

Short-Term Energy Outlook

STEO

July 2023



The U.S. Energy Information Administration (EIA), the statistical and analytical agency within the U.S. Department of Energy (DOE), prepared this report. By law, our data, analyses, and forecasts are independent of approval by any other officer or employee of the U.S. Government. The views in this report do not represent those of DOE or any other federal agencies.

Short-Term Energy Outlook

Overview

U.S. energy market indicators	2022	2023	2024
Brent crude oil spot price (dollars per barrel)	\$101	\$79	\$84
Retail gasoline price (dollars per gallon)	\$3.97	\$3.40	\$3.34
U.S. crude oil production (million barrels per day)	11.89	12.56	12.85
Natural gas price at Henry Hub (dollars per million British thermal units)	\$6.42	\$2.62	\$3.29
U.S. liquefied natural gas gross exports (billion cubic feet per day)	10.6	12.0	13.3
Shares of U.S. electricity generation			
Natural gas	39%	41%	40%
Coal	20%	16%	15%
Renewables	22%	23%	25%
Nuclear	19%	19%	20%
U.S. GDP (percentage change)	2.1%	1.5%	1.3%
U.S. CO₂ emissions (billion metric tons)	4.96	4.79	4.77

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

- U.S. economy.** Our forecast assumes U.S. GDP growth of 1.5% in 2023 and 1.3% in 2024, which is revised up from last month's forecast of 1.3% in 2023 and 1.0% in 2024. The upward revision is partially driven by an updated estimate of real GDP growth in the first quarter of 2023 (1Q23) resulting from more consumer spending and aggregate investment than assumed in last month's STEO. We use the S&P Global macroeconomic model, and we input our energy price forecasts to get the forecasts for the U.S. economy used in STEO.
- Crude oil prices.** We forecast that the Brent crude oil spot price will average \$78 per barrel (b) in July. Crude oil prices gradually increase throughout our forecast, reaching about \$80/b in 4Q23 and averaging about \$84/b in 2024 because we expect that global oil inventories will decline over the next five quarters.
- U.S. renewable diesel production.** As a result of the U.S. Environmental Protection Agency's (EPA) revised [Renewable Fuel Standard](#) (RFS) rule establishing biofuel volume requirements that was issued on June 21, we have reduced our forecast for [renewable diesel production growth](#). However, we still expect renewable diesel production will grow in the United States to reach 219,000 b/d in 2024.
- Natural gas prices.** We expect the Henry Hub spot price will rise in the coming months as declining natural gas production narrows the existing surplus of natural gas inventories compared with the five-year average. Henry Hub prices in our forecast average more than \$2.80 per million British

thermal units (MMBtu) in the second half of 2023 (2H23), up from about \$2.40/MMBtu in the first half of the year.

- **Electricity generation.** Solar has been the [leading source of new generating capacity](#) in the United States so far this year, and the new capacity contributes to our forecast of 23% more U.S. solar generation this summer (June, July, and August) than last summer. The increase in solar capacity, along with lower natural gas prices, reduces our forecast of coal-fired electricity generation this year. We expect that U.S. coal-fired generation during 2H23 will be 75 billion kilowatthours (18%) less than 2H22.
- **Supplements.** We periodically publish report and article supplements to the STEO to provide an in-depth analysis of special topics related to our forecasts. This month's *Between the Lines* article discusses our [U.S. LNG exports forecast](#).

Notable forecast changes

current forecast: July 11, 2023; previous forecast: June 6, 2023	2023	2024
U.S. natural gas consumption in the electric power sector (current forecast) (billion cubic feet per day)	34.5	33.5
Previous forecast	34.3	32.5
Percentage change	0.7%	3.2%
U.S. LNG exports (current forecast) (billion cubic feet per day)	12.0	13.3
Previous forecast	12.1	12.7
Percentage change	-0.2%	4.6%
U.S. renewable diesel production (current forecast) (million barrels per day)	0.161	0.219
Previous forecast	0.157	0.225
Percentage change	2.2%	-2.8%
U.S. electric power sector generation from coal (current forecast) (billion kilowatthours)	629.1	610.5
Previous forecast	641.5	650.5
Percentage change	-1.9%	-6.1%
U.S. coal production (current forecast) (million short tons)	572.2	460.3
Previous forecast	559.5	478.4
Percentage change	2.3%	-3.8%

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

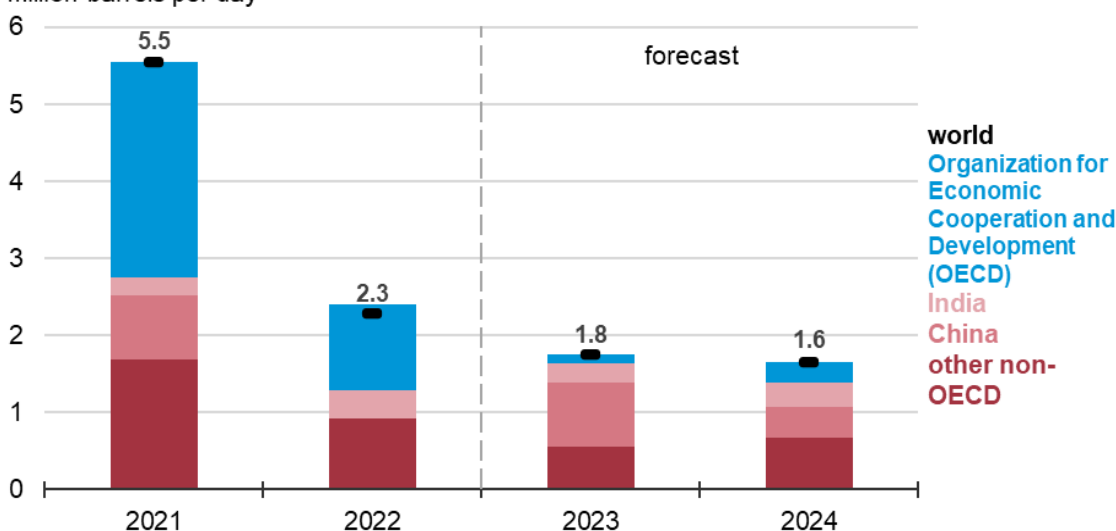
Global Oil Markets

Global oil demand and prices

The Brent crude oil spot price in our forecast gradually increases in the coming months, reflecting our expectation that global oil inventories will decline. The Brent price averaged \$75 per barrel (b) in June, unchanged from May, as ongoing concerns regarding weakening global economic conditions continued to limit expectations for global oil demand growth, which countered upward price pressure from tighter near-term oil supplies. The reduction in expected near-term oil supplies was the result of the OPEC+ extended crude oil production cuts [announced on June 4](#) and an extension of [voluntary cuts through August](#) announced by Saudi Arabia on July 3. We expect the production cuts and rising demand to increase prices going forward. Brent crude oil spot prices in our forecast rise to \$81/b by the end of this year and average \$84/b next year.

Annual change in world liquid fuels consumption

million barrels per day



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



Global liquid fuels consumption in our forecast increases by 1.8 million barrels per day (b/d) in 2023 and by 1.6 million b/d in 2024. Most of the expected liquid fuels demand growth is in non-OECD Asia, led by China and India. We expect China's liquid fuels consumption will rise by 0.8 million b/d in 2023 and by 0.4 million b/d in 2024. India's liquid fuels consumption in our forecast increases by an average of 0.3 million b/d in both 2023 and 2024.

Global oil inventories will transition from inventory builds, on average, during the first half of 2023 (1H23) to consistent inventory draws until the fourth quarter of 2024 (4Q24). This transition puts upward pressure on global oil prices over the forecast period. Global oil inventories increased by an average of 0.6 million b/d in 1H23, and we forecast they will decrease by an average of 0.7 million b/d in 2H23. Inventories continue to fall by an average of 0.4 million b/d in the first three quarters of 2024 before increasing by 0.1 million b/d in 4Q24. We forecast the Brent crude oil spot price will average \$79/b in 2023 and \$84/b in 2024, down from an average of \$101/b in 2022.

Global oil supply

We forecast global liquid fuels production will increase by 1.2 million b/d in 2023, primarily because of [growth from non-OPEC producers](#) such as the United States, Norway, Canada, Brazil, and Guyana. This growth offsets reduced production in Russia and OPEC. We expect Russia's production will decline between 0.2 million b/d and 0.3 million b/d on average this year. We forecast that total OPEC liquid fuels production will fall by 0.6 million b/d in 2023, primarily because of the extended production cuts announced on June 4 by OPEC+ and voluntary cuts by Saudi Arabia. On July 3, Saudi Arabia announced it was extending voluntary cuts through August. Global liquid fuels production increases by an additional 1.5 million b/d in 2024 led by growth in OPEC production. Overall, we forecast total OPEC liquid fuels production to increase by 0.5 million b/d in 2024.

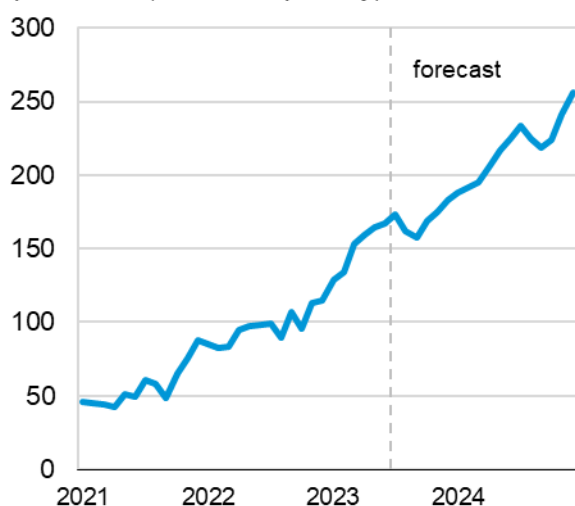
Petroleum Products

U.S. renewable diesel production

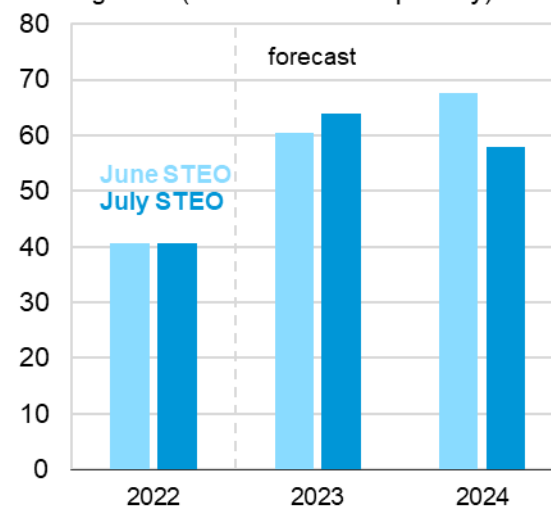
On June 21, 2023, the U.S. Environmental Protection Agency (EPA) announced a final [Renewable Fuel Standard \(RFS\)](#) rule establishing biofuel volume requirements for 2023–2025. In response to the final rule, we reduced our forecast for [renewable diesel production growth](#) in 2024 from last month's STEO. We now forecast growth in renewable diesel production to be less in 2024 than in 2023. We forecast renewable diesel production of 161,000 barrels per day (b/d) in 2023, a 64,000 b/d (66%) increase from 2022, and 219,000 b/d in 2024, a 58,000 b/d (36%) increase from 2023. Our forecast for 2023 increased from last month's STEO because of recent production increases.

Renewable diesel monthly production and annual growth

production (kilobarrels per day)



annual growth (thousand barrels per day)



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



Prior to this month's STEO, we assumed that some of the [announced capacity additions](#) for renewable diesel would not be completed because of the possibility of increased feedstock costs or decreased [credit values](#). In response to the final RFS rule, we now assume lower plant utilizations and more

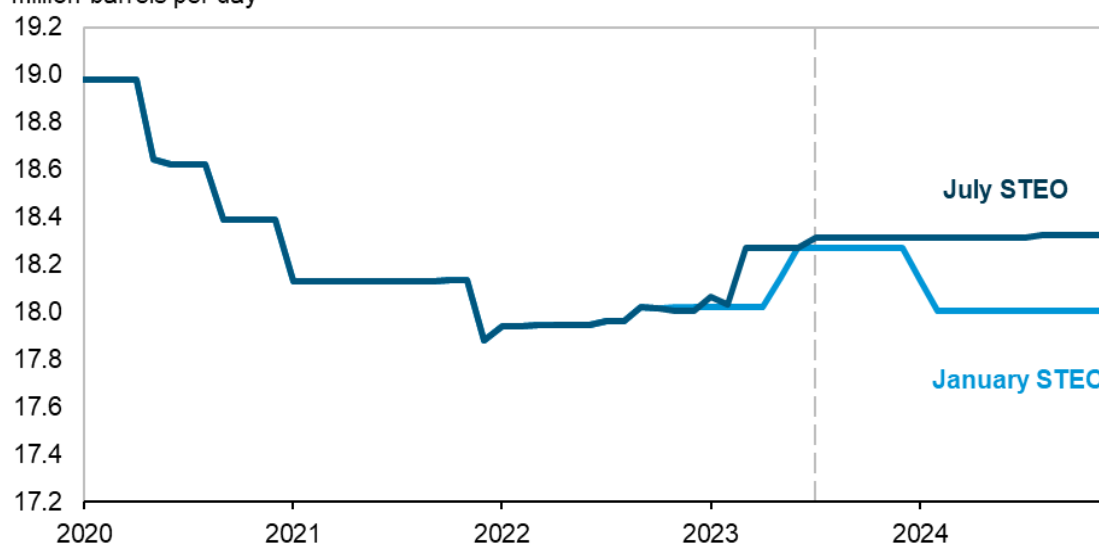
proposed plants to be canceled than we did previously. Nonetheless, we still expect production growth based on our assumption that some of the announced projects will come online in the next 18 months.

U.S. refinery capacity

Several announcements from refiners have led us to forecast higher U.S. refinery capacity in our current STEO compared with our forecasts at the start of this year. On May 31, LyondellBasell [announced it would delay](#) closing its 263,776-b/d Houston refinery until early 2025, which it had previously scheduled for the end of 2023. The delay means that this capacity will remain online through 2024, which removes the only major reduction in refinery capacity in our forecast. Combined with the earlier on-stream date of [ExxonMobil's Beaumont expansion](#), as well as the estimated impact of smaller capacity increases at [Marathon Galveston Bay](#) this year and [Chevron Pasadena](#) next year, we now forecast U.S. refinery capacity will average 18.3 million b/d in 2024, up from 18.0 million b/d in our January STEO. Our STEO forecast does not include temporary reductions in capacity because of maintenance or unplanned outages.

STEO Operable refinery capacity forecast comparison

million barrels per day



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



Natural Gas

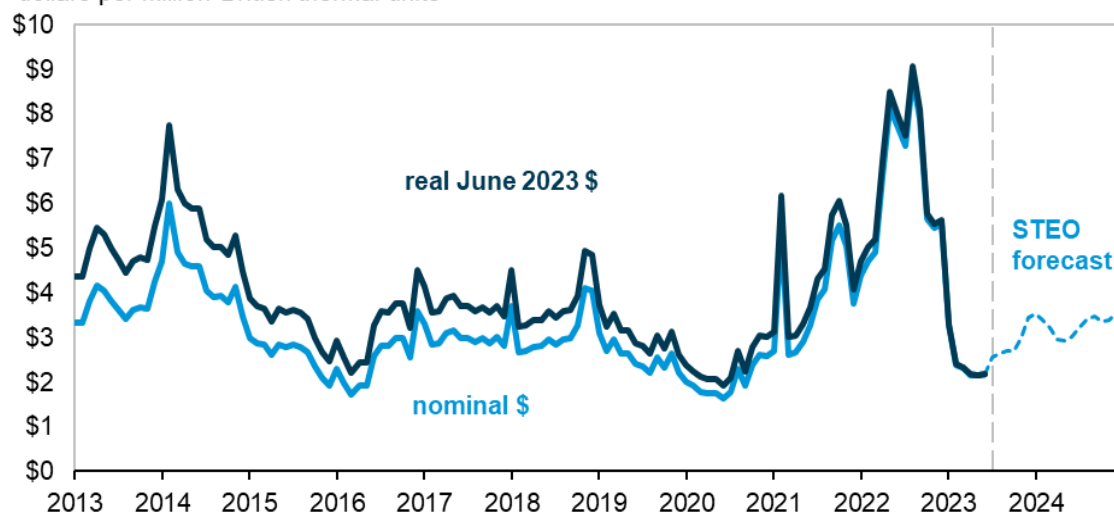
Natural gas prices

We expect the Henry Hub spot price to increase in July to a monthly average of almost \$2.60 per million British thermal units (MMBtu), a 19% increase compared with June. We forecast the Henry Hub spot price will continue to rise through the year. U.S. dry natural gas production has been relatively flat in recent months, a production trend we expect to generally continue for the rest of this year. With flat production and year-over-year growth in natural gas consumption, we expect U.S. natural gas inventories will reduce the surplus to the five-year average, which will put upward pressure on prices. Storage inventories at the end of June were 2,900 billion cubic feet (Bcf), 14% above the five-year

(2018–2022) average. We expect storage inventories to end the injection season on October 31 at 7% above the five-year average.

The U.S. benchmark Henry Hub natural gas spot price has averaged below \$2.50 per million British thermal units (MMBtu) every month since February of this year. Last year, nominal prices averaged \$6.42/MMBtu for the year (\$6.65/MMBtu in real terms). Lower natural gas prices in the first half of this year are a result of increases in [dry natural gas production](#), [lower-than-average consumption](#) due to mild winter weather, and the resulting [higher-than-average storage inventories](#). In June, the Henry Hub spot price averaged \$2.18/MMBtu, the third month in a row it averaged below \$2.20/MMBtu. Real monthly Henry Hub spot prices have not averaged below \$2.20/MMBtu on a sustained basis since March through July of 2020.

Henry Hub natural gas spot price
dollars per million British thermal units



Data sources: U.S. Energy Information Administration, *Short-Term Energy Outlook*, July 2023 and Refinitiv, an LSEG business

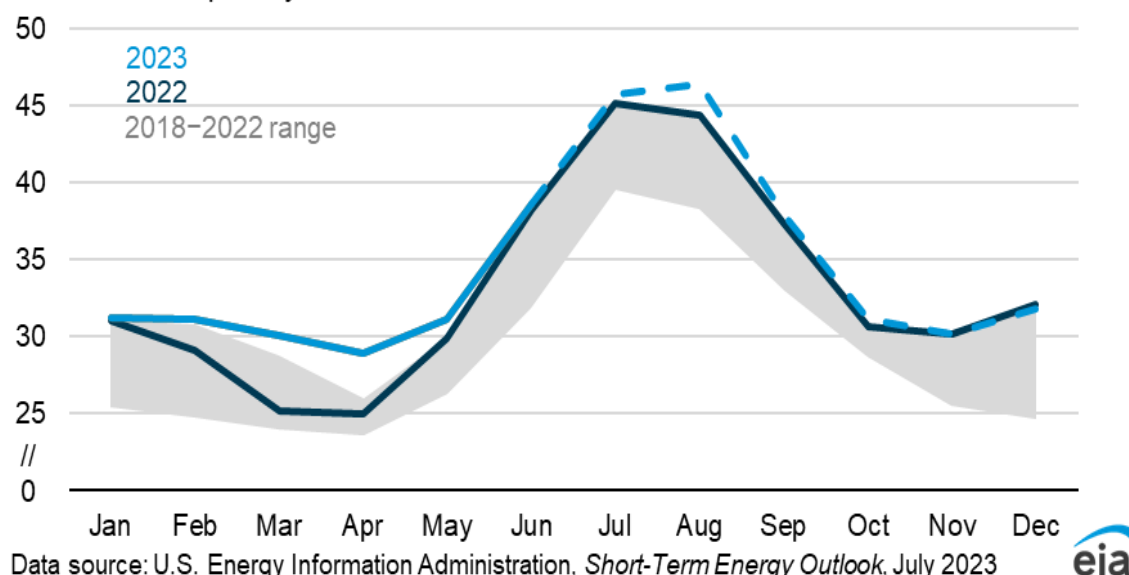


Natural gas consumption for electric power

We expect natural gas consumed for electric power generation in the United States to average 46 billion cubic feet per day (Bcf/d) in July and August, when air-conditioning demand across the country reaches seasonal highs. Natural gas-fired electric power generation has increased the past two summers because higher-than-normal temperatures in the summer months have increased overall electricity generation to meet air-conditioning demand. Total monthly U.S. electricity generation topped 400 billion kilowatthours last July and we forecast that it will do so in both July and August in 2023. We expect natural gas-fired generation to account for 46% of all U.S. power generation in July and 47% in August.

