102.6	102.8	102.7	102.1	101.8	101.7	101.8	102.0	102.6	102.6	101.8
Manufacturing	100.1	100.8	100.9	100.0	99.9	100.4	100.0	99.3	98.9	98.9	99.2	99.6	100.5	99.9	99.2
Food	105.1	105.1	104.8	104.5	105.1	103.5	104.1	104.4	104.7	105.0	105.5	105.9	104.9	104.3	105.3
Paper	95.9	96.2	92.7	89.1	87.6	87.5	87.0	86.9	86.8	86.8	87.1	87.4	93.5	87.2	87.0
Petroleum and Coal Products	89.8	89.6	90.1	89.8	88.6	90.9	90.9	90.9	90.9	90.8	90.7	90.7	89.8	90.3	90.8
Chemicals	102.1	102.3	102.4	100.9	103.3	103.6	104.0	104.3	104.4	104.8	105.5	106.2	101.9	103.8	105.3
Nonmetallic Mineral Products	107.1	108.0	109.7	110.6	111.5	109.3	108.8	109.2	109.9	110.7	111.6	112.6	108.9	109.7	111.2
Primary Metals	94.9	96.4	95.7	92.5	92.7	95.3	95.1	94.6	93.6	94.4	96.1	97.4	94.9	94.4	95.4
Coal-weighted Manufacturing (a)	97.4	97.7	97.2	95.2	95.7	96.1	95.8	95.8	95.4	95.9	96.8	97.6	96.9	95.9	96.4
Distillate-weighted Manufacturing (a)	100.0	100.5	100.4	99.2	99.3	99.2	99.0	99.0	99.0	99.4	100.1	100.8	100.0	99.2	99.8
Electricity-weighted Manufacturing (a)	98.5	98.8	98.2	96.0	96.4	96.6	96.5	96.4	96.2	96.6	97.4	98.2	97.9	96.5	97.1
Natural Gas-weighted Manufacturing (a)	97.0	96.7	95.6	92.7	94.0	93.8	93.5	93.4	93.1	93.4	94.1	94.7	95.5	93.7	93.8
<b>Price Indexes</b>															
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	3.13	3.14	2.93	3.05	3.12
Producer Price Index: All Commodities															
(index, 1982=1.00)	2.53	2.72	2.70	2.63	2.59	2.54	2.50	2.49	2.48	2.45	2.46	2.47	2.64	2.53	2.46
Producer Price Index: Petroleum															
(index, 1982=1.00)	3.16	4.21	3.74	3.44	3.09	2.91	2.89	2.94	2.79	2.75	2.68	2.62	3.64	2.96	2.71
GDP Implicit Price Deflator															
(index, 2012=100)	124.2	126.9	128.3	129.5	130.8	131.5	132.2	133.2	134.1	134.9	135.6	136.4	127.2	132.0	135.2
<b>Miscellaneous</b>															
Vehicle Miles Traveled (b)															
(million miles/day)	8,142	8,910	9,066	8,604	8,362	9,081	9,116	8,725	8,184	8,987	9,230	8,659	8,683	8,823	8,766
Air Travel Capacity															
(Available ton-miles/day, thousands)	656	686	692	700	683	730	740	668	658	715	736	724	684	705	708
Aircraft Utilization															
(Revenue ton-miles/day, thousands)	356	419	422	407	390	434	444	407	393	440	446	432	401	419	428
Airline Ticket Price Index															
(index, 1982-1984=100)	225.6	328.7	293.1	285.2	277.6	290.8	233.6	236.3	250.1	303.3	269.4	264.9	283.1	259.6	271.9
Raw Steel Production															
(million short tons per day)	0.253	0.253	0.247	0.235	0.236	0.244	0.330	0.306	0.286	0.277	0.280	0.273	0.247	0.279	0.279
<b>Carbon Dioxide (CO2) Emissions (million metric tons)</b>															
Petroleum	562	564	576	571	555	570	567	565	556	559	571	566	2,273	2,256	2,252
Natural Gas	510	374	401	461	502	390	420	464	508	376	415	458	1,746	1,776	1,757
Coal	244	215	264	212	184	153	247	165	181	154	229	163	935	749	727
Total Energy (c)	1,319	1,155	1,244	1,246	1,243	1,115	1,237	1,197	1,248	1,091	1,217	1,190	4,964	4,792	4,746

(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 September 7, 2023.