U.S. natural gas consumed for electric power generation

billion cubic feet per day



In addition, we forecast 4% more natural gas-fired power generation in July and August compared with last year due to about 6,000 megawatts of new combined-cycle gas turbine (CCGT) capacity that entered service. Low prices for natural gas, combined with more high-efficiency CCGT capacity now in service, makes natural gas a more cost-competitive source of power than coal. We forecast natural gas consumed for electric power to remain high compared with its five-year average for the rest of 2023, averaging 31 Bcf/d in 4Q23.

Electricity, coal, and renewables

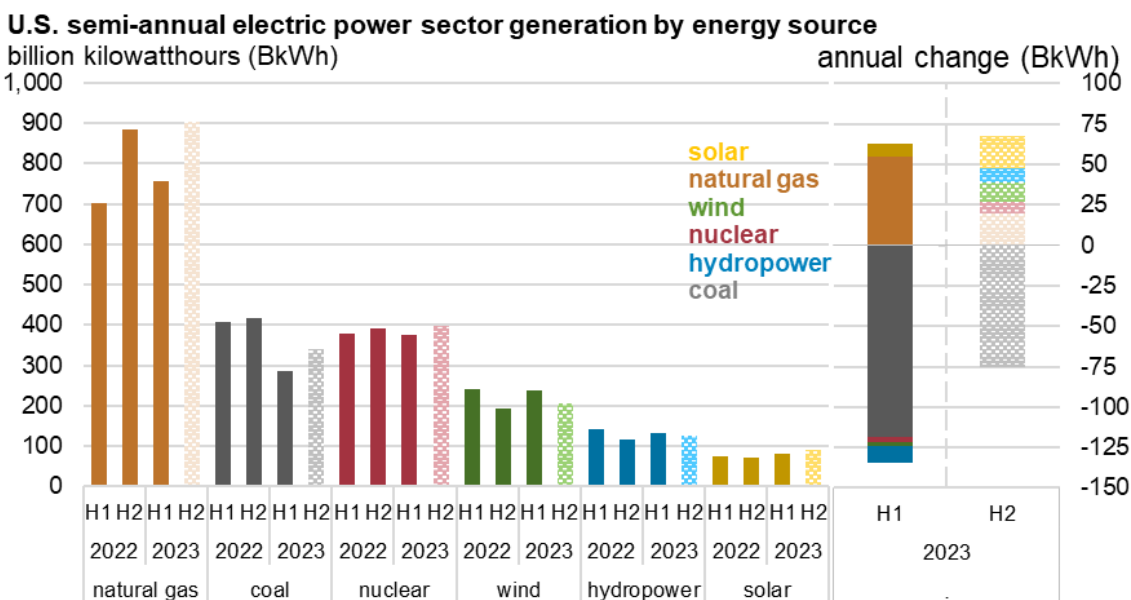
Electricity demand

We expect electricity demand during the second half of 2023 (2H23) to be similar to last year, which leads to a 2% decline in U.S. electricity consumption for all of 2023 compared with 2022. We estimate that U.S. electricity consumption during 1H23 was 3% lower than during 1H22 because of milder winter weather during 1Q23. We expect electricity consumption for 2024 to increase by 2%, bringing it in line with 2022.

Electricity generation

Among fuels used for power generation, coal has seen the largest decline in electricity generation during 2023. This decline is due to [coal plant retirements](#) totaling more than 10,000 megawatts of capacity this year, combined with reduced utilization of the remaining fleet. We expect about 75 billion kilowatthours, or 18% less U.S. coal-fired generation during 2H23 than in 2H22.

Most of the decline in coal generation during 2023 will be replaced by natural gas-fired generation, solar, and wind. In particular, the electric power sector has been rapidly expanding its solar generating capacity, adding 16 gigawatts of new capacity (a 25% increase) between June 2022 and June 2023. The industry has also added 8 gigawatts of wind capacity (6% increase) over the past year.



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



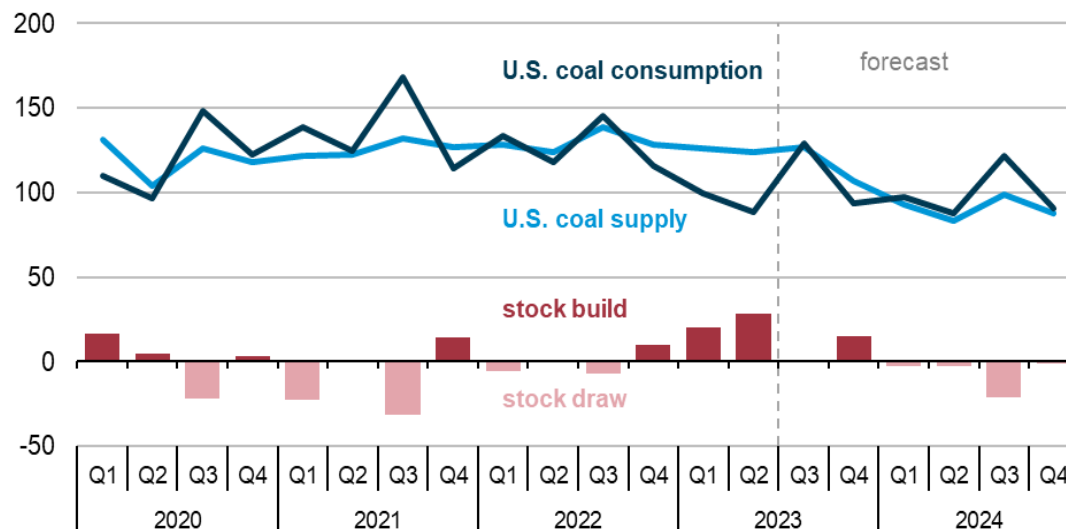
Although several [nuclear reactors have retired](#) in recent years, a new reactor at the Vogtle nuclear plant in Georgia is scheduled to come online this summer. With the addition of this new unit, along with fewer reactor unit outages among the existing fleet, we forecast that U.S. nuclear generation in 2H23 will be 8 billion kilowatthours (2%) higher than in 2H22.

Coal markets

We estimate coal inventories held by the electric power sector ended 1H23 at 138 million short tons (MMst), up 53% from the end of 2022. The electric power sector held roughly 80% of total U.S. coal stocks at the end of last year. Although the U.S. electric power sector consumed 27% less coal in 1H23 than in 1H22, U.S. coal production remained the same over that period and coal inventories accumulated. We expect inventories will grow beyond 150 MMst by the end of this year.

We forecast that declines in U.S. coal consumption will slow in 2024. We expect the power sector will consume about 4% less coal in 2024 than in 2023. However, coal production in our forecast has a delayed response to the high inventories and decreased consumption as coal producers fulfill supply contracts already in place. Total U.S. coal production falls to near 570 MMst in 2023, a 4% drop compared with 2022. In 2024, we forecast coal production to fall more steeply, by 20%, to 460 MMst as the supply contracts keeping coal production steady expire.

U.S. quarterly coal consumption, primary supply, and change in stocks
million short tons



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



Economy, Weather, and CO₂

U.S. macroeconomics

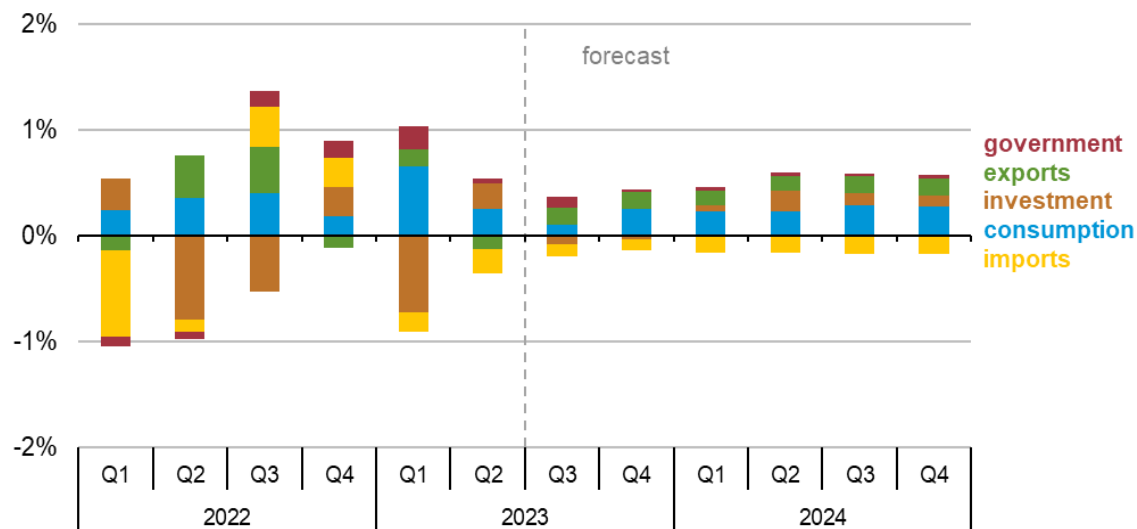
We base our U.S. macroeconomic forecasts on S&P Global's macroeconomic model. We incorporate STEO energy price forecasts into the model to obtain the final macroeconomic assumptions we use in the STEO.

Our forecast assumes real GDP growth will average 1.5% in 2023 and 1.3% in 2024. We revised both forecasts up from the June STEO. The revision was partially driven by an updated estimate of real GDP growth in the first quarter of 2023 (1Q23), which included an increase in aggregate investment compared with the initial estimate earlier this year. Although our 2Q23 forecast assumes increased aggregate investment and was revised higher from the June STEO, we forecast small declines in investment the second half of 2023 and do not anticipate a return to growth until 1Q24.

Higher borrowing costs are likely contributing to the overall weakness in aggregate investment through new residential fixed investment. Except for 2Q23, when housing starts increased due to a large increase in multi-family housing starts, we expect aggregate investment will decline in late 2023 as the effects of higher interest rates persist. Although housing starts grew 4.9% in 2Q23, our forecast assumes they will decline by 7.0% in 3Q23 and by 1.0% in 4Q23.

Consumer spending grew in 1Q23 with both goods and services spending contributing to the gains. Our July forecast now assumes personal consumption expenditures will grow by 2.0% in 2023 and 1.3% in 2024. Although not reflected in this month's STEO, on June 29, the Bureau of Economic Analysis released its third estimate of 1Q23 GDP growth. The recent estimate included an additional upward revision of 0.7%, which was led by increases in personal consumption expenditures and exports.

Contributions to GDP growth
weighted quarterly percentage change



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

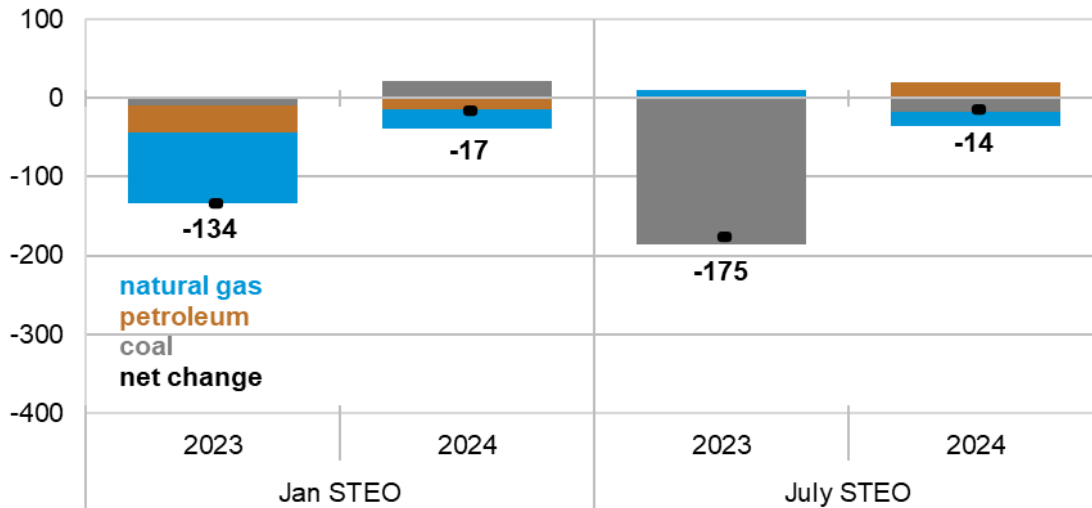
Emissions

We expect U.S. energy-related carbon dioxide (CO₂) emissions to decrease by 4% in 2023. The largest reduction in CO₂ emissions is from less use of coal, declining by 20% relative to 2022. Emissions from petroleum and natural gas remain nearly unchanged. Total CO₂ forecast emissions in 2024 remain unchanged from 2023.

This emissions forecast is notably different than what we expected in the January STEO forecast. The most significant difference is in coal-related emissions. The January forecast predicted an 11% decline in coal emissions in 2023 relative to 2022; however, ongoing coal-fired power plant closures, coal supply shortages, mild winter weather, and low natural gas prices significantly reduced our estimate. Natural gas emissions, which we predicted to decrease in 2023 in the January STEO, instead increase slightly in the current forecast. This increase is due, in part, to increased natural gas-fired electricity generation, although natural gas-related emissions were lowered somewhat by reduced residential natural gas use because of mild winter weather. Petroleum emissions increase slightly in the latest forecast as a result of a predicted increase in motor gasoline and jet fuel consumption associated with increased travel demand. Both the January and July STEO forecasts estimate minimal net changes to CO₂ emissions in 2024.

U.S. annual CO₂ emissions, components of annual change

million metric tons

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

Weather

Our latest weather data indicate the United States had an average of about 200 [cooling degree days](#) (CDDs) in June, the fewest in June since 2003, and 36 fewer CDDs than we estimated in our June STEO forecast. We expect CDDs to increase to about 360 CDDs in July and in August. We expect the milder start to the summer cooling season (May–September) to result in about 6% fewer CDDs overall in 2023 compared with 2022.

Short-Term Energy Outlook

Chart Gallery



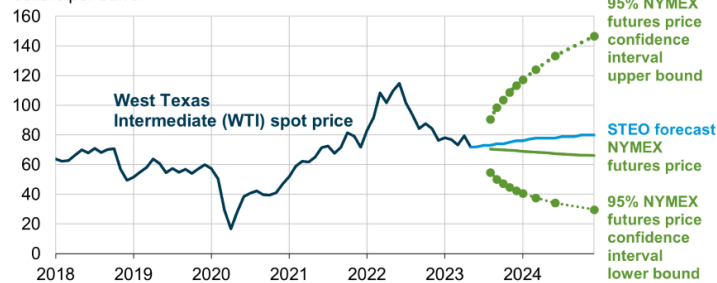
June 6, 2023



U.S. Energy Information Administration

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

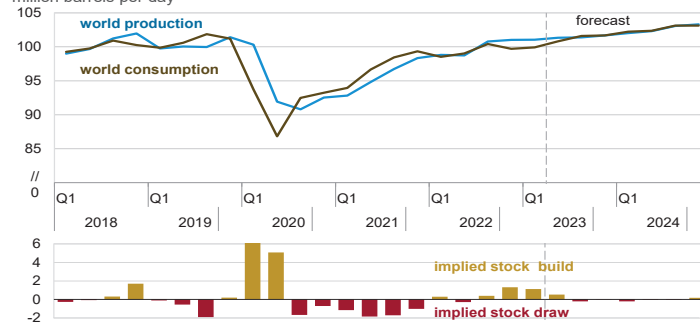


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023, CME Group, Bloomberg, L.P., and Refinitiv an LSEG Business

Note: Confidence interval derived from options market information for the five trading days ending June 5, 2023. Intervals not calculated for months with sparse trading in near-the-money options contracts.



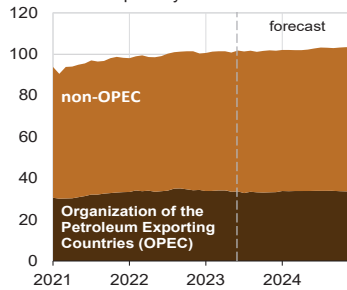
World liquid fuels production and consumption balance
million barrels per day



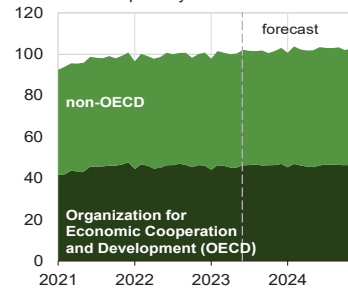
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023



World liquid fuels production
million barrels per day



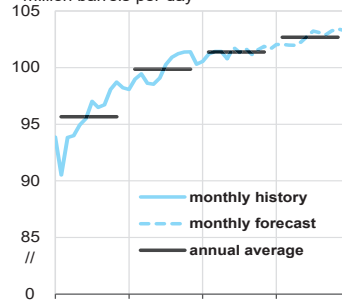
World liquid fuels consumption
million barrels per day



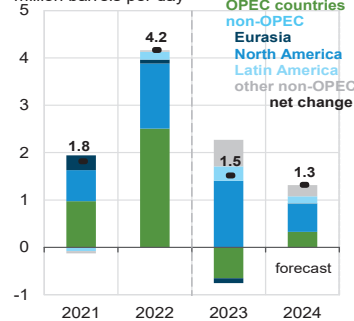
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023



World crude oil and liquid fuels production
million barrels per day



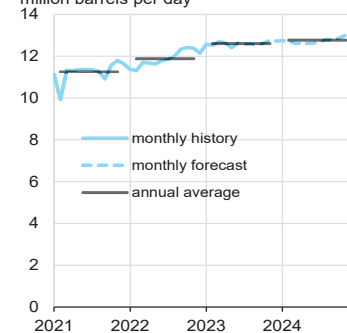
Components of annual change
million barrels per day



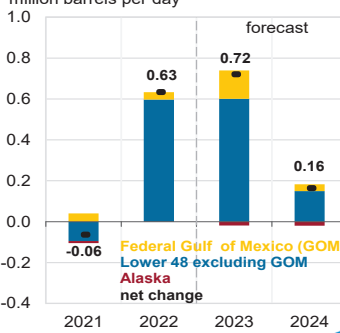
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023



U.S. crude oil production
million barrels per day



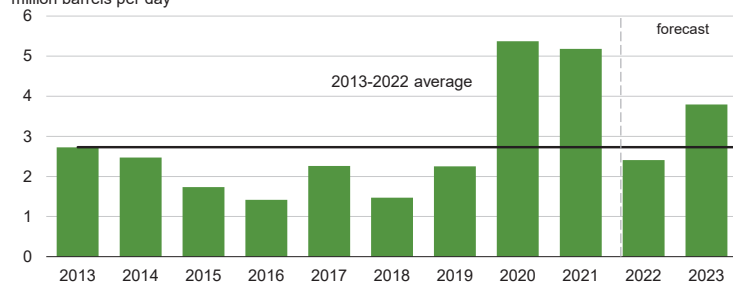
Components of annual change
million barrels per day



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



**Organization of the Petroleum Exporting Countries (OPEC)
surplus crude oil production capacity**
million barrels per day

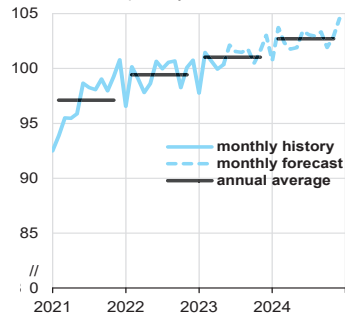


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023

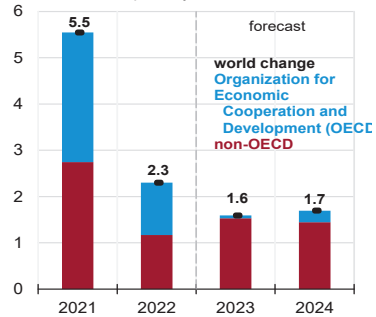
Note: Black line represents 2013-2022 average (2.7 million barrels per day).



World liquid fuels consumption
million barrels per day



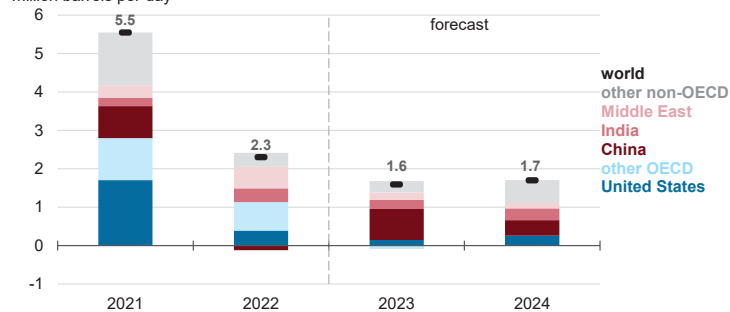
Components of annual change
million barrels per day



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



Annual change in world liquid fuels consumption
million barrels per day

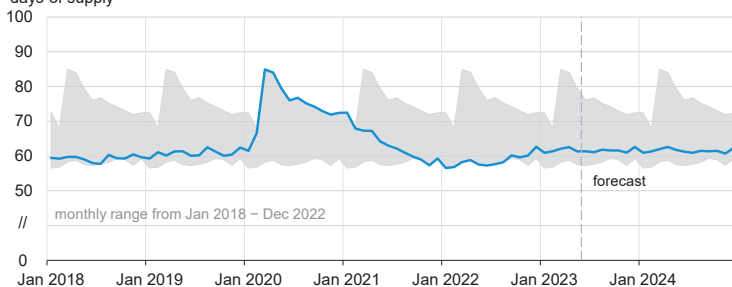


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023



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

days of supply

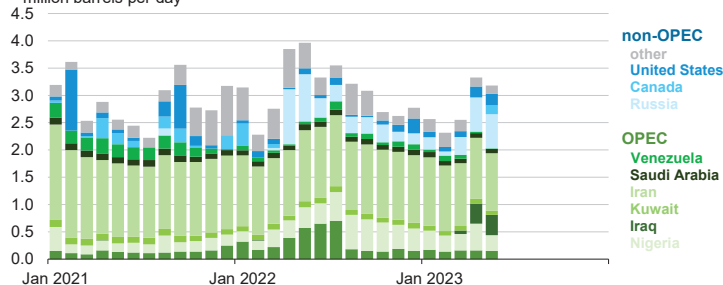


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023



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

million barrels per day

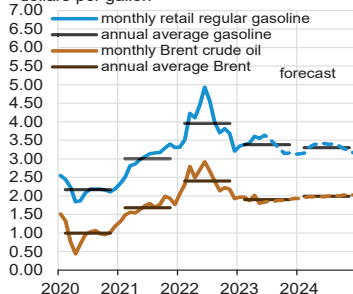


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023



U.S. gasoline and crude oil prices

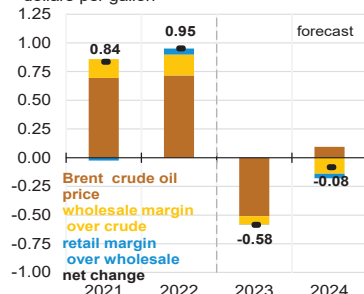
dollars per gallon



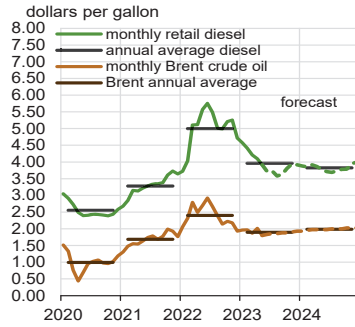
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023, and Refinitiv an LSEG Business

Components of annual gasoline price changes

dollars per gallon

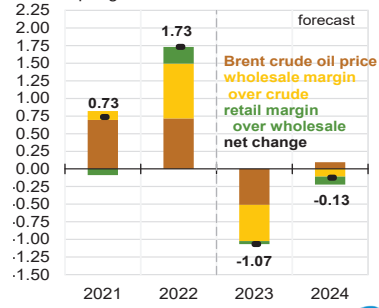


U.S. diesel and crude oil prices

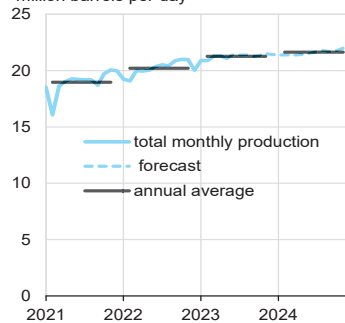


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023, and Refinitiv an LSEG Business

Components of annual diesel price changes

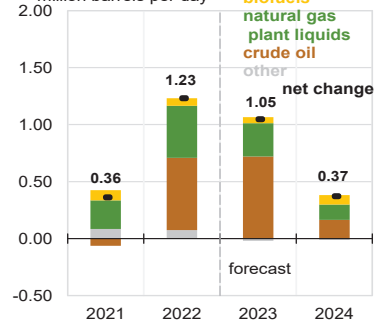


U.S. crude oil and liquid fuels production

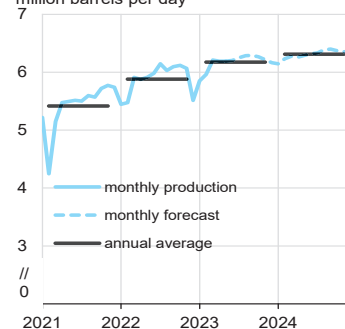


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023

Components of annual change

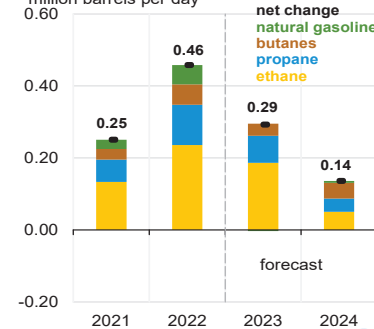


U.S. natural gas plant liquids production



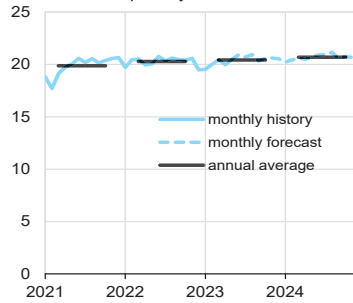
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023

Components of annual change



U.S. liquid fuels product supplied (consumption)

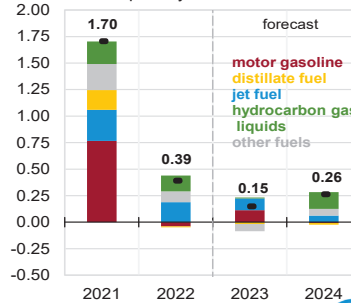
million barrels per day



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

Components of annual change

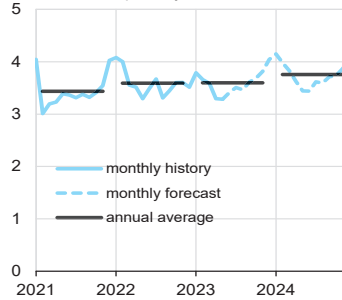
million barrels per day



eia

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

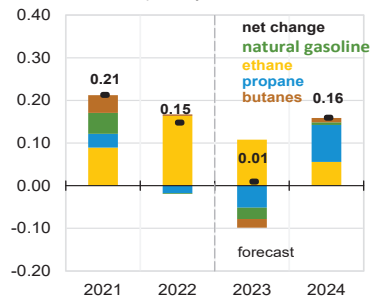
million barrels per day



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

Components of annual change

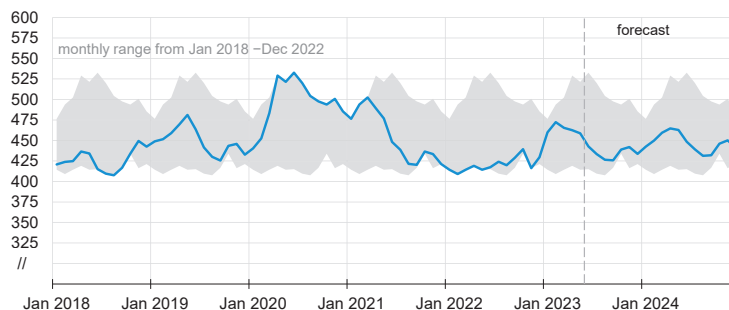
million barrels per day



eia

U.S. commercial crude oil inventories

million barrels

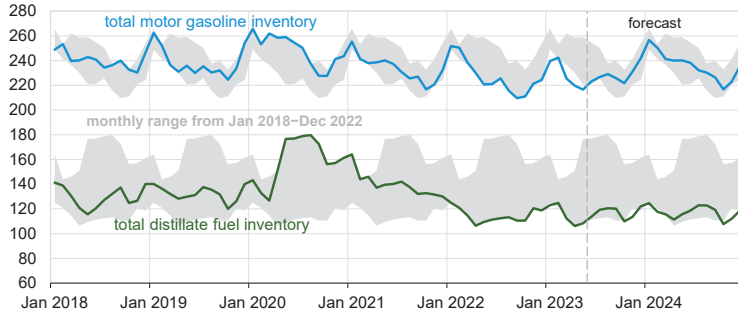


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023

eia

U.S. gasoline and distillate inventories

million barrels

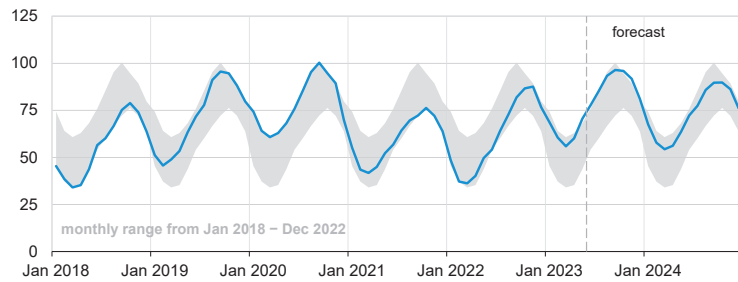


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023



U.S. commercial propane inventories

million barrels



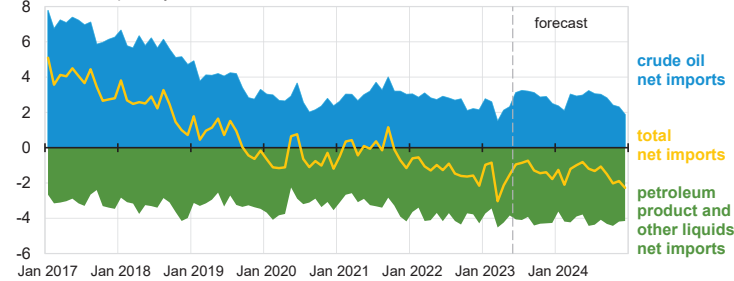
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023

Note: Excludes propylene.



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

million barrels per day



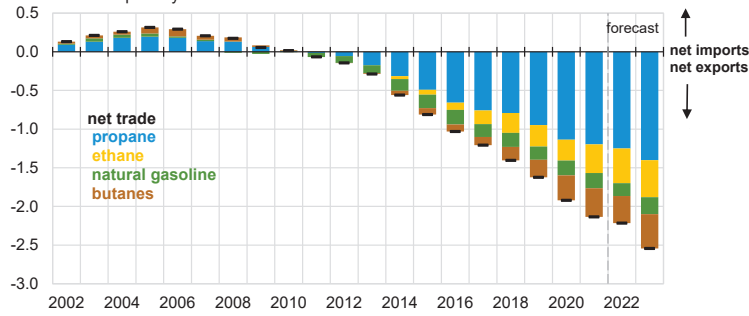
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023

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



U.S. net trade of hydrocarbon gas liquids (HGL)

million barrels per day

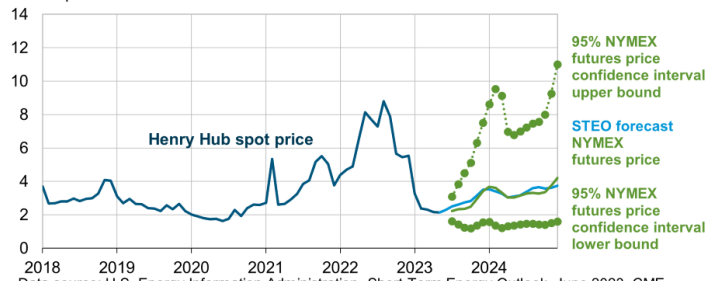


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023



Henry Hub natural gas price and NYMEX confidence intervals

dollars per million British thermal units



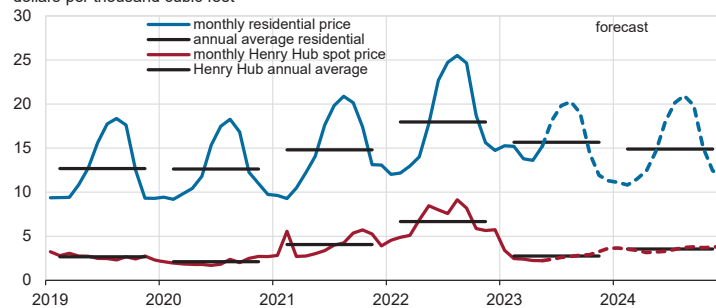
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023, CME Group, and Refinitiv an LSEG Business

Note: Confidence interval derived from options market information for the five trading days ending June 5, 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

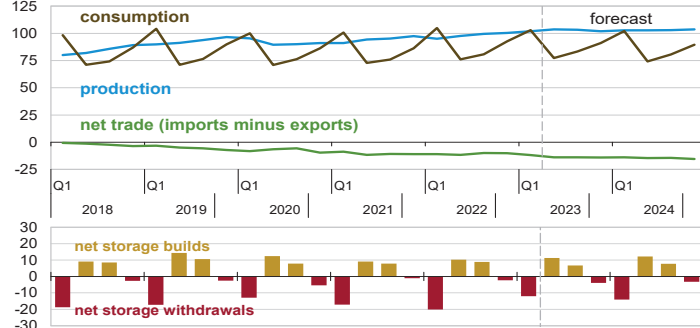


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023, and Refinitiv an LSEG Business



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

billion cubic feet per day

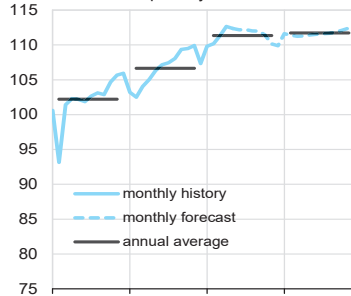


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023



U.S. marketed natural gas production

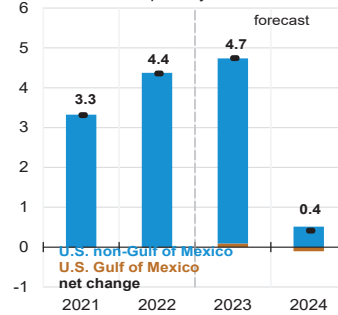
billion cubic feet per day



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

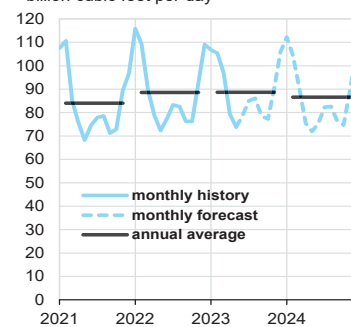
Components of annual change

billion cubic feet per day



U.S. natural gas consumption

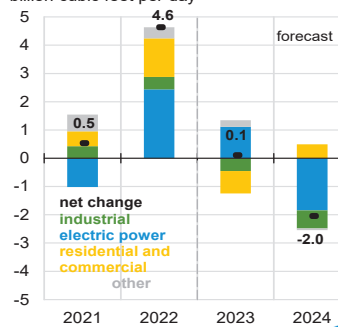
billion cubic feet per day



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

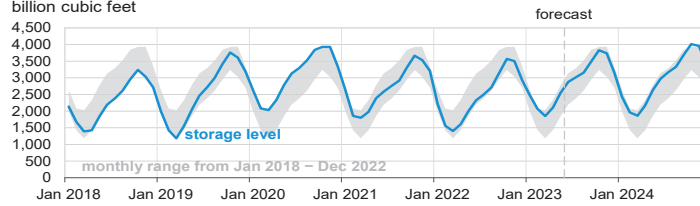
Components of annual change

billion cubic feet per day



U.S. working natural gas in storage

billion cubic feet



Percentage deviation from 2018 – 2022 average

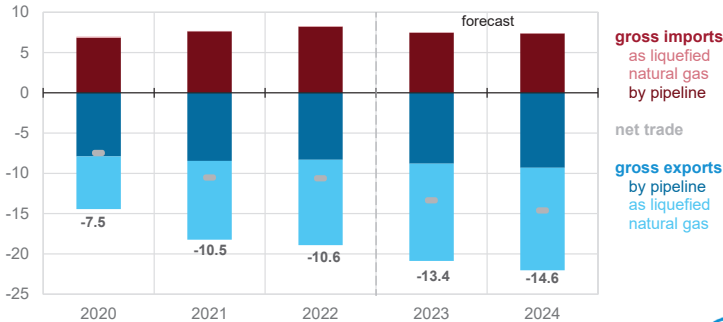


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023



U.S. annual natural gas trade

billion cubic feet per day

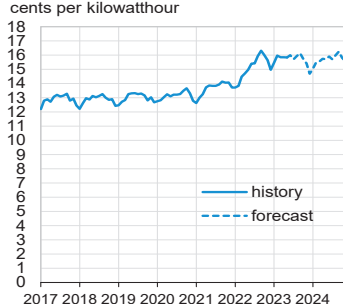


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023



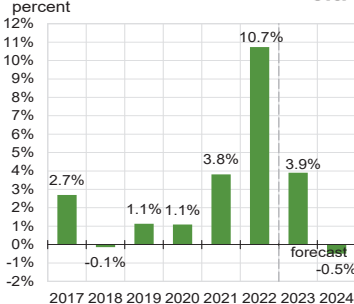
U.S. monthly nominal residential electricity price