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

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

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

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



**Table 9b. U.S. Regional Macroeconomic Data**

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Real Gross State Product (Billion \$2012)</b>															
New England .....	1,032	1,024	1,031	1,037	1,041	1,045	1,049	1,053	1,054	1,056	1,059	1,063	1,031	1,047	1,058
Middle Atlantic .....	2,858	2,858	2,879	2,886	2,896	2,909	2,926	2,936	2,941	2,949	2,958	2,969	2,870	2,917	2,954
E. N. Central .....	2,596	2,583	2,592	2,596	2,603	2,617	2,628	2,635	2,639	2,643	2,650	2,656	2,592	2,621	2,647
W. N. Central .....	1,220	1,215	1,220	1,221	1,236	1,241	1,246	1,250	1,252	1,255	1,259	1,263	1,219	1,244	1,257
S. Atlantic .....	3,578	3,578	3,601	3,627	3,644	3,668	3,689	3,705	3,715	3,727	3,740	3,756	3,596	3,676	3,734
E. S. Central .....	884	883	887	895	900	904	908	911	913	914	917	919	887	906	916
W. S. Central .....	2,377	2,383	2,424	2,460	2,476	2,498	2,516	2,527	2,534	2,543	2,555	2,566	2,411	2,504	2,549
Mountain .....	1,359	1,354	1,366	1,378	1,387	1,395	1,403	1,409	1,412	1,417	1,423	1,430	1,364	1,399	1,421
Pacific .....	3,805	3,802	3,838	3,865	3,881	3,907	3,928	3,943	3,952	3,963	3,976	3,993	3,828	3,915	3,971
<b>Industrial Output, Manufacturing (Index, Year 2017=100)</b>															
New England .....	97.6	97.9	97.5	96.2	96.2	96.4	96.0	95.2	94.8	94.8	95.1	95.5	97.3	95.9	95.0
Middle Atlantic .....	95.9	96.6	96.4	95.4	95.1	95.4	94.8	93.9	93.4	93.3	93.4	93.8	96.1	94.8	93.5
E. N. Central .....	97.4	97.8	97.8	96.6	96.2	96.7	96.4	95.8	95.5	95.5	95.9	96.2	97.4	96.3	95.8
W. N. Central .....	100.9	101.7	101.8	101.3	101.4	102.0	101.5	100.8	100.5	100.5	100.7	101.1	101.5	101.4	100.7
S. Atlantic .....	102.5	103.2	103.2	102.3	102.1	102.7	102.4	101.7	101.3	101.3	101.7	102.2	102.8	102.2	101.6
E. S. Central .....	100.2	101.2	101.5	100.5	100.3	101.2	101.0	100.3	99.9	99.8	100.1	100.4	100.9	100.7	100.0
W. S. Central .....	102.4	103.6	104.3	104.1	104.1	104.9	104.8	104.1	103.7	103.8	104.2	104.7	103.6	104.5	104.1
Mountain .....	111.6	112.5	112.7	111.3	111.6	112.0	111.6	110.7	110.3	110.3	110.7	111.2	112.0	111.5	110.6
Pacific .....	97.7	98.3	98.4	97.5	97.3	97.4	97.0	96.2	95.8	95.7	96.0	96.4	98.0	97.0	96.0
<b>Real Personal Income (Billion \$2012)</b>															
New England .....	950	940	941	955	951	953	955	958	964	968	973	977	946	954	971
Middle Atlantic .....	2,414	2,392	2,397	2,393	2,396	2,404	2,413	2,420	2,436	2,450	2,462	2,473	2,399	2,408	2,455
E. N. Central .....	2,449	2,430	2,437	2,438	2,444	2,450	2,457	2,464	2,482	2,495	2,508	2,519	2,438	2,454	2,501