cents per kilowatthour



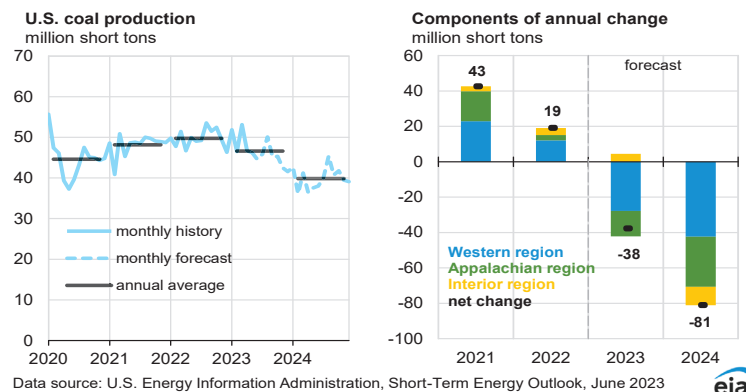
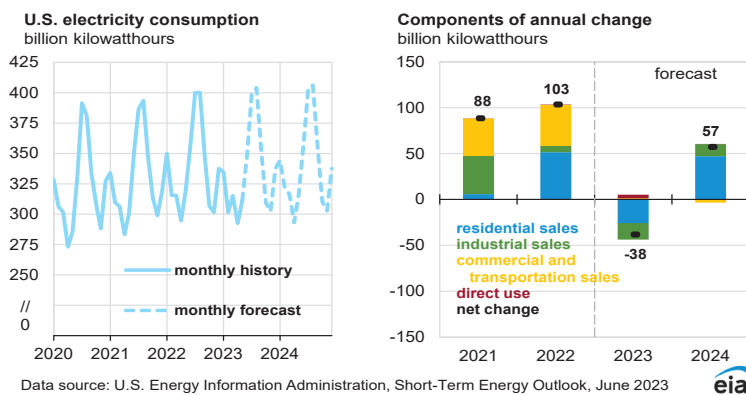
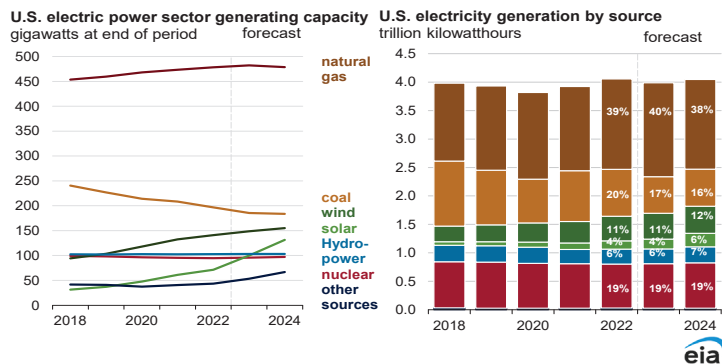
Annual growth in nominal residential electricity prices

percent

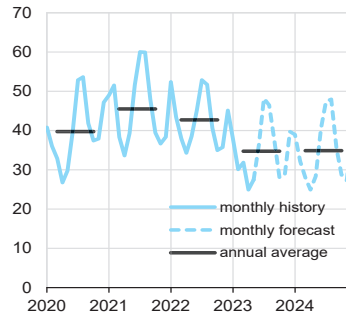


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023

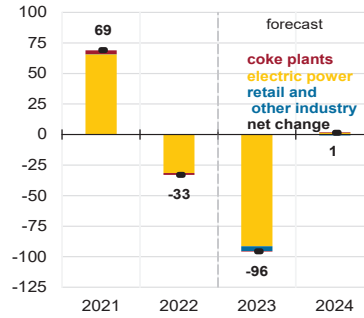




U.S. coal consumption
million short tons



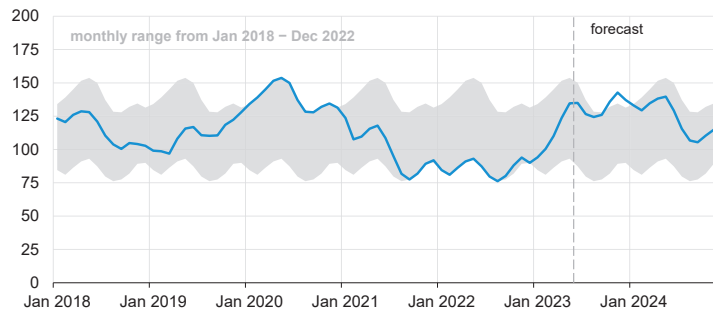
Components of annual change
million short tons



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



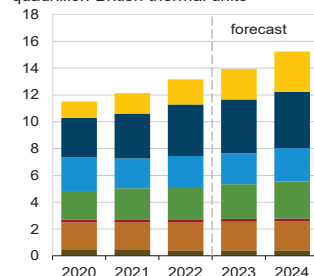
U.S. electric power coal inventories
million short tons



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



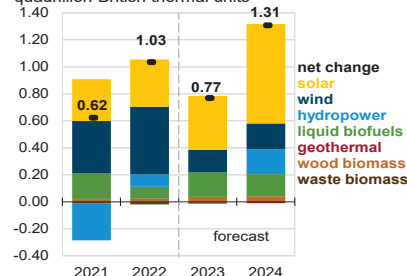
U.S. renewable energy supply
quadrillion British thermal units



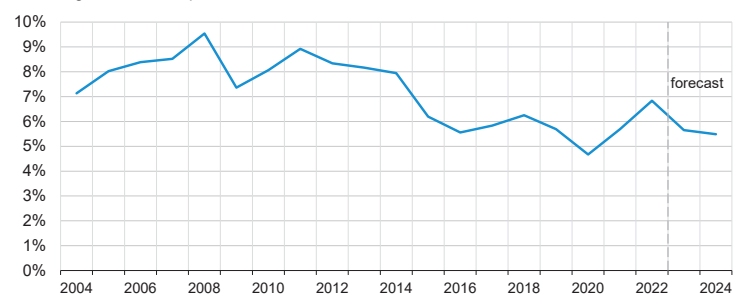
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023

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.

Components of annual change
quadrillion British thermal units



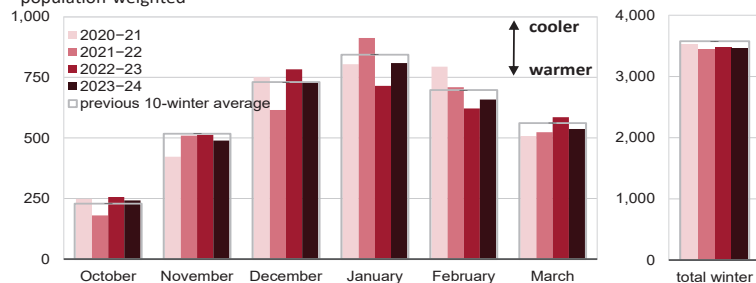
U.S. annual energy expenditures share of gross domestic product



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



U.S. winter heating degree days population-weighted

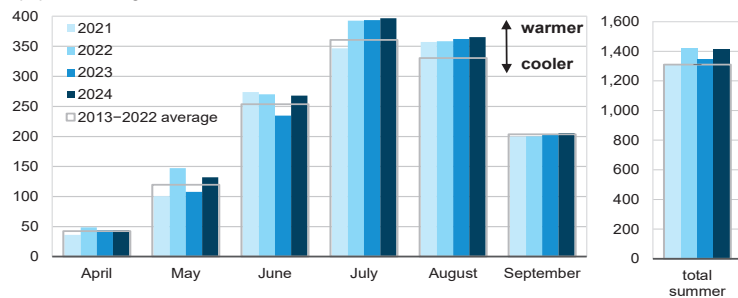


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023

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



U.S. summer cooling degree days population-weighted

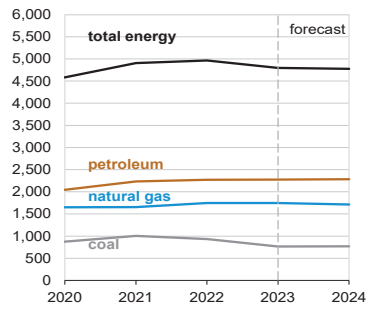


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, June 2023

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



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



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

Components of annual change
million metric tons

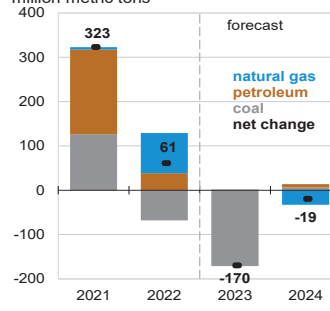


Table 1. U.S. Energy Markets Summary

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Energy Production															
Crude Oil Production (a) (million barrels per day)	11.47	11.70	12.06	12.31	12.61	12.55	<i>12.48</i>	<i>12.63</i>	<i>12.67</i>	<i>12.71</i>	<i>12.88</i>	<i>13.13</i>	11.89	<i>12.56</i>	<i>12.85</i>
Dry Natural Gas Production (billion cubic feet per day)	95.09	97.59	99.46	100.29	101.96	102.21	<i>103.01</i>	<i>102.21</i>	<i>101.79</i>	<i>101.53</i>	<i>102.53</i>	<i>103.74</i>	98.13	<i>102.35</i>	<i>102.40</i>
Coal Production (million short tons)	149	146	154	148	151	146	<i>145</i>	<i>130</i>	<i>119</i>	<i>109</i>	<i>119</i>	<i>114</i>	597	<i>572</i>	<i>460</i>
Energy Consumption															
Liquid Fuels (million barrels per day)	20.22	20.27	20.47	20.16	20.00	20.48	<i>20.68</i>	<i>20.59</i>	<i>20.52</i>	<i>20.72</i>	<i>21.08</i>	<i>20.82</i>	20.28	<i>20.44</i>	<i>20.79</i>
Natural Gas (billion cubic feet per day)	104.83	76.13	80.77	92.62	102.97	78.33	<i>83.19</i>	<i>91.76</i>	<i>103.08</i>	<i>75.54</i>	<i>82.10</i>	<i>90.56</i>	88.53	<i>89.02</i>	<i>87.81</i>
Coal (b) (million short tons)	134	118	145	116	100	88	<i>129</i>	<i>93</i>	<i>97</i>	<i>87</i>	<i>122</i>	<i>91</i>	513	<i>410</i>	<i>397</i>
Electricity (billion kilowatt hours per day)	10.90	10.68	12.50	10.28	10.57	10.32	<i>12.43</i>	<i>10.32</i>	<i>10.80</i>	<i>10.60</i>	<i>12.69</i>	<i>10.36</i>	11.09	<i>10.91</i>	<i>11.11</i>
Renewables (c) (quadrillion Btu)	3.34	3.54	3.12	3.16	3.36	3.62	<i>3.38</i>	<i>3.47</i>	<i>3.75</i>	<i>4.02</i>	<i>3.71</i>	<i>3.69</i>	13.16	<i>13.83</i>	<i>15.16</i>
Total Energy Consumption (d) (quadrillion Btu)	26.51	23.84	24.89	25.17	25.55	23.63	<i>25.09</i>	<i>25.11</i>	<i>26.34</i>	<i>23.87</i>	<i>25.34</i>	<i>25.20</i>	100.41	<i>99.39</i>	<i>100.76</i>
Energy Prices															
Crude Oil West Texas Intermediate Spot (dollars per barrel)	95.18	108.93	93.07	82.69	75.96	73.49	<i>73.32</i>	<i>74.97</i>	<i>76.98</i>	<i>78.00</i>	<i>79.00</i>	<i>80.00</i>	94.91	<i>74.43</i>	<i>78.51</i>
Natural Gas Henry Hub Spot (dollars per million Btu)	4.66	7.48	7.99	5.55	2.65	2.16	<i>2.63</i>	<i>3.03</i>	<i>3.37</i>	<i>2.96</i>	<i>3.37</i>	<i>3.43</i>	6.42	<i>2.62</i>	<i>3.29</i>
Coal (dollars per million Btu)	2.18	2.26	2.50	2.55	2.57	2.46	<i>2.44</i>	<i>2.38</i>	<i>2.39</i>	<i>2.39</i>	<i>2.39</i>	<i>2.36</i>	2.37	<i>2.46</i>	<i>2.39</i>
Macroeconomic															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR)	19,924	19,895	20,055	20,182	20,246	20,285	<i>20,334</i>	<i>20,397</i>	<i>20,459</i>	<i>20,544</i>	<i>20,627</i>	<i>20,710</i>	20,014	<i>20,316</i>	<i>20,585</i>
Percent change from prior year	3.7	1.8	1.9	0.9	1.6	2.0	<i>1.4</i>	<i>1.1</i>	<i>1.0</i>	<i>1.3</i>	<i>1.4</i>	<i>1.5</i>	2.1	<i>1.5</i>	<i>1.3</i>
GDP Implicit Price Deflator (Index, 2012=100)	124.2	126.9	128.3	129.5	130.8	131.8	<i>132.6</i>	<i>133.5</i>	<i>134.5</i>	<i>135.3</i>	<i>136.0</i>	<i>136.8</i>	127.2	<i>132.2</i>	<i>135.7</i>
Percent change from prior year	6.9	7.6	7.1	6.4	5.3	3.8	<i>3.4</i>	<i>3.1</i>	<i>2.8</i>	<i>2.7</i>	<i>2.6</i>	<i>2.5</i>	7.0	<i>3.9</i>	<i>2.6</i>
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	15,109	15,022	15,141	15,236	15,526	15,620	<i>15,740</i>	<i>15,819</i>	<i>15,922</i>	<i>16,039</i>	<i>16,127</i>	<i>16,205</i>	15,127	<i>15,676</i>	<i>16,073</i>
Percent change from prior year	-12.8	-5.7	-3.8	-1.9	2.8	4.0	<i>4.0</i>	<i>3.8</i>	<i>2.5</i>	<i>2.7</i>	<i>2.5</i>	<i>2.4</i>	-6.2	<i>3.6</i>	<i>2.5</i>
Manufacturing Production Index (Index, 2017=100)	100.1	100.8	100.9	100.0	99.8	100.4	<i>99.5</i>	<i>99.6</i>	<i>99.7</i>	<i>99.9</i>	<i>100.3</i>	<i>100.8</i>	100.5	<i>99.8</i>	<i>100.2</i>
Percent change from prior year	4.5	3.6	2.8	0.7	-0.3	-0.5	<i>-1.4</i>	<i>-0.4</i>	<i>-0.2</i>	<i>-0.5</i>	<i>0.8</i>	<i>1.2</i>	2.9	<i>-0.6</i>	<i>0.3</i>
Weather															
U.S. Heating Degree-Days	2,146	490	54	1,552	1,921	482	<i>73</i>	<i>1,461</i>	<i>2,005</i>	<i>472</i>	<i>75</i>	<i>1,454</i>	4,242	<i>3,938</i>	<i>4,006</i>
U.S. Cooling Degree-Days	47	467	951	89	68	353	<i>932</i>	<i>104</i>	<i>50</i>	<i>444</i>	<i>968</i>	<i>105</i>	1,554	<i>1,457</i>	<i>1,567</i>

(a) Includes lease condensate.

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

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

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

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

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

- = no data available

Notes: EIA completed modeling and analysis for this report on July 6, 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 - July 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Crude Oil (dollars per barrel)															
West Texas Intermediate Spot Average	95.18	108.93	93.07	82.69	75.96	73.49	<i>73.32</i>	<i>74.97</i>	<i>76.98</i>	<i>78.00</i>	<i>79.00</i>	<i>80.00</i>	94.91	<i>74.43</i>	<i>78.51</i>
Brent Spot Average	101.17	113.84	100.53	88.44	81.04	78.02	<i>78.32</i>	<i>79.97</i>	<i>81.98</i>	<i>83.00</i>	<i>84.00</i>	<i>85.00</i>	100.94	<i>79.34</i>	<i>83.51</i>
U.S. Imported Average	89.89	107.86	91.86	78.11	69.55	69.70	<i>70.57</i>	<i>72.25</i>	<i>74.27</i>	<i>75.25</i>	<i>76.25</i>	<i>77.25</i>	92.73	<i>70.60</i>	<i>75.70</i>
U.S. Refiner Average Acquisition Cost	92.68	110.12	95.20	83.11	74.44	72.64	<i>72.82</i>	<i>74.52</i>	<i>76.50</i>	<i>77.50</i>	<i>78.50</i>	<i>79.50</i>	95.33	<i>73.59</i>	<i>78.01</i>
U.S. Liquid Fuels (cents per gallon)															
Refiner Prices for Resale															
Gasoline	278	376	311	267	262	264	<i>251</i>	<i>232</i>	<i>242</i>	<i>259</i>	<i>256</i>	<i>238</i>	309	<i>252</i>	<i>249</i>
Diesel Fuel	301	418	357	364	294	242	<i>239</i>	<i>256</i>	<i>258</i>	<i>252</i>	<i>253</i>	<i>270</i>	361	<i>258</i>	<i>258</i>
Fuel Oil	284	419	344	359	278	231	<i>220</i>	<i>248</i>	<i>247</i>	<i>238</i>	<i>237</i>	<i>264</i>	352	<i>257</i>	<i>264</i>
Refiner Prices to End Users															
Jet Fuel	283	400	340	332	305	230	<i>224</i>	<i>235</i>	<i>247</i>	<i>246</i>	<i>242</i>	<i>250</i>	340	<i>247</i>	<i>246</i>
No. 6 Residual Fuel Oil (a)	252	258	228	201	196	189	<i>187</i>	<i>192</i>	<i>198</i>	<i>198</i>	<i>201</i>	<i>204</i>	236	<i>191</i>	<i>201</i>
Retail Prices Including Taxes															
Gasoline Regular Grade (b)	371	450	408	357	338	358	<i>343</i>	<i>320</i>	<i>325</i>	<i>345</i>	<i>342</i>	<i>324</i>	397	<i>340</i>	<i>334</i>
Gasoline All Grades (b)	380	460	419	369	349	369	<i>354</i>	<i>333</i>	<i>337</i>	<i>356</i>	<i>354</i>	<i>336</i>	408	<i>351</i>	<i>346</i>
On-highway Diesel Fuel	432	549	516	508	439	394	<i>365</i>	<i>388</i>	<i>389</i>	<i>379</i>	<i>375</i>	<i>392</i>	502	<i>396</i>	<i>384</i>
Heating Oil	415	553	497	493	406	353	<i>329</i>	<i>363</i>	<i>364</i>	<i>347</i>	<i>337</i>	<i>381</i>	466	<i>375</i>	<i>364</i>
Natural Gas															
Henry Hub Spot (dollars per thousand cubic feet)	4.84	7.77	8.30	5.76	2.76	2.25	<i>2.74</i>	<i>3.15</i>	<i>3.50</i>	<i>3.08</i>	<i>3.50</i>	<i>3.57</i>	6.67	<i>2.72</i>	<i>3.41</i>
Henry Hub Spot (dollars per million Btu)	4.66	7.48	7.99	5.55	2.65	2.16	<i>2.63</i>	<i>3.03</i>	<i>3.37</i>	<i>2.96</i>	<i>3.37</i>	<i>3.43</i>	6.42	<i>2.62</i>	<i>3.29</i>
U.S. Retail Prices (dollars per thousand cubic feet)															
Industrial Sector	6.82	8.24	9.27	7.53	6.16	3.74	<i>3.70</i>	<i>4.36</i>	<i>5.07</i>	<i>4.16</i>	<i>4.35</i>	<i>4.84</i>	7.90	<i>4.56</i>	<i>4.64</i>
Commercial Sector	10.00	11.71	14.12	12.14	11.86	10.45	<i>10.13</i>	<i>8.53</i>	<i>8.43</i>	<i>9.06</i>	<i>9.91</i>	<i>8.71</i>	11.37	<i>10.39</i>	<i>8.78</i>
Residential Sector	12.32	16.57	24.95	15.63	14.75	15.68	<i>19.83</i>	<i>12.02</i>	<i>11.13</i>	<i>14.03</i>	<i>20.08</i>	<i>12.34</i>	14.82	<i>14.43</i>	<i>12.66</i>
U.S. Electricity															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	2.18	2.26	2.50	2.55	2.57	2.46	<i>2.44</i>	<i>2.38</i>	<i>2.39</i>	<i>2.39</i>	<i>2.39</i>	<i>2.36</i>	2.37	<i>2.46</i>	<i>2.39</i>
Natural Gas	5.95	7.39	8.23	6.90	4.99	2.51	<i>2.72</i>	<i>3.34</i>	<i>3.91</i>	<i>3.13</i>	<i>3.44</i>	<i>3.76</i>	7.24	<i>3.31</i>	<i>3.54</i>
Residual Fuel Oil (c)	16.81	26.17	26.53	21.27	19.24	17.24	<i>14.52</i>	<i>14.76</i>	<i>15.29</i>	<i>16.08</i>	<i>15.40</i>	<i>15.67</i>	21.80	<i>16.49</i>	<i>15.57</i>
Distillate Fuel Oil	21.23	30.71	26.79	24.48	22.84	19.17	<i>18.30</i>	<i>19.61</i>	<i>19.75</i>	<i>19.42</i>	<i>19.32</i>	<i>20.82</i>	24.89	<i>19.92</i>	<i>19.99</i>
Prices to Ultimate Customers (cents per kilowatthour)															
Industrial Sector	7.42	8.41	9.38	8.52	8.12	8.04	<i>8.94</i>	<i>8.29</i>	<i>8.33</i>	<i>8.14</i>	<i>9.11</i>	<i>8.43</i>	8.45	<i>8.36</i>	<i>8.51</i>
Commercial Sector	11.63	12.35	13.38	12.66	12.69	12.57	<i>13.10</i>	<i>12.02</i>	<i>12.06</i>	<i>12.36</i>	<i>13.36</i>	<i>12.39</i>	12.55	<i>12.62</i>	<i>12.58</i>
Residential Sector	13.98	15.07	15.85	15.48	15.74	16.02	<i>15.84</i>	<i>15.13</i>	<i>15.25</i>	<i>15.80</i>	<i>15.83</i>	<i>15.23</i>	15.12	<i>15.69</i>	<i>15.55</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 July 6, 2023.

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

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

Historical data: Latest data available from Energy Information Administration databases supporting the following reports: *Petroleum Marketing Monthly*, DOE/EIA-0380;*Weekly Petroleum Status Report*, DOE/EIA-0208; *Natural Gas Monthly*, DOE/EIA-0130; *Electric Power Monthly*, DOE/EIA-0226; and *Monthly Energy Review*, DOE/EIA-0035.Natural gas Henry Hub and WTI crude oil spot prices from Reuter's News Service (<http://www.reuters.com>).

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Production (million barrels per day) (a)															
OECD	31.62	31.88	32.54	32.97	33.43	33.71	33.86	34.38	34.46	34.23	34.63	35.30	32.26	33.85	34.66
U.S. (50 States)	19.44	20.12	20.60	20.67	21.03	21.36	21.28	21.38	21.35	21.52	21.83	22.09	20.21	21.26	21.70
Canada	5.66	5.51	5.72	5.91	5.79	5.63	5.90	6.13	6.21	5.92	6.13	6.34	5.70	5.86	6.15
Mexico	1.91	1.89	1.90	1.90	2.07	2.14	2.13	2.10	2.11	2.09	2.06	2.01	1.90	2.11	2.07
Other OECD	4.61	4.35	4.32	4.49	4.54	4.57	4.56	4.77	4.79	4.70	4.61	4.86	4.44	4.61	4.74
Non-OECD	67.20	66.86	68.26	68.05	67.61	67.42	66.91	67.07	67.44	67.85	68.32	68.04	67.60	67.25	67.91
OPEC	33.75	33.76	34.71	34.43	33.95	33.72	32.90	33.21	33.95	33.97	34.06	33.80	34.17	33.44	33.95
Crude Oil Portion	28.19	28.33	29.23	28.92	28.46	28.38	27.50	27.77	28.42	28.57	28.62	28.32	28.67	28.02	28.49
Other Liquids (b)	5.56	5.43	5.48	5.52	5.49	5.34	5.40	5.44	5.53	5.40	5.44	5.48	5.50	5.42	5.46
Eurasia	14.39	13.39	13.56	13.90	14.02	13.57	13.52	13.61	13.60	13.58	13.56	13.64	13.81	13.68	13.60
China	5.18	5.18	5.05	5.09	5.32	5.31	5.28	5.32	5.27	5.30	5.29	5.33	5.12	5.31	5.30
Other Non-OECD	13.89	14.53	14.94	14.63	14.31	14.82	15.21	14.93	14.61	15.00	15.41	15.27	14.50	14.82	15.07
Total World Production	98.83	98.74	100.80	101.02	101.04	101.13	100.77	101.45	101.90	102.08	102.95	103.34	99.85	101.10	102.57
Non-OPEC Production	65.08	64.98	66.09	66.58	67.09	67.41	67.87	68.25	67.95	68.10	68.89	69.54	65.69	67.66	68.62
Consumption (million barrels per day) (c)															
OECD	45.76	45.38	46.58	45.95	45.49	45.62	46.46	46.57	46.16	45.71	46.70	46.64	45.92	46.04	46.30
U.S. (50 States)	20.22	20.27	20.47	20.16	20.00	20.48	20.68	20.59	20.52	20.72	21.08	20.82	20.28	20.44	20.79
U.S. Territories	0.11	0.12	0.13	0.12	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.12	0.12	0.11
Canada	2.24	2.21	2.38	2.30	2.22	2.25	2.35	2.33	2.31	2.26	2.35	2.33	2.28	2.29	2.31
Europe	13.19	13.43	14.04	13.35	13.06	13.47	13.88	13.64	13.25	13.40	13.82	13.58	13.50	13.52	13.51
Japan	3.70	3.03	3.19	3.56	3.72	3.01	3.11	3.44	3.55	2.94	3.04	3.37	3.37	3.32	3.22
Other OECD	6.30	6.33	6.37	6.45	6.39	6.29	6.32	6.45	6.42	6.27	6.30	6.43	6.36	6.36	6.36
Non-OECD	52.79	53.46	53.88	53.80	54.57	55.34	55.29	55.26	56.16	56.66	56.59	56.57	53.48	55.12	56.50
Eurasia	4.28	4.43	4.73	4.65	4.30	4.45	4.76	4.68	4.44	4.59	4.91	4.82	4.53	4.55	4.69
Europe	0.74	0.76	0.76	0.77	0.74	0.76	0.77	0.77	0.75	0.77	0.77	0.78	0.76	0.76	0.77
China	15.12	15.10	15.09	15.28	15.94	16.13	15.81	16.02	16.33	16.52	16.19	16.41	15.15	15.97	16.36
Other Asia	13.75	13.76	13.42	13.84	14.26	14.32	13.74	14.04	14.87	14.84	14.24	14.55	13.69	14.09	14.62
Other Non-OECD	18.90	19.41	19.87	19.26	19.34	19.68	20.21	19.75	19.78	19.94	20.48	20.01	19.36	19.75	20.06
Total World Consumption	98.54	98.84	100.46	99.75	100.06	100.96	101.75	101.83	102.32	102.38	103.29	103.22	99.40	101.16	102.80
Total Crude Oil and Other Liquids Inventory Net Withdrawals (million barrels per day)															
U.S. (50 States)	0.81	0.51	0.45	0.41	-0.09	-0.05	-0.30	0.39	0.00	-0.32	0.02	0.39	0.54	-0.01	0.02
Other OECD	-0.09	-0.29	-0.48	-0.26	-0.34	-0.04	0.40	0.00	0.13	0.19	0.10	-0.16	-0.28	0.01	0.06
Other Stock Draws and Balance	-1.00	-0.13	-0.31	-1.42	-0.54	-0.09	0.87	-0.01	0.28	0.43	0.22	-0.35	-0.71	0.06	0.14
Total Stock Draw	-0.29	0.09	-0.34	-1.27	-0.97	-0.17	0.98	0.38	0.42	0.30	0.34	-0.13	-0.45	0.06	0.23
End-of-period Commercial Crude Oil and Other Liquids Inventories (million barrels)															
U.S. Commercial Inventory	1,154	1,180	1,215	1,222	1,231	1,259	1,280	1,245	1,244	1,273	1,271	1,236	1,222	1,245	1,236
OECD Commercial Inventory	2,604	2,656	2,735	2,766	2,806	2,838	2,822	2,786	2,774	2,786	2,774	2,754	2,766	2,786	2,754

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

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

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

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

- = no data available

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

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

Notes: EIA completed modeling and analysis for this report on July 6, 2023.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 3b. Non-OPEC Petroleum and Other Liquids Production (million barrels per day)

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
North America	27.01	27.52	28.22	28.48	28.90	29.14	29.30	29.61	29.67	29.53	30.02	30.44	27.82	29.24	29.92
Canada	5.66	5.51	5.72	5.91	5.79	5.63	5.90	6.13	6.21	5.92	6.13	6.34	5.70	5.86	6.15
Mexico	1.91	1.89	1.90	1.90	2.07	2.14	2.13	2.10	2.11	2.09	2.06	2.01	1.90	2.11	2.07
United States	19.44	20.12	20.60	20.67	21.03	21.36	21.28	21.38	21.35	21.52	21.83	22.09	20.21	21.26	21.70
Central and South America	5.83	6.41	6.86	6.58	6.31	6.77	7.16	6.89	6.61	7.02	7.44	7.32	6.42	6.78	7.10
Argentina	0.77	0.78	0.79	0.82	0.81	0.82	0.84	0.87	0.85	0.87	0.89	0.92	0.79	0.83	0.88
Brazil	3.33	3.79	4.15	3.78	3.55	3.97	4.34	4.02	3.74	4.14	4.47	4.20	3.76	3.97	4.14
Colombia	0.77	0.77	0.78	0.79	0.79	0.81	0.80	0.79	0.78	0.78	0.77	0.78	0.78	0.80	0.78
Ecuador	0.48	0.47	0.49	0.49	0.46	0.48	0.48	0.49	0.49	0.49	0.49	0.50	0.48	0.48	0.49
Guyana	0.12	0.24	0.32	0.35	0.35	0.36	0.36	0.39	0.42	0.42	0.49	0.60	0.26	0.36	0.48
Europe	4.04	3.76	3.81	3.93	4.00	4.04	4.02	4.24	4.25	4.16	4.07	4.33	3.89	4.08	4.20
Norway	1.97	1.74	1.91	1.99	2.02	2.06	2.05	2.15	2.17	2.10	2.11	2.28	1.90	2.07	2.17
United Kingdom	0.97	0.91	0.80	0.84	0.86	0.88	0.84	0.94	0.93	0.92	0.83	0.91	0.88	0.88	0.90
Eurasia	14.39	13.39	13.56	13.90	14.02	13.57	13.52	13.61	13.60	13.58	13.56	13.64	13.81	13.68	13.60
Azerbaijan	0.70	0.67	0.65	0.67	0.65	0.64	0.64	0.65	0.65	0.65	0.65	0.66	0.67	0.64	0.65
Kazakhstan	2.01	1.77	1.62	1.92	2.02	1.95	1.86	1.94	1.94	1.92	1.90	1.97	1.83	1.94	1.93
Russia	11.30	10.59	10.92	10.95	10.95	10.58	10.61	10.61	10.61	10.61	10.61	10.61	10.94	10.69	10.61
Turkmenistan	0.26	0.26	0.26	0.26	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.26	0.27	0.27
Middle East	3.23	3.29	3.34	3.28	3.19	3.19	3.18	3.20	3.22	3.21	3.21	3.21	3.28	3.19	3.21
Oman	1.05	1.07	1.10	1.08	1.07	1.05	1.03	1.03	1.03	1.03	1.03	1.03	1.07	1.05	1.03
Qatar	1.85	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86
Asia and Oceania	9.16	9.17	8.87	8.98	9.28	9.31	9.29	9.30	9.25	9.26	9.25	9.27	9.04	9.30	9.26
Australia	0.44	0.47	0.39	0.43	0.42	0.42	0.42	0.42	0.41	0.40	0.39	0.39	0.43	0.42	0.40
China	5.18	5.18	5.05	5.09	5.32	5.31	5.28	5.32	5.27	5.30	5.29	5.33	5.12	5.31	5.30
India	0.88	0.89	0.87	0.85	0.88	0.90	0.90	0.89	0.91	0.91	0.90	0.90	0.87	0.89	0.91
Indonesia	0.84	0.83	0.81	0.83	0.82	0.85	0.84	0.84	0.83	0.82	0.82	0.81	0.83	0.84	0.82
Malaysia	0.61	0.60	0.58	0.61	0.61	0.60	0.60	0.59	0.59	0.58	0.58	0.57	0.60	0.60	0.58
Africa	1.40	1.43	1.44	1.44	1.38	1.39	1.41	1.40	1.34	1.34	1.34	1.33	1.43	1.40	1.34
Egypt	0.66	0.68	0.67	0.67	0.66	0.67	0.67	0.67	0.61	0.61	0.61	0.61	0.67	0.67	0.61
South Sudan	0.15	0.15	0.16	0.15	0.13	0.13	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.15	0.17
Total non-OPEC liquids	65.08	64.98	66.09	66.58	67.09	67.41	67.87	68.25	67.95	68.10	68.89	69.54	65.69	67.66	68.62
OPEC non-crude liquids	5.56	5.43	5.48	5.52	5.49	5.34	5.40	5.44	5.53	5.40	5.44	5.48	5.50	5.42	5.46
Non-OPEC + OPEC non-crude	70.64	70.41	71.57	72.10	72.58	72.75	73.27	73.68	73.48	73.50	74.33	75.02	71.18	73.07	74.08
Unplanned non-OPEC Production Outages	0.76	1.31	0.78	0.56	0.56	1.03	-	-	-	-	-	-	0.85	-	-

- = no data available

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

Notes: EIA completed modeling and analysis for this report on July 6, 2023.

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

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

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Crude Oil															
Algeria	0.97	1.00	1.02	1.02	1.01	0.98	-	-	-	-	-	-	1.00	-	-
Angola	1.15	1.19	1.16	1.10	1.08	1.14	-	-	-	-	-	-	1.15	-	-
Congo (Brazzaville)	0.27	0.29	0.28	0.26	0.27	0.25	-	-	-	-	-	-	0.27	-	-
Equatorial Guinea	0.09	0.09	0.09	0.07	0.06	0.06	-	-	-	-	-	-	0.09	-	-
Gabon	0.19	0.19	0.20	0.21	0.20	0.21	-	-	-	-	-	-	0.20	-	-
Iran	2.55	2.53	2.53	2.56	2.60	2.74	-	-	-	-	-	-	2.54	-	-
Iraq	4.30	4.42	4.55	4.51	4.41	4.21	-	-	-	-	-	-	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	1.18	-	-	-	-	-	-	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	28.38	27.50	27.77	28.42	28.57	28.62	28.32	28.67	28.02	28.49
Other Liquids (a)	5.56	5.43	5.48	5.52	5.49	5.34	5.40	5.44	5.53	5.40	5.44	5.48	5.50	5.42	5.46
Total OPEC Production	33.75	33.76	34.71	34.43	33.95	33.72	32.90	33.21	33.95	33.97	34.06	33.80	34.17	33.44	33.95
Crude Oil Production Capacity															
Middle East	25.48	25.46	25.55	25.66	25.90	26.17	26.13	26.13	26.63	26.73	26.78	26.78	25.54	26.08	26.73
Other	5.83	5.45	5.35	5.55	5.71	5.78	5.91	5.84	5.87	5.82	5.78	5.75	5.54	5.81	5.80
OPEC Total	31.31	30.91	30.89	31.21	31.61	31.95	32.04	31.97	32.50	32.55	32.56	32.53	31.08	31.89	32.53
Surplus Crude Oil Production Capacity															
Middle East	3.00	2.47	1.65	2.28	3.13	3.52	4.47	4.13	4.00	3.92	3.88	4.15	2.35	3.81	3.99
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	3.57	4.54	4.20	4.07	3.98	3.94	4.21	2.41	3.87	4.05
Unplanned OPEC Production Outages	1.98	2.42	2.50	2.14	1.94	2.14	-	-	-	-	-	-	2.26	-	-

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

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

Notes: EIA completed modeling and analysis for this report on July 6, 2023.

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

Forecasts are not published for individual OPEC countries.