W. N. Central .....	1,164	1,161	1,174	1,171	1,182	1,179	1,180	1,183	1,192	1,198	1,205	1,211	1,168	1,181	1,201
S. Atlantic .....	3,396	3,385	3,422	3,447	3,466	3,485	3,501	3,517	3,547	3,571	3,596	3,617	3,413	3,492	3,583
E. S. Central .....	943	937	943	944	949	952	953	955	960	964	968	971	942	952	965
W. S. Central .....	2,084	2,085	2,112	2,119	2,129	2,142	2,151	2,160	2,177	2,192	2,206	2,219	2,100	2,145	2,199
Mountain .....	1,308	1,307	1,326	1,328	1,333	1,338	1,341	1,345	1,355	1,363	1,372	1,379	1,317	1,339	1,367
Pacific .....	2,956	2,929	2,944	2,956	2,944	2,962	2,976	2,991	3,015	3,037	3,057	3,076	2,946	2,968	3,046
<b>Households (Thousands)</b>															
New England .....	6,101	6,100	6,098	6,100	6,118	6,127	6,138	6,149	6,157	6,163	6,170	6,176	6,100	6,149	6,176
Middle Atlantic .....	16,124	16,119	16,108	16,111	16,152	16,176	16,202	16,230	16,254	16,274	16,293	16,312	16,111	16,230	16,312
E. N. Central .....	19,058	19,063	19,061	19,068	19,111	19,137	19,170	19,205	19,231	19,252	19,272	19,291	19,068	19,205	19,291
W. N. Central .....	8,655	8,668	8,678	8,689	8,721	8,744	8,769	8,794	8,817	8,835	8,852	8,868	8,689	8,794	8,868
S. Atlantic .....	27,104	27,219	27,317	27,398	27,533	27,635	27,737	27,836	27,919	27,990	28,060	28,122	27,398	27,836	28,122
E. S. Central .....	7,825	7,847	7,864	7,885	7,924	7,954	7,984	8,015	8,042	8,065	8,087	8,107	7,885	8,015	8,107
W. S. Central .....	15,856	15,922	15,980	16,030	16,109	16,171	16,237	16,301	16,357	16,406	16,460	16,510	16,030	16,301	16,510
Mountain .....	9,792	9,826	9,858	9,882	9,933	9,972	10,014	10,056	10,094	10,130	10,164	10,200	9,882	10,056	10,200
Pacific .....	19,052	19,064	19,068	19,075	19,127	19,156	19,187	19,218	19,244	19,265	19,289	19,314	19,075	19,218	19,314
<b>Total Non-farm Employment (Millions)</b>															
New England .....	7.4	7.5	7.5	7.5	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.5	7.6	7.6
Middle Atlantic .....	19.6	19.7	19.9	20.0	20.1	20.2	20.3	20.3	20.3	20.3	20.3	20.2	19.8	20.2	20.3
E. N. Central .....	21.9	22.0	22.2	22.3	22.4	22.5	22.5	22.6	22.6	22.5	22.5	22.5	22.1	22.5	22.5
W. N. Central .....	10.7	10.7	10.8	10.9	10.9	11.0	11.0	11.0	11.0	11.0	11.0	11.0	10.8	11.0	11.0
S. Atlantic .....	29.6	29.9	30.2	30.4	30.6	30.7	30.8	30.9	30.9	31.0	31.0	31.0	30.0	30.8	31.0
E. S. Central .....	8.4	8.5	8.5	8.6	8.6	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.5	8.7	8.7
W. S. Central .....	18.1	18.3	18.6	18.7	18.9	19.0	19.1	19.1	19.1	19.1	19.1	19.2	18.4	19.0	19.1
Mountain .....	11.5	11.6	11.7	11.7	11.8	11.9	11.9	11.9	12.0	12.0	12.0	12.0	11.6	11.9	12.0
Pacific .....	23.8	24.1	24.2	24.4	24.5	24.7	24.8	24.8	24.8	24.8	24.8	24.7	24.1	24.7	24.8