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2022				2023				2024						
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
North America	24.22	24.47	24.82	24.43	24.09	24.65	<i>24.95</i>	<i>24.86</i>	<i>24.70</i>	<i>24.88</i>	<i>25.33</i>	<i>25.07</i>	24.49	<i>24.64</i>	<i>25.00</i>
Canada	2.24	2.21	2.38	2.30	2.22	2.25	<i>2.35</i>	<i>2.33</i>	<i>2.31</i>	<i>2.26</i>	<i>2.35</i>	<i>2.33</i>	2.28	<i>2.29</i>	<i>2.31</i>
Mexico	1.76	1.99	1.96	1.95	1.87	1.91	<i>1.91</i>	<i>1.93</i>	<i>1.87</i>	<i>1.89</i>	<i>1.89</i>	<i>1.91</i>	1.92	<i>1.91</i>	<i>1.89</i>
United States	20.22	20.27	20.47	20.16	20.00	20.48	<i>20.68</i>	<i>20.59</i>	<i>20.52</i>	<i>20.72</i>	<i>21.08</i>	<i>20.82</i>	20.28	<i>20.44</i>	<i>20.79</i>
Central and South America	6.27	6.43	6.57	6.54	6.39	6.53	<i>6.64</i>	<i>6.57</i>	<i>6.43</i>	<i>6.58</i>	<i>6.68</i>	<i>6.61</i>	6.45	<i>6.53</i>	<i>6.58</i>
Brazil	2.85	2.93	3.02	3.02	2.95	3.00	<i>3.08</i>	<i>3.06</i>	<i>2.97</i>	<i>3.03</i>	<i>3.10</i>	<i>3.09</i>	2.96	<i>3.02</i>	<i>3.05</i>
Europe	13.93	14.19	14.80	14.11	13.80	14.23	<i>14.65</i>	<i>14.41</i>	<i>14.00</i>	<i>14.17</i>	<i>14.59</i>	<i>14.35</i>	14.26	<i>14.28</i>	<i>14.28</i>
Eurasia	4.28	4.43	4.73	4.65	4.30	4.45	<i>4.76</i>	<i>4.68</i>	<i>4.44</i>	<i>4.59</i>	<i>4.91</i>	<i>4.82</i>	4.53	<i>4.55</i>	<i>4.69</i>
Russia	3.27	3.36	3.64	3.50	3.28	3.36	<i>3.65</i>	<i>3.51</i>	<i>3.37</i>	<i>3.46</i>	<i>3.75</i>	<i>3.61</i>	3.44	<i>3.45</i>	<i>3.55</i>
Middle East	8.87	9.24	9.69	8.96	9.14	9.31	<i>9.84</i>	<i>9.26</i>	<i>9.43</i>	<i>9.43</i>	<i>9.96</i>	<i>9.38</i>	9.19	<i>9.39</i>	<i>9.55</i>
Asia and Oceania	36.51	35.62	35.50	36.58	37.82	37.24	<i>36.46</i>	<i>37.45</i>	<i>38.70</i>	<i>38.09</i>	<i>37.27</i>	<i>38.27</i>	36.05	<i>37.24</i>	<i>38.08</i>
China	15.12	15.10	15.09	15.28	15.94	16.13	<i>15.81</i>	<i>16.02</i>	<i>16.33</i>	<i>16.52</i>	<i>16.19</i>	<i>16.41</i>	15.15	<i>15.97</i>	<i>16.36</i>
Japan	3.70	3.03	3.19	3.56	3.72	3.01	<i>3.11</i>	<i>3.44</i>	<i>3.55</i>	<i>2.94</i>	<i>3.04</i>	<i>3.37</i>	3.37	<i>3.32</i>	<i>3.22</i>
India	5.08	5.07	4.84	5.18	5.27	5.43	<i>5.07</i>	<i>5.39</i>	<i>5.65</i>	<i>5.72</i>	<i>5.35</i>	<i>5.69</i>	5.04	<i>5.29</i>	<i>5.60</i>
Africa	4.45	4.45	4.34	4.48	4.52	4.54	<i>4.46</i>	<i>4.62</i>	<i>4.62</i>	<i>4.64</i>	<i>4.55</i>	<i>4.71</i>	4.43	<i>4.53</i>	<i>4.63</i>
Total OECD Liquid Fuels Consumption	45.76	45.38	46.58	45.95	45.49	45.62	<i>46.46</i>	<i>46.57</i>	<i>46.16</i>	<i>45.71</i>	<i>46.70</i>	<i>46.64</i>	45.92	<i>46.04</i>	<i>46.30</i>
Total non-OECD Liquid Fuels Consumption	52.79	53.46	53.88	53.80	54.57	55.34	<i>55.29</i>	<i>55.26</i>	<i>56.16</i>	<i>56.66</i>	<i>56.59</i>	<i>56.57</i>	53.48	<i>55.12</i>	<i>56.50</i>
Total World Liquid Fuels Consumption	98.54	98.84	100.46	99.75	100.06	100.96	<i>101.75</i>	<i>101.83</i>	<i>102.32</i>	<i>102.38</i>	<i>103.29</i>	<i>103.22</i>	99.40	<i>101.16</i>	<i>102.80</i>
Real Gross Domestic Product (a)															
World Index, 2015 Q1 = 100	121.9	122.2	123.3	123.8	125.1	125.9	<i>126.3</i>	<i>126.9</i>	<i>127.8</i>	<i>128.9</i>	<i>130.0</i>	<i>131.3</i>	122.8	<i>126.1</i>	<i>129.5</i>
Percent change from prior year	4.4	3.5	3.3	2.1	2.6	3.0	<i>2.4</i>	<i>2.5</i>	<i>2.2</i>	<i>2.4</i>	<i>2.9</i>	<i>3.4</i>	3.3	<i>2.6</i>	<i>2.7</i>
OECD Index, 2015 = 100													113.3	<i>114.4</i>	<i>115.5</i>
Percent change from prior year													2.9	<i>1.0</i>	<i>0.9</i>
Non-OECD Index, 2015 = 100													128.9	<i>134.0</i>	<i>139.6</i>
Percent change from prior year													3.6	<i>3.9</i>	<i>4.1</i>
Nominal U.S. Dollar Index (b)															
Index, 2015 Q1 = 100	109.5	112.8	117.1	118.4	114.1	114.1	<i>115.0</i>	<i>115.2</i>	<i>115.0</i>	<i>114.5</i>	<i>113.9</i>	<i>113.2</i>	114.5	<i>114.6</i>	<i>114.1</i>
Percent change from prior year	2.8	6.4	9.0	8.6	4.2	1.2	<i>-1.8</i>	<i>-2.7</i>	<i>0.8</i>	<i>0.3</i>	<i>-1.0</i>	<i>-1.8</i>	6.7	<i>0.1</i>	<i>-0.4</i>

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

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

- = no data available

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

Notes: EIA completed modeling and analysis for this report on July 6, 2023.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Supply (million barrels per day)															
Crude Oil Supply															
Domestic Production (a)	11.47	11.70	12.06	12.31	12.61	12.55	12.48	12.63	12.67	12.71	12.88	13.13	11.89	12.56	12.85
Alaska	0.45	0.44	0.42	0.44	0.44	0.42	0.41	0.43	0.43	0.37	0.39	0.41	0.44	0.43	0.40
Federal Gulf of Mexico (b)	1.67	1.70	1.80	1.80	1.87	1.74	1.86	1.88	1.92	1.91	1.83	1.87	1.74	1.84	1.88
Lower 48 States (excl GOM)	9.35	9.56	9.84	10.07	10.30	10.39	10.21	10.31	10.32	10.43	10.66	10.85	9.71	10.30	10.57
Crude Oil Net Imports (c)	3.00	2.81	2.75	2.14	2.27	2.35	3.02	2.71	2.52	2.85	2.84	2.09	2.67	2.59	2.58
SPR Net Withdrawals	0.31	0.80	0.84	0.48	0.01	0.27	-0.07	0.00	0.00	0.00	0.00	0.00	0.61	0.05	0.00
Commercial Inventory Net Withdrawals	0.08	-0.03	-0.12	-0.01	-0.40	0.15	0.24	-0.04	-0.30	0.14	0.20	-0.08	-0.02	-0.01	-0.01
Crude Oil Adjustment (d)	0.71	0.81	0.74	0.87	0.70	0.79	0.48	0.45	0.53	0.55	0.49	0.45	0.78	0.60	0.50
Total Crude Oil Input to Refineries	15.56	16.09	16.26	15.80	15.19	16.10	16.15	15.75	15.42	16.25	16.41	15.59	15.93	15.80	15.92
Other Supply															
Refinery Processing Gain	0.95	1.07	1.05	1.01	0.97	1.03	1.01	1.02	0.98	1.01	1.02	1.00	1.02	1.01	1.00
Natural Gas Plant Liquids Production	5.61	5.92	6.09	5.90	6.01	6.30	6.30	6.25	6.20	6.25	6.37	6.38	5.88	6.22	6.30
Renewables and Oxygenate Production (e)	1.20	1.20	1.18	1.23	1.24	1.27	1.28	1.26	1.30	1.33	1.35	1.36	1.20	1.27	1.33
Fuel Ethanol Production	1.02	1.01	0.97	1.01	1.00	1.01	1.01	0.98	1.01	1.01	1.01	1.02	1.00	1.00	1.01
Petroleum Products Adjustment (f)	0.21	0.23	0.22	0.22	0.20	0.21	0.22	0.22	0.21	0.22	0.22	0.22	0.22	0.21	0.22
Product Net Imports (c)	-3.74	-3.99	-4.07	-3.93	-3.91	-3.98	-3.80	-4.34	-3.88	-3.88	-4.12	-4.20	-3.93	-4.01	-4.02
Hydrocarbon Gas Liquids	-2.14	-2.31	-2.16	-2.26	-2.47	-2.60	-2.60	-2.54	-2.50	-2.57	-2.55	-2.58	-2.22	-2.55	-2.55
Unfinished Oils	0.09	0.25	0.28	0.30	0.28	0.29	0.43	0.25	0.20	0.27	0.31	0.21	0.23	0.31	0.25
Other HC/Oxygenates	-0.09	-0.10	-0.07	-0.02	-0.05	-0.05	-0.03	-0.04	-0.05	-0.04	-0.03	-0.04	-0.07	-0.04	-0.04
Motor Gasoline Blend Comp.	0.40	0.60	0.48	0.40	0.45	0.65	0.64	0.34	0.49	0.65	0.48	0.36	0.47	0.52	0.50
Finished Motor Gasoline	-0.76	-0.73	-0.81	-0.83	-0.75	-0.69	-0.79	-0.84	-0.80	-0.67	-0.69	-0.75	-0.78	-0.77	-0.73
Jet Fuel	-0.04	-0.06	-0.11	-0.03	-0.05	-0.02	0.09	0.11	0.15	0.20	0.19	0.19	-0.06	0.04	0.18
Distillate Fuel Oil	-0.81	-1.15	-1.29	-1.05	-0.76	-1.00	-1.14	-1.08	-0.88	-1.15	-1.27	-1.06	-1.07	-1.00	-1.09
Residual Fuel Oil	0.14	0.10	0.10	0.09	0.01	-0.05	0.07	0.09	0.06	0.06	0.07	0.14	0.11	0.03	0.08
Other Oils (g)	-0.54	-0.59	-0.49	-0.53	-0.58	-0.50	-0.47	-0.63	-0.55	-0.64	-0.63	-0.67	-0.54	-0.54	-0.62
Product Inventory Net Withdrawals	0.42	-0.25	-0.26	-0.06	0.30	-0.47	-0.47	0.43	0.30	-0.46	-0.17	0.47	-0.04	-0.05	0.04
Total Supply	20.22	20.27	20.47	20.16	20.00	20.48	20.68	20.59	20.52	20.72	21.08	20.82	20.28	20.44	20.79
Consumption (million barrels per day)															
Hydrocarbon Gas Liquids	3.87	3.43	3.48	3.57	3.68	3.44	3.51	3.87	4.02	3.51	3.63	3.93	3.59	3.62	3.77
Other HC/Oxygenates	0.13	0.17	0.17	0.19	0.22	0.22	0.20	0.23	0.24	0.26	0.27	0.30	0.16	0.22	0.27
Unfinished Oils	0.13	0.04	0.11	0.10	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.02	0.00
Motor Gasoline	8.47	9.00	8.88	8.75	8.67	9.19	9.08	8.73	8.65	9.11	9.17	8.79	8.78	8.92	8.93
Fuel Ethanol blended into Motor Gasoline	0.87	0.93	0.92	0.93	0.90	0.96	0.96	0.92	0.90	0.96	0.96	0.94	0.91	0.93	0.94
Jet Fuel	1.45	1.61	1.60	1.58	1.55	1.66	1.77	1.71	1.66	1.78	1.82	1.75	1.56	1.67	1.75
Distillate Fuel Oil	4.14	3.89	3.86	3.96	4.01	3.88	3.78	3.97	4.05	3.93	3.86	3.98	3.96	3.91	3.96
Residual Fuel Oil	0.38	0.31	0.39	0.30	0.29	0.19	0.32	0.33	0.26	0.27	0.32	0.34	0.34	0.28	0.30
Other Oils (g)	1.65	1.82	1.99	1.71	1.53	1.87	2.02	1.75	1.63	1.86	2.00	1.73	1.79	1.79	1.80
Total Consumption	20.22	20.27	20.47	20.16	20.00	20.48	20.68	20.59	20.52	20.72	21.08	20.82	20.28	20.44	20.79
Total Petroleum and Other Liquids Net Imports	-0.74	-1.18	-1.32	-1.79	-1.64	-1.63	-0.78	-1.63	-1.36	-1.03	-1.27	-2.11	-1.26	-1.42	-1.44
End-of-period Inventories (million barrels)															
Commercial Inventory															
Crude Oil (excluding SPR)	414.4	417.5	428.8	429.6	465.4	451.7	429.3	432.6	459.9	447.0	428.6	436.2	429.6	432.6	436.2
Hydrocarbon Gas Liquids	142.0	186.7	243.6	211.1	174.3	227.1	265.5	221.2	179.0	226.1	264.1	218.8	211.1	221.2	218.8
Unfinished Oils	87.9	88.8	82.3	86.1	88.6	86.1	88.1	81.0	91.0	87.9	86.9	79.3	86.1	81.0	79.3
Other HC/Oxygenates	34.1	29.4	27.3	31.7	34.3	31.2	30.9	31.2	33.2	32.0	31.7	32.0	31.7	31.2	32.0
Total Motor Gasoline	238.5	221.0	209.6	224.3	225.3	219.7	229.3	239.9	240.8	236.5	224.6	237.1	224.3	239.9	237.1
Finished Motor Gasoline	17.3	17.1	17.6	17.4	14.7	17.2	22.2	22.3	19.4	19.7	23.1	23.2	17.4	22.3	23.2
Motor Gasoline Blend Comp.	221.2	203.8	192.0	206.9	210.6	202.4	207.0	217.6	221.3	216.8	201.5	213.9	206.9	217.6	213.9
Jet Fuel	35.6	39.3	36.2	35.0	37.7	41.3	40.9	39.9	39.6	41.4	42.5	39.3	35.0	39.9	39.3
Distillate Fuel Oil	114.6	111.4	110.5	118.8	112.3	113.5	118.8	120.2	111.7	115.7	116.3	115.8	118.8	120.2	115.8
Residual Fuel Oil	27.9	29.2	27.3	30.7	29.6	30.9	28.4	28.0	29.4	28.7	26.9	26.3	30.7	28.0	26.3
Other Oils (g)	58.5	56.4	49.5	54.2	63.3	57.8	48.6	50.1	59.3	57.3	48.0	49.5	54.2	50.1	49.5
Total Commercial Inventory	1153.6	1179.7	1215.1	1221.6	1230.8	1259.3	1279.9	1244.1	1243.7	1272.5	1269.7	1234.1	1221.6	1244.1	1234.1
Crude Oil in SPR	566.1	493.3	416.4	372.0	371.2	346.9	353.2	353.2	353.2	353.2	353.2	353.2	372.0	353.2	353.2

(a) Includes lease condensate.

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

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

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

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

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

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

- = no data available

SPR: Strategic Petroleum Reserve

HC: Hydrocarbons

Notes: EIA completed modeling and analysis for this report on July 6, 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 - July 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
HGL Production															
Natural Gas Processing Plants															
Ethane	2.33	2.43	2.41	2.37	2.49	2.64	2.60	2.62	2.58	2.64	2.65	2.66	2.39	2.59	2.63
Propane	1.77	1.85	1.92	1.88	1.89	1.96	1.97	1.95	1.95	1.92	1.97	1.99	1.86	1.94	1.96
Butanes	0.93	0.98	1.02	0.99	0.99	1.03	1.04	1.03	1.04	1.03	1.06	1.07	0.98	1.02	1.05
Natural Gasoline (Pentanes Plus)	0.59	0.67	0.74	0.66	0.64	0.67	0.69	0.65	0.63	0.66	0.69	0.67	0.66	0.66	0.66
Refinery and Blender Net Production															
Ethane/Ethylene	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Propane	0.27	0.29	0.29	0.27	0.27	0.28	0.28	0.28	0.28	0.28	0.29	0.28	0.28	0.28	0.28
Propylene (refinery-grade)	0.28	0.28	0.26	0.23	0.24	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.26	0.27	0.28
Butanes/Butylenes	-0.07	0.25	0.19	-0.15	-0.05	0.27	0.19	-0.19	-0.08	0.26	0.19	-0.19	0.06	0.06	0.05
Renewable Fuels and Oxygenate Plant Net Production															
Natural Gasoline (Pentanes Plus)	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
HGL Net Imports															
Ethane	-0.50	-0.40	-0.43	-0.46	-0.50	-0.49	-0.47	-0.47	-0.49	-0.50	-0.49	-0.52	-0.45	-0.48	-0.50
Propane/Propylene	-1.18	-1.33	-1.21	-1.29	-1.40	-1.43	-1.41	-1.38	-1.34	-1.37	-1.37	-1.40	-1.25	-1.40	-1.37
Butanes/Butylenes	-0.28	-0.41	-0.34	-0.36	-0.42	-0.46	-0.47	-0.45	-0.41	-0.45	-0.46	-0.44	-0.35	-0.45	-0.44
Natural Gasoline (Pentanes Plus)	-0.17	-0.17	-0.19	-0.15	-0.15	-0.21	-0.26	-0.23	-0.26	-0.24	-0.22	-0.22	-0.17	-0.21	-0.23
HGL Refinery and Blender Net Inputs															
Butanes/Butylenes	0.44	0.31	0.35	0.56	0.50	0.30	0.32	0.50	0.43	0.30	0.34	0.54	0.42	0.40	0.40
Natural Gasoline (Pentanes Plus)	0.20	0.20	0.22	0.20	0.22	0.20	0.19	0.18	0.17	0.18	0.19	0.18	0.20	0.20	0.18
HGL Consumption															
Ethane/Ethylene	1.98	2.03	1.97	1.91	1.99	2.11	2.12	2.13	2.14	2.13	2.14	2.16	1.97	2.09	2.14
Propane	1.16	0.60	0.69	0.91	0.98	0.53	0.62	1.00	1.15	0.62	0.68	1.01	0.84	0.78	0.87
Propylene (refinery-grade)	0.30	0.29	0.28	0.24	0.25	0.29	0.29	0.29	0.30	0.30	0.29	0.29	0.28	0.28	0.30
Butanes/Butylenes	0.23	0.26	0.29	0.20	0.18	0.27	0.25	0.21	0.21	0.25	0.26	0.21	0.24	0.23	0.23
Natural Gasoline (Pentanes Plus)	0.21	0.24	0.26	0.31	0.28	0.24	0.21	0.23	0.22	0.21	0.25	0.26	0.26	0.24	0.23
HGL Inventories (million barrels)															
Ethane	51.1	51.7	49.9	54.3	53.0	57.2	58.4	60.0	56.7	57.2	59.1	59.2	51.8	57.2	58.1
Propane	36.3	54.1	81.9	76.6	55.8	79.9	98.6	82.8	56.6	73.9	91.0	77.0	76.6	82.8	77.0
Propylene (at refineries only)	1.0	1.2	1.1	1.3	1.1	1.5	1.8	1.7	1.5	1.7	1.9	1.8	1.3	1.7	1.8
Butanes/Butylenes	35.7	58.8	81.2	54.5	40.2	65.2	83.1	54.0	44.9	72.3	90.2	61.2	54.5	54.0	61.2
Natural Gasoline (Pentanes Plus)	19.4	22.7	27.2	25.2	22.9	22.8	23.3	22.3	19.6	20.6	21.3	20.3	25.2	22.3	20.3
Refinery and Blender Net Inputs															
Crude Oil	15.56	16.09	16.26	15.80	15.19	16.10	16.15	15.75	15.42	16.25	16.41	15.59	15.93	15.80	15.92
Hydrocarbon Gas Liquids	0.64	0.50	0.57	0.76	0.72	0.50	0.51	0.68	0.60	0.47	0.53	0.72	0.62	0.60	0.58
Other Hydrocarbons/Oxygenates	1.12	1.20	1.19	1.17	1.13	1.21	1.25	1.18	1.17	1.24	1.25	1.20	1.17	1.19	1.22
Unfinished Oils	-0.12	0.21	0.24	0.15	0.19	0.28	0.41	0.32	0.09	0.31	0.32	0.29	0.12	0.30	0.25
Motor Gasoline Blend Components	0.33	0.84	0.66	0.29	0.34	0.65	0.68	0.45	0.57	0.80	0.75	0.45	0.53	0.53	0.64
Aviation Gasoline Blend Components	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Refinery and Blender Net Inputs	17.53	18.84	18.92	18.17	17.58	18.73	19.00	18.38	17.85	19.07	19.25	18.25	18.37	18.43	18.61
Refinery Processing Gain	0.95	1.07	1.05	1.01	0.97	1.03	1.01	1.02	0.98	1.01	1.02	1.00	1.02	1.01	1.00
Refinery and Blender Net Production															
Hydrocarbon Gas Liquids	0.49	0.84	0.75	0.36	0.47	0.84	0.76	0.37	0.48	0.84	0.77	0.37	0.61	0.61	0.61
Finished Motor Gasoline	9.22	9.74	9.73	9.58	9.28	9.76	9.99	9.75	9.51	9.85	9.95	9.71	9.57	9.70	9.75
Jet Fuel	1.48	1.71	1.67	1.60	1.62	1.71	1.67	1.59	1.51	1.59	1.64	1.53	1.62	1.65	1.57
Distillate Fuel	4.77	5.00	5.15	5.09	4.69	4.90	4.98	5.06	4.83	5.13	5.14	5.03	5.01	4.91	5.03
Residual Fuel	0.26	0.22	0.26	0.25	0.27	0.25	0.22	0.24	0.22	0.20	0.24	0.20	0.25	0.24	0.22
Other Oils (a)	2.26	2.39	2.40	2.30	2.21	2.31	2.39	2.39	2.29	2.47	2.53	2.42	2.34	2.32	2.43
Total Refinery and Blender Net Production	18.49	19.90	19.97	19.18	18.54	19.76	20.01	19.40	18.83	20.08	20.27	19.25	19.39	19.43	19.61
Refinery Distillation Inputs	16.07	16.61	16.82	16.34	15.78	16.71	16.57	16.14	15.82	16.63	16.83	15.99	16.46	16.30	16.32
Refinery Operable Distillation Capacity	17.94	17.94	17.98	18.01	18.12	18.27	18.31	18.31	18.31	18.31	18.32	18.33	17.97	18.25	18.32
Refinery Distillation Utilization Factor	0.90	0.93	0.94	0.91	0.87	0.91	0.90	0.88	0.86	0.91	0.92	0.87	0.92	0.89	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 July 6, 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 - July 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Prices (cents per gallon)															
Refiner Wholesale Price	278	376	311	267	262	264	251	232	242	259	256	238	309	252	249
Gasoline Regular Grade Retail Prices Including Taxes															
PADD 1	364	438	393	341	330	344	329	313	319	333	331	317	385	329	325
PADD 2	352	436	397	345	324	348	330	307	314	334	332	310	383	327	323
PADD 3	340	414	357	300	302	315	296	278	287	306	302	284	353	298	295
PADD 4	360	446	434	358	357	358	349	328	319	347	349	331	401	348	337
PADD 5	452	543	511	478	418	452	434	396	396	423	419	400	497	426	410
U.S. Average	371	450	408	357	338	358	343	320	325	345	342	324	397	340	334
Gasoline All Grades Including Taxes	380	460	419	369	349	369	354	333	337	356	354	336	408	351	346
End-of-period Inventories (million barrels)															
Total Gasoline Inventories															
PADD 1	56.9	53.6	54.4	56.4	52.7	56.6	61.5	63.6	63.0	65.2	59.8	62.3	56.4	63.6	62.3
PADD 2	56.5	46.7	44.1	46.6	49.5	44.9	47.6	52.6	51.8	46.9	45.0	53.4	46.6	52.6	53.4
PADD 3	87.1	83.9	80.2	81.4	84.1	84.1	83.1	84.8	87.2	87.0	82.5	82.5	81.4	84.8	82.5
PADD 4	8.1	6.4	6.4	7.4	7.8	6.2	7.3	8.1	8.3	7.0	7.0	7.7	7.4	8.1	7.7
PADD 5	29.9	30.3	24.5	32.6	31.2	27.9	29.8	30.9	30.4	30.5	30.4	31.2	32.6	30.9	31.2
U.S. Total	238.5	221.0	209.6	224.3	225.3	219.7	229.3	239.9	240.8	236.5	224.6	237.1	224.3	239.9	237.1
Finished Gasoline Inventories															
U.S. Total	17.3	17.1	17.6	17.4	14.7	17.2	22.2	22.3	19.4	19.7	23.1	23.2	17.4	22.3	23.2
Gasoline Blending Components Inventories															
U.S. Total	221.2	203.8	192.0	206.9	210.6	202.4	207.0	217.6	221.3	216.8	201.5	213.9	206.9	217.6	213.9

- = no data available

Notes: EIA completed modeling and analysis for this report on July 6, 2023.

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

Prices are not adjusted for inflation.

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

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

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 5a. U.S. Natural Gas Supply, Consumption, and Inventories

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Supply (billion cubic feet per day)															
Total Marketed Production	103.27	106.18	108.27	108.90	110.70	111.35	<i>112.21</i>	<i>111.33</i>	<i>110.87</i>	<i>110.59</i>	<i>111.68</i>	<i>113.00</i>	106.67	<i>111.40</i>	<i>111.54</i>
Alaska	1.06	1.00	0.96	1.07	1.08	0.98	<i>0.86</i>	<i>0.98</i>	<i>1.00</i>	<i>0.92</i>	<i>0.84</i>	<i>0.97</i>	1.02	<i>0.97</i>	<i>0.93</i>
Federal GOM (a)	2.05	2.11	2.19	2.12	2.14	2.07	<i>2.18</i>	<i>2.18</i>	<i>2.19</i>	<i>2.13</i>	<i>2.00</i>	<i>2.01</i>	2.12	<i>2.14</i>	<i>2.08</i>
Lower 48 States (excl GOM)	100.16	103.07	105.12	105.71	107.48	108.30	<i>109.16</i>	<i>108.16</i>	<i>107.69</i>	<i>107.54</i>	<i>108.84</i>	<i>110.01</i>	103.53	<i>108.28</i>	<i>108.52</i>
Total Dry Gas Production	95.09	97.59	99.46	100.29	101.96	102.21	<i>103.01</i>	<i>102.21</i>	<i>101.79</i>	<i>101.53</i>	<i>102.53</i>	<i>103.74</i>	98.13	<i>102.35</i>	<i>102.40</i>
LNG Gross Imports	0.15	0.01	0.07	0.05	0.09	0.03	<i>0.04</i>	<i>0.06</i>	<i>0.10</i>	<i>0.04</i>	<i>0.04</i>	<i>0.06</i>	0.07	<i>0.05</i>	<i>0.06</i>
LNG Gross Exports	11.50	10.80	9.74	10.35	11.45	12.06	<i>12.30</i>	<i>12.34</i>	<i>12.72</i>	<i>12.82</i>	<i>13.09</i>	<i>14.61</i>	10.59	<i>12.04</i>	<i>13.31</i>
Pipeline Gross Imports	8.89	7.73	7.84	8.41	8.45	7.07	<i>7.09</i>	<i>7.45</i>	<i>8.18</i>	<i>6.81</i>	<i>7.04</i>	<i>7.44</i>	8.22	<i>7.51</i>	<i>7.36</i>
Pipeline Gross Exports	8.46	8.52	8.13	8.19	8.88	8.17	<i>8.70</i>	<i>9.18</i>	<i>9.48</i>	<i>8.88</i>	<i>9.21</i>	<i>9.64</i>	8.32	<i>8.73</i>	<i>9.30</i>
Supplemental Gaseous Fuels	0.21	0.17	0.18	0.16	0.19	0.17	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	0.18	<i>0.18</i>	<i>0.18</i>
Net Inventory Withdrawals	20.14	-10.25	-8.94	2.35	11.95	-11.57	<i>-7.04</i>	<i>3.96</i>	<i>14.23</i>	<i>-12.15</i>	<i>-6.82</i>	<i>2.93</i>	0.75	<i>-0.72</i>	<i>-0.46</i>
Total Supply	104.52	75.94	80.72	92.73	102.32	77.67	<i>82.27</i>	<i>92.34</i>	<i>102.27</i>	<i>74.70</i>	<i>80.68</i>	<i>90.11</i>	88.43	<i>88.61</i>	<i>86.93</i>
Balancing Item (b)	0.30	0.19	0.05	-0.11	0.65	0.66	<i>0.92</i>	<i>-0.58</i>	<i>0.81</i>	<i>0.84</i>	<i>1.42</i>	<i>0.45</i>	0.10	<i>0.41</i>	<i>0.88</i>
Total Primary Supply	104.83	76.13	80.77	92.62	102.97	78.33	<i>83.19</i>	<i>91.76</i>	<i>103.08</i>	<i>75.54</i>	<i>82.10</i>	<i>90.56</i>	88.53	<i>89.02</i>	<i>87.81</i>
Consumption (billion cubic feet per day)															
Residential	26.09	7.86	3.57	17.37	23.47	7.83	<i>4.26</i>	<i>16.64</i>	<i>24.82</i>	<i>7.86</i>	<i>4.32</i>	<i>16.64</i>	13.67	<i>13.01</i>	<i>13.39</i>
Commercial	15.61	6.67	4.74	11.69	14.52	6.63	<i>5.13</i>	<i>11.59</i>	<i>15.18</i>	<i>6.86</i>	<i>5.18</i>	<i>11.64</i>	9.66	<i>9.45</i>	<i>9.71</i>
Industrial	25.46	22.25	21.47	23.51	24.62	22.31	<i>21.44</i>	<i>23.33</i>	<i>23.94</i>	<i>20.88</i>	<i>20.71</i>	<i>22.92</i>	23.16	<i>22.92</i>	<i>22.11</i>
Electric Power (c)	28.39	30.99	42.36	30.94	30.78	32.86	<i>43.44</i>	<i>30.99</i>	<i>29.50</i>	<i>31.39</i>	<i>43.03</i>	<i>30.09</i>	33.20	<i>34.54</i>	<i>33.52</i>
Lease and Plant Fuel	5.26	5.41	5.51	5.55	5.64	5.67	<i>5.72</i>	<i>5.67</i>	<i>5.65</i>	<i>5.63</i>	<i>5.69</i>	<i>5.76</i>	5.43	<i>5.67</i>	<i>5.68</i>
Pipeline and Distribution Use	3.86	2.80	2.98	3.41	3.79	2.88	<i>3.07</i>	<i>3.40</i>	<i>3.84</i>	<i>2.78</i>	<i>3.03</i>	<i>3.36</i>	3.26	<i>3.28</i>	<i>3.25</i>
Vehicle Use	0.15	0.15	0.15	0.15	0.15	0.15	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	0.15	<i>0.15</i>	<i>0.15</i>
Total Consumption	104.83	76.13	80.77	92.62	102.97	78.33	<i>83.19</i>	<i>91.76</i>	<i>103.08</i>	<i>75.54</i>	<i>82.10</i>	<i>90.56</i>	88.53	<i>89.02</i>	<i>87.81</i>
End-of-period Inventories (billion cubic feet)															
Working Gas Inventory	1,401	2,325	3,146	2,927	1,850	2,900	<i>3,548</i>	<i>3,184</i>	<i>1,889</i>	<i>2,994</i>	<i>3,621</i>	<i>3,352</i>	2,927	<i>3,184</i>	<i>3,352</i>
East Region (d)	242	482	759	698	334	644	<i>871</i>	<i>729</i>	<i>346</i>	<i>651</i>	<i>848</i>	<i>754</i>	698	<i>729</i>	<i>754</i>
Midwest Region (d)	296	557	917	831	417	711	<i>1,020</i>	<i>880</i>	<i>427</i>	<i>728</i>	<i>1,015</i>	<i>906</i>	831	<i>880</i>	<i>906</i>
South Central Region (d)	587	885	1,006	1,042	919	1,134	<i>1,138</i>	<i>1,112</i>	<i>800</i>	<i>1,145</i>	<i>1,190</i>	<i>1,180</i>	1,042	<i>1,112</i>	<i>1,180</i>
Mountain Region (d)	90	137	184	158	79	171	<i>233</i>	<i>197</i>	<i>128</i>	<i>167</i>	<i>227</i>	<i>196</i>	158	<i>197</i>	<i>196</i>
Pacific Region (d)	165	240	247	169	74	209	<i>253</i>	<i>235</i>	<i>162</i>	<i>274</i>	<i>308</i>	<i>286</i>	169	<i>235</i>	<i>286</i>
Alaska	21	25	32	30	27	31	<i>34</i>	<i>31</i>	<i>25</i>	<i>28</i>	<i>33</i>	<i>29</i>	30	<i>31</i>	<i>29</i>

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

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

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

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

- = no data available

LNG: liquefied natural gas.

Notes: EIA completed modeling and analysis for this report on July 6, 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 - July 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Wholesale/Spot															
Henry Hub Spot Price	4.84	7.77	8.30	5.76	2.76	2.25	2.74	3.15	3.50	3.08	3.50	3.57	6.67	2.72	3.41
Residential Retail															
New England	17.69	20.93	26.83	21.72	21.06	20.43	22.97	17.53	17.25	18.61	22.88	18.10	19.87	19.95	18.11
Middle Atlantic	12.79	15.55	23.86	16.89	15.61	15.65	20.60	13.90	12.82	14.84	21.70	14.55	15.17	15.44	14.26
E. N. Central	9.81	14.81	25.79	13.17	11.06	13.17	20.81	9.38	8.40	11.84	20.79	9.63	12.45	11.36	10.03
W. N. Central	11.40	15.25	25.08	13.42	13.34	15.32	21.74	10.24	9.01	11.69	19.44	9.95	13.23	13.08	10.26
S. Atlantic	13.91	22.11	32.99	17.69	17.35	19.47	24.74	13.95	13.10	17.83	25.95	14.44	17.48	17.01	15.15
E. S. Central	11.80	17.16	26.38	15.45	13.80	15.97	22.08	12.07	10.78	14.79	22.79	12.22	14.32	13.98	12.47
W. S. Central	12.61	20.91	30.98	17.56	14.59	18.05	21.27	12.02	9.69	14.73	21.90	12.54	16.35	14.82	12.16
Mountain	10.31	12.85	19.38	13.44	12.62	11.54	13.49	8.98	8.49	10.03	14.20	9.18	12.39	11.46	9.38
Pacific	17.07	17.80	20.54	18.95	20.22	17.07	16.33	14.72	15.36	15.33	16.07	14.96	18.20	17.64	15.31
U.S. Average	12.32	16.57	24.95	15.63	14.75	15.68	19.83	12.02	11.13	14.03	20.08	12.34	14.82	14.43	12.66
Commercial Retail															
New England	12.62	14.46	16.23	15.81	15.20	13.42	12.15	10.69	10.91	11.42	11.78	10.88	14.21	13.15	11.07
Middle Atlantic	10.36	10.78	12.01	11.99	11.75	9.30	7.59	7.76	8.45	7.89	7.66	8.16	11.11	9.58	8.18
E. N. Central	8.12	10.46	14.23	10.32	9.16	8.51	9.55	6.68	6.64	7.88	9.66	7.00	9.59	8.30	7.17
W. N. Central	10.22	11.73	15.07	11.32	11.70	10.73	10.59	7.98	7.86	8.39	9.93	8.08	11.12	10.35	8.16
S. Atlantic	10.52	12.22	14.21	13.08	13.02	11.22	10.61	9.45	9.20	9.98	10.36	9.63	12.06	11.21	9.62
E. S. Central	10.41	12.80	15.56	13.49	12.24	11.18	10.80	9.15	8.82	9.96	11.06	9.63	12.26	10.83	9.50
W. S. Central	10.09	12.86	15.00	12.73	11.08	10.15	10.02	8.62	7.86	8.75	9.60	8.73	12.01	10.01	8.50
Mountain	8.78	9.98	12.60	11.31	11.19	10.22	9.90	8.05	7.85	8.23	8.85	7.58	10.19	9.97	7.93
Pacific	13.08	13.67	15.58	14.47	16.91	12.89	12.84	12.21	12.40	11.93	12.48	12.21	14.00	14.11	12.26
U.S. Average	10.00	11.71	14.12	12.14	11.86	10.45	10.13	8.53	8.43	9.06	9.91	8.71	11.37	10.39	8.78
Industrial Retail															
New England	11.11	12.09	12.17	13.47	13.53	10.17	7.62	8.17	9.00	8.28	7.32	8.43	12.11	10.12	8.41
Middle Atlantic	10.80	10.15	11.91	12.72	5.65	4.08	5.68	6.98	7.82	7.46	7.40	7.93	11.26	5.54	7.73
E. N. Central	7.66	8.72	10.75	10.31	9.24	6.09	5.53	5.56	6.11	6.17	6.09	6.12	8.88	6.98	6.12
W. N. Central	7.96	8.58	9.59	8.62	8.79	4.88	4.08	4.70	5.45	4.59	4.65	5.31	8.64	5.69	5.03
S. Atlantic	7.46	8.84	11.14	9.09	7.00	4.75	4.40	4.88	5.57	4.91	5.11	5.51	9.05	5.33	5.30
E. S. Central	6.53	8.70	10.63	8.03	5.70	3.92	3.86	4.48	5.15	4.56	4.68	5.12	8.34	4.53	4.90
W. S. Central	5.58	7.69	8.45	5.87	3.59	2.30	2.86	3.36	3.75	3.20	3.65	3.81	6.92	3.01	3.60
Mountain	7.11	8.39	10.45	9.79	9.40	7.25	6.31	5.79	5.86	5.64	5.89	5.86	8.83	7.47	5.81
Pacific	8.82	9.02	9.60	9.42	10.75	7.99	7.06	6.97	7.36	6.72	6.80	7.07	9.19	8.22	7.03
U.S. Average	6.82	8.24	9.27	7.53	6.16	3.74	3.70	4.36	5.07	4.16	4.35	4.84	7.90	4.56	4.64

- = no data available

Notes: EIA completed modeling and analysis for this report on July 6, 2023.

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

Prices are not adjusted for inflation.

Regions refer to U.S. Census divisions.