- = no data available

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

Regions refer to U.S. Census divisions.

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

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

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

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

**Table 9c. U.S. Regional Weather Data**

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
<b>Heating Degree Days</b>															
New England .....	3,133	784	114	1,978	2,711	815	102	2,061	2,979	828	132	2,054	<b>6,009</b>	5,689	5,993
Middle Atlantic .....	2,935	669	73	1,961	2,449	654	66	1,887	2,756	662	87	1,881	<b>5,637</b>	5,056	5,385
E. N. Central .....	3,267	752	99	2,224	2,725	700	112	2,160	3,038	710	122	2,155	<b>6,343</b>	5,697	6,025
W. N. Central .....	3,487	792	111	2,517	3,170	656	123	2,363	3,183	708	154	2,360	<b>6,907</b>	6,312	6,406
South Atlantic .....	1,341	189	13	977	1,056	189	11	898	1,294	181	13	891	<b>2,520</b>	2,154	2,379
E. S. Central .....	1,827	249	22	1,341	1,394	259	17	1,247	1,712	236	19	1,243	<b>3,439</b>	2,917	3,210
W. S. Central .....	1,335	55	2	802	930	91	3	775	1,105	86	5	772	<b>2,194</b>	1,798	1,968
Mountain .....	2,296	732	84	2,015	2,559	726	100	1,820	2,138	701	152	1,815	<b>5,126</b>	5,205	4,806
Pacific .....	1,396	604	49	1,294	1,834	659	62	1,147	1,423	576	94	1,143	<b>3,343</b>	3,702	3,236
U.S. Average .....	2,145	490	54	1,551	1,920	485	58	1,461	2,004	472	75	1,454	<b>4,240</b>	3,924	4,005
<b>Heating Degree Days, Prior 10-year Average</b>															
New England .....	3,100	853	107	2,103	3,150	859	106	2,093	3,110	856	99	2,069	<b>6,163</b>	6,208	6,134
Middle Atlantic .....	2,881	681	70	1,904	2,939	689	69	1,907	2,889	685	63	1,889	<b>5,536</b>	5,604	5,527
E. N. Central .....	3,133	727	97	2,162	3,215	741	93	2,169	3,158	735	93	2,139	<b>6,119</b>	6,218	6,125
W. N. Central .....	3,221	726	125	2,358	3,319	754	121	2,374	3,295	729	123	2,338	<b>6,430</b>	6,569	6,486
South Atlantic .....	1,381	187	11	907	1,403	190	10	905	1,356	188	9	896	<b>2,486</b>	2,508	2,449
E. S. Central .....	1,764	244	15	1,229	1,811	251	14	1,231	1,757	248	14	1,214	<b>3,251</b>	3,307	3,234
W. S. Central .....	1,144	93	3	753	1,188	95	3	762	1,163	90	3	738	<b>1,993</b>	2,047	1,995
Mountain .....	2,173	681	131	1,810	2,193	696	128	1,834	2,207	696	125	1,817	<b>4,794</b>	4,851	4,845
Pacific .....	1,457	523	79	1,138	1,441	523	75	1,149	1,468	539	73	1,141	<b>3,196</b>	3,189	3,222
U.S. Average .....	2,095	478	62	1,472	2,132	485	60	1,477	2,102	483	58	1,457	<b>4,107</b>	4,154	4,100
<b>Cooling Degree Days</b>															
New England .....	0	81	565	0	0	53	486	1	0	99	509	1	<b>646</b>	541	610
Middle Atlantic .....	0	152	686	1	0	92	626	5	0	185	663	5	<b>839</b>	723	853
E. N. Central .....	1	257	557	2	0	178	544	7	1	249	608	7	<b>817</b>	729	865
W. N. Central .....	3	305	734	8	1	320	719	11	5	298	735	11	<b>1,050</b>	1,050	1,049
South Atlantic .....	156	713	1,201	234	203	590	1,241	255	138	712	1,286	257	<b>2,303</b>	2,288	2,393
E. S. Central .....	28	596	1,063	36	63	436	1,105	67	34	545	1,129	68	<b>1,723</b>	1,671	1,775
W. S. Central .....	57	1,091	1,662	170	150	899	1,761	209	104	922	1,625	210	<b>2,980</b>	3,019	2,861
Mountain .....	16	473	1,024	65	3	352	1,022	83	21	456	1,031	84	<b>1,577</b>	1,460	1,592
Pacific .....	31	221	759	83	26	106	652	78	28	205	720	79	<b>1,093</b>	862	1,032
U.S. Average .....	47	466	952	90	68	363	946	104	50	444	968	105	<b>1,555</b>	1,481	1,567
<b>Cooling Degree Days, Prior 10-year Average</b>															
New England .....	0	87	472	2	0	87	480	2	0	83	484	2	<b>561</b>	569	569
Middle Atlantic .....	0	163	612	8	0	160	617	8	0	154	627	8	<b>783</b>	785	789
E. N. Central .....	3	238	571	9	1	234	561	10	1	230	568	10	<b>821</b>	805	810
W. N. Central .....	7	299	682	11	4	292	674	12	4	301	681	12	<b>999</b>	982	998
South Atlantic .....	146	667	1,188	268	143	675	1,193	272	153	674	1,212	272	<b>2,269</b>	2,283	2,312
E. S. Central .....	44	517	1,056	83	36	520	1,058	83	41	518	1,077	84	<b>1,701</b>	1,697	1,720
W. S. Central .....	113	852	1,537	224	101	860	1,549	223	109	872	1,573	227	<b>2,726</b>	2,732	2,781
Mountain .....	24	463	954	85	24	460	959	83	22	447	969	86	<b>1,526</b>	1,526	1,525
Pacific .....	31	208	664	85	32	214	675	86	32	202	680	89	<b>988</b>	1,006	1,003
U.S. Average .....	53	413	890	109	50	416	895	110	53	414	909	111	<b>1,464</b>	1,470	1,488

- = no data available

Notes: EIA completed modeling and analysis for this report on September 7, 2023.

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

Regional degree days for each period are calculated by EIA as contemporaneous period population-weighted averages of state degree day data published by the National See *Change in Regional and U.S. Degree-Day Calculations* ([http://www.eia.gov/forecasts/steo/special/pdf/2012\\_sp\\_04.pdf](http://www.eia.gov/forecasts/steo/special/pdf/2012_sp_04.pdf)) for more information.

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

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

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

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