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

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Supply (million short tons)															
Production	149.0	145.7	154.3	148.3	151.5	145.7	144.8	130.3	119.0	108.5	119.1	113.8	597.2	572.2	460.3
Appalachia	40.2	40.2	40.0	38.4	41.1	40.3	34.7	32.3	31.7	29.8	26.0	26.1	158.8	148.3	113.6
Interior	23.8	26.0	24.7	22.9	25.5	26.2	26.6	24.4	24.0	21.9	22.8	21.3	97.4	102.7	90.0
Western	85.0	79.5	89.5	86.9	84.9	79.2	83.5	73.6	63.3	56.8	70.3	66.4	340.9	321.2	256.7
Primary Inventory Withdrawals	-1.9	0.0	3.4	-0.3	-2.0	0.0	3.5	0.0	-1.6	0.2	3.6	0.1	1.2	1.5	2.3
Imports	1.3	1.6	2.0	1.4	1.0	1.3	1.5	1.1	0.6	0.7	1.0	0.7	6.3	5.0	3.1
Exports	20.4	23.4	21.1	21.0	24.6	23.2	23.3	24.5	25.0	26.4	25.2	26.8	86.0	95.7	103.4
Metallurgical Coal	10.5	13.1	11.5	11.4	12.4	12.6	12.3	12.6	13.1	14.3	13.5	14.1	46.5	49.9	55.0
Steam Coal	9.9	10.3	9.6	9.6	12.2	10.6	11.1	11.9	11.8	12.1	11.7	12.7	39.5	45.8	48.3
Total Primary Supply	128.0	123.9	138.5	128.4	125.9	123.8	126.5	106.8	93.0	83.1	98.5	87.8	518.8	483.0	362.4
Secondary Inventory Withdrawals	5.9	-1.0	7.0	-9.8	-20.5	-28.0	0.8	-15.3	2.6	2.6	21.4	1.1	2.1	-63.1	27.7
Waste Coal (a)	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	7.5	7.2	7.2
Total Supply	135.7	124.8	147.4	120.5	107.2	97.5	129.1	93.3	97.5	87.5	121.7	90.7	528.4	427.1	397.4
Consumption (million short tons)															
Coke Plants	4.2	3.9	3.9	4.0	3.8	4.0	4.0	4.1	4.0	4.1	4.1	4.2	16.0	15.9	16.5
Electric Power Sector (b)	122.7	107.3	134.8	105.3	89.8	78.7	119.6	83.0	87.1	78.2	112.2	80.5	469.9	371.0	358.0
Retail and Other Industry	6.9	6.7	6.5	6.6	6.3	5.5	5.5	6.2	6.3	5.2	5.3	6.1	26.7	23.5	22.9
Residential and Commercial	0.2	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.8	0.8	0.9
Other Industrial	6.7	6.6	6.3	6.3	6.0	5.3	5.3	6.0	6.0	5.1	5.2	5.8	25.9	22.7	22.0
Total Consumption	133.7	117.9	145.2	115.8	99.9	88.2	129.1	93.3	97.5	87.5	121.7	90.7	512.6	410.4	397.4
Discrepancy (c)	2.0	6.9	2.3	4.6	7.3	9.4	0.0	0.0	0.0	0.0	0.0	0.0	15.8	16.6	0.0
End-of-period Inventories (million short tons)															
Primary Inventories (d)	21.0	20.9	17.5	17.8	19.8	19.8	16.3	16.3	17.9	17.7	14.1	14.0	17.8	16.3	14.0
Secondary Inventories	90.5	91.5	84.5	94.3	114.8	142.8	142.0	157.3	154.7	152.1	130.7	129.6	94.3	157.3	129.6
Electric Power Sector	86.3	87.3	80.1	90.0	110.1	138.0	137.0	152.3	150.4	147.7	126.0	124.9	90.0	152.3	124.9
Retail and General Industry	2.4	2.4	2.5	2.5	3.0	3.0	3.2	3.2	2.7	2.8	3.0	3.1	2.5	3.2	3.1
Coke Plants	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.6	1.4	1.5	1.6	1.5	1.6	1.6	1.5
Commercial & Institutional	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1
Coal Market Indicators															
Coal Miner Productivity															
(Tons per hour)	6.05	6.05	6.05	6.05	5.98	5.98	5.98	5.98	5.80	5.80	5.80	5.80	6.05	5.98	5.80
Total Raw Steel Production															
(Million short tons per day)	0.253	0.253	0.247	0.235	0.236	0.242	0.248	0.246	0.240	0.239	0.247	0.246	0.247	0.243	0.243
Cost of Coal to Electric Utilities															
(Dollars per million Btu)	2.18	2.26	2.50	2.55	2.57	2.46	2.44	2.38	2.39	2.39	2.39	2.36	2.37	2.46	2.39

(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 July 6, 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 - July 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Electricity Supply (billion kilowatthours)															
Electricity generation (a)	1,029	1,026	1,187	1,001	987	989	1,190	988	1,015	1,021	1,208	990	4,243	4,154	4,235
Electric power sector	990	989	1,148	963	950	953	1,150	950	978	983	1,168	952	4,090	4,003	4,081
Industrial sector	36	34	36	35	35	32	35	34	34	33	36	35	140	137	139
Commercial sector	3	3	3	3	3	4	4	4	4	4	4	4	13	14	15
Net imports	7	10	15	10	8	10	13	10	11	12	14	11	41	42	49
Total utility-scale power supply	1,036	1,036	1,203	1,010	995	999	1,203	998	1,027	1,033	1,223	1,001	4,284	4,195	4,284
Losses and Unaccounted for (b)	55	64	53	64	44	60	59	48	44	68	55	48	236	212	216
Small-scale solar generation (c)	12	17	17	12	15	22	22	16	18	27	28	19	59	75	92
Residential sector	7	11	11	8	10	15	15	11	12	19	19	13	37	50	63
Commercial sector	4	5	5	3	4	6	6	4	5	7	7	5	17	20	24
Industrial sector	1	1	1	1	1	1	1	1	1	1	1	1	4	4	5
Electricity Consumption (billion kilowatthours unless noted)															
Sales to Ultimate Customers	945	938	1,114	911	917	906	1,108	915	949	931	1,131	918	3,909	3,846	3,928
Residential Sector	380	347	458	338	357	329	455	341	379	347	475	344	1,522	1,482	1,546
Commercial Sector	322	335	389	327	321	328	391	329	327	332	390	325	1,373	1,369	1,372
Industrial Sector	242	255	266	245	238	247	260	244	241	250	264	247	1,008	989	1,002
Transportation Sector	2	2	2	2	2	2	2	2	2	2	2	2	7	7	7
Direct Use (d)	35	34	36	35	35	33	36	34	34	34	37	35	139	138	140
Total Consumption	981	972	1,150	946	952	939	1,144	950	983	964	1,167	953	4,048	3,984	4,068
Average residential electricity usage per customer (kWh)	2,711	2,476	3,268	2,411	2,522	2,325	3,216	2,408	2,655	2,431	3,328	2,411	10,866	10,472	10,826
End-of-period Fuel Inventories Held by Electric Power Sector															
Coal (mmst)	86.3	87.3	80.1	90.0	110.1	138.0	137.0	152.3	150.4	147.7	126.0	124.9	90.0	152.3	124.9
Residual Fuel (mmb)	5.6	5.9	5.7	5.4	5.7	5.5	3.3	3.9	2.7	3.0	1.2	2.0	5.4	3.9	2.0
Distillate Fuel (mmb)	17.6	17.7	16.7	15.9	17.0	16.8	16.8	17.0	16.8	16.6	16.5	16.7	15.9	17.0	16.7
Prices															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	2.18	2.26	2.50	2.55	2.57	2.46	2.44	2.38	2.39	2.39	2.39	2.36	2.37	2.46	2.39
Natural Gas	5.95	7.39	8.23	6.90	4.99	2.51	2.72	3.34	3.91	3.13	3.44	3.76	7.24	3.31	3.54
Residual Fuel Oil	16.81	26.17	26.53	21.27	19.24	17.24	14.52	14.76	15.29	16.08	15.40	15.67	21.80	16.49	15.57
Distillate Fuel Oil	21.23	30.71	26.79	24.48	22.84	19.17	18.30	19.61	19.75	19.42	19.32	20.82	24.89	19.92	19.99
Prices to Ultimate Customers (cents per kilowatthour)															
Residential Sector	13.98	15.07	15.85	15.48	15.74	16.02	15.84	15.13	15.25	15.80	15.83	15.23	15.12	15.69	15.55
Commercial Sector	11.63	12.35	13.38	12.66	12.69	12.57	13.10	12.02	12.06	12.36	13.36	12.39	12.55	12.62	12.58
Industrial Sector	7.42	8.41	9.38	8.52	8.12	8.04	8.94	8.29	8.33	8.14	9.11	8.43	8.45	8.36	8.51
Wholesale Electricity Prices (dollars per megawatt-hour)															
ERCOT North hub	42.73	83.19	130.71	53.01	28.05	57.27	91.29	33.65	35.60	29.90	44.57	31.64	77.41	52.57	35.43
CAISO SP15 zone	45.20	60.34	110.03	135.13	92.54	30.00	100.90	54.88	58.38	37.74	110.27	53.60	87.67	69.58	65.00
ISO-NE Internal hub	116.48	73.28	99.14	80.77	52.63	32.55	40.30	49.54	79.78	35.72	49.57	47.75	92.42	43.76	53.21
NYISO Hudson Valley zone	100.10	79.72	104.71	77.17	44.65	31.38	38.18	42.26	59.74	33.44	40.54	43.28	90.42	39.12	44.25
PJM Western hub	58.33	93.00	110.99	71.60	36.49	35.41	41.66	35.89	41.25	35.26	41.82	35.34	83.48	37.36	38.42
Midcontinent ISO Illinois hub	47.88	89.21	101.80	57.87	31.39	32.13	35.08	34.45	37.93	35.39	42.80	35.57	74.19	33.26	37.92
SPP ISO South hub	37.25	72.85	109.97	55.87	28.96	34.16	36.49	34.54	35.69	34.62	46.27	36.59	68.98	33.54	38.29
SERC index, Into Southern	42.45	84.96	94.82	59.33	30.53	31.66	34.25	31.17	33.64	31.86	38.35	32.34	70.39	31.90	34.05
FRCC index, Florida Reliability	41.11	78.70	92.71	58.54	30.31	33.06	31.07	30.91	32.42	32.61	36.26	33.19	67.77	31.34	33.62
Northwest index, Mid-Columbia	39.85	59.39	137.82	151.39	105.99	58.61	121.12	81.00	78.90	53.58	97.06	64.82	97.11	91.68	73.59
Southwest index, Palo Verde	39.02	60.50	128.25	130.12	84.19	31.60	100.12	55.59	56.85	46.47	105.04	53.24	89.47	67.87	65.40

Notes: EIA completed modeling and analysis for this report on July 6, 2023.

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

kWh = kilowatthours. Btu = British thermal units.

Prices are not adjusted for inflation.

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

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

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

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

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

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Residential Sector															
New England	13.1	10.5	13.9	10.9	12.2	9.9	13.2	11.0	13.1	10.3	13.7	11.2	48.4	46.3	48.3
Middle Atlantic	36.1	30.0	42.6	30.3	33.2	28.7	41.0	30.3	35.4	30.1	42.5	30.3	138.9	133.2	138.3
E. N. Central	50.8	43.8	54.8	43.1	46.5	40.9	56.0	43.9	50.8	44.1	58.3	44.4	192.5	187.3	197.6
W. N. Central	30.6	24.7	31.3	25.7	29.4	24.6	31.9	26.0	30.8	25.1	33.4	26.5	112.3	111.9	115.8
S. Atlantic	96.0	91.5	116.3	87.7	88.4	86.2	119.2	89.2	97.0	93.6	125.7	90.4	391.4	383.0	406.6
E. S. Central	32.6	27.7	37.0	26.5	29.2	26.0	37.5	26.9	32.9	27.1	38.8	27.1	123.8	119.6	125.9
W. S. Central	56.9	58.8	81.3	51.3	52.0	55.6	79.7	52.7	56.4	57.1	81.8	53.7	248.3	239.9	249.1
Mountain	24.1	26.2	36.1	24.3	25.2	24.6	35.3	24.0	24.5	26.9	37.4	24.2	110.7	109.2	113.0
Pacific contiguous	38.4	32.4	43.2	36.8	39.4	31.3	40.2	35.4	37.2	32.0	42.5	35.3	150.7	146.4	147.0
AK and HI	1.3	1.1	1.2	1.3	1.2	1.1	1.2	1.3	1.3	1.1	1.2	1.3	4.8	4.8	4.8
Total	379.8	346.7	457.7	337.7	356.8	329.0	455.0	340.7	379.3	347.3	475.4	344.5	1,521.9	1,481.6	1,546.5
Commercial Sector															
New England	12.1	11.8	13.9	11.7	11.9	11.4	13.6	11.7	12.1	11.5	13.5	11.6	49.4	48.7	48.7
Middle Atlantic	36.0	34.3	40.5	34.6	35.0	33.4	39.6	34.2	35.3	33.8	39.9	34.0	145.3	142.3	143.0
E. N. Central	43.3	42.9	48.8	42.2	42.4	42.0	49.1	42.0	43.1	42.6	49.1	41.8	177.1	175.5	176.6
W. N. Central	25.1	24.5	28.0	24.7	25.0	24.6	28.4	24.9	25.5	24.7	28.6	24.9	102.4	102.9	103.6
S. Atlantic	75.1	82.5	93.5	78.9	75.5	80.9	95.8	80.3	78.1	83.6	96.6	80.0	330.0	332.4	338.2
E. S. Central	21.0	22.4	26.8	21.0	20.5	21.6	27.0	21.4	21.2	21.8	26.8	21.1	91.3	90.5	90.9
W. S. Central	47.0	52.1	61.2	48.6	46.7	51.0	61.0	48.8	47.1	49.6	58.4	46.7	208.9	207.6	201.8
Mountain	23.2	25.4	29.6	24.3	23.7	25.2	30.0	24.4	23.8	26.0	30.3	24.4	102.6	103.3	104.5
Pacific contiguous	37.7	37.9	45.4	39.7	38.8	36.8	44.9	39.5	38.9	36.8	45.0	39.0	160.7	159.9	159.6
AK and HI	1.3	1.3	1.4	1.4	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	5.4	5.4	5.6
Total	321.8	335.2	389.0	327.0	320.8	328.3	390.7	328.7	326.6	331.5	389.6	324.7	1,373.0	1,368.6	1,372.4
Industrial Sector															
New England	3.9	3.9	4.1	3.8	3.7	3.7	4.0	3.8	3.7	3.6	3.9	3.7	15.7	15.1	15.0
Middle Atlantic	17.5	18.2	19.4	18.2	17.3	17.7	19.0	18.0	17.8	18.1	19.4	18.3	73.3	72.0	73.6
E. N. Central	45.9	47.0	48.8	45.3	44.9	45.7	47.6	45.3	45.2	45.6	47.9	45.5	187.1	183.4	184.2
W. N. Central	24.0	24.8	26.9	25.0	24.4	24.6	26.1	24.9	24.7	24.9	26.7	25.5	100.7	99.9	101.9
S. Atlantic	36.3	37.5	38.7	36.4	34.6	35.7	37.5	36.1	35.0	36.0	38.1	36.7	148.9	143.8	145.8
E. S. Central	24.7	25.8	25.6	23.4	23.3	23.8	23.8	22.6	23.1	23.5	23.7	22.5	99.5	93.5	92.8
W. S. Central	49.8	53.3	53.8	50.6	50.3	53.2	54.1	51.5	52.2	55.7	56.3	53.2	207.6	209.1	217.4
Mountain	19.9	21.7	24.0	20.9	19.8	22.1	24.6	21.3	20.4	22.5	24.9	21.6	86.5	87.9	89.5
Pacific contiguous	19.0	21.0	23.4	20.0	18.4	19.5	22.3	19.2	17.8	18.9	21.8	18.8	83.4	79.4	77.3
AK and HI	1.1	1.2	1.3	1.2	1.1	1.2	1.3	1.2	1.2	1.2	1.2	1.2	4.8	4.8	4.8
Total	242.2	254.5	265.9	244.9	237.7	247.1	260.2	243.9	241.0	250.0	264.0	247.2	1,007.5	989.0	1,002.2
Total All Sectors (a)															
New England	29.2	26.3	32.0	26.5	27.9	25.1	30.9	26.7	29.0	25.5	31.2	26.6	114.0	110.6	112.4
Middle Atlantic	90.4	83.3	103.3	84.0	86.4	80.6	100.5	83.4	89.5	82.8	102.6	83.5	360.9	350.9	358.6
E. N. Central	140.2	133.8	152.5	130.7	133.9	128.7	152.8	131.3	139.3	132.4	155.4	131.8	557.2	546.8	558.9
W. N. Central	79.7	74.1	86.3	75.4	78.8	73.8	86.3	75.8	81.1	74.7	88.7	76.9	315.4	314.8	321.4
S. Atlantic	207.7	211.8	248.7	203.2	198.7	203.0	252.7	205.8	210.3	213.4	260.7	207.3	871.3	860.3	891.7
E. S. Central	78.4	76.0	89.4	70.9	73.0	71.4	88.2	71.0	77.1	72.4	89.3	70.8	314.6	303.7	309.6
W. S. Central	153.7	164.2	196.4	150.5	149.0	159.8	194.8	153.1	155.8	162.4	196.6	153.6	664.9	656.8	668.4
Mountain	67.2	73.4	89.8	69.5	68.8	72.0	89.9	69.8	68.8	75.4	92.7	70.2	299.9	300.5	307.2
Pacific contiguous	95.3	91.6	112.2	96.6	96.8	87.8	107.7	94.3	94.1	87.8	109.6	93.4	395.7	386.6	384.8
AK and HI	3.7	3.6	3.8	3.9	3.7	3.6	3.8	3.9	3.8	3.7	3.8	3.9	15.0	15.1	15.2
Total	945.5	938.0	1,114.3	911.2	917.1	906.1	1,107.7	915.1	948.7	930.5	1,130.8	918.1	3,909.1	3,845.9	3,928.2

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

- = no data available

Notes: EIA completed modeling and analysis for this report on July 6, 2023.

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

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

Regions refer to U.S. Census divisions.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Residential Sector															
New England	23.96	24.31	24.76	26.39	30.63	29.47	27.43	27.43	30.48	28.62	26.56	27.06	24.81	28.71	28.18
Middle Atlantic	17.20	18.29	18.95	19.50	19.68	18.74	18.40	18.58	19.27	18.88	18.78	18.99	18.47	18.83	18.97
E. N. Central	14.21	15.50	16.18	16.13	16.12	16.70	16.44	15.68	15.31	16.02	16.13	15.79	15.49	16.24	15.82
W. N. Central	11.28	13.26	14.36	12.39	11.85	13.22	13.82	11.98	11.59	13.23	13.76	11.96	12.83	12.74	12.65
S. Atlantic	12.68	13.61	14.27	13.85	14.34	14.64	14.22	13.19	13.32	13.85	13.78	13.04	13.63	14.10	13.52
E. S. Central	11.97	13.08	13.78	13.40	13.17	13.03	13.00	12.77	12.94	13.28	13.27	13.10	13.06	13.00	13.15
W. S. Central	11.86	12.97	13.84	13.97	13.57	13.50	14.06	13.97	13.56	13.73	14.26	14.06	13.21	13.81	13.94
Mountain	12.14	12.85	13.23	12.98	12.96	13.63	13.88	13.41	13.08	13.50	13.66	13.41	12.85	13.51	13.44
Pacific	18.12	20.60	22.03	18.82	19.40	22.49	22.42	18.93	19.51	23.29	23.52	19.63	19.95	20.78	21.52
U.S. Average	13.98	15.07	15.85	15.48	15.74	16.02	15.84	15.13	15.25	15.80	15.83	15.23	15.12	15.69	15.55
Commercial Sector															
New England	18.47	17.46	18.32	18.55	20.55	18.87	18.81	18.16	19.67	18.17	18.55	18.42	18.21	19.09	18.71
Middle Atlantic	14.05	14.96	16.60	15.26	14.84	14.78	15.37	13.66	13.60	14.45	15.69	14.05	15.26	14.69	14.49
E. N. Central	11.06	11.84	12.12	11.87	12.01	12.04	11.57	10.97	11.17	11.68	11.70	11.30	11.73	11.64	11.47
W. N. Central	9.65	10.71	11.70	10.15	10.02	10.62	11.15	9.49	9.63	10.74	11.44	9.64	10.59	10.35	10.39
S. Atlantic	10.30	10.87	11.52	11.23	11.37	11.19	11.00	10.17	10.18	10.44	10.68	10.08	11.01	10.93	10.36
E. S. Central	11.69	12.20	13.02	12.59	12.60	12.15	12.69	12.23	12.49	12.45	13.17	12.62	12.41	12.43	12.71
W. S. Central	8.68	9.63	10.47	9.91	9.51	9.14	9.60	8.93	9.03	9.60	10.75	9.83	9.73	9.31	9.85
Mountain	9.57	10.32	10.97	10.42	10.35	11.06	11.51	10.71	10.38	10.89	11.44	10.80	10.36	10.95	10.91
Pacific	16.13	17.81	20.34	18.00	18.08	18.89	22.22	19.12	18.52	18.92	22.80	20.09	18.18	19.68	20.20
U.S. Average	11.63	12.35	13.38	12.66	12.69	12.57	13.10	12.02	12.06	12.36	13.36	12.39	12.55	12.62	12.58
Industrial Sector															
New England	15.12	15.17	15.93	15.36	16.21	15.55	15.98	14.88	15.41	14.84	15.64	14.99	15.40	15.66	15.23
Middle Atlantic	7.88	8.29	9.30	8.46	8.31	8.14	8.88	8.18	8.49	8.18	8.91	8.18	8.51	8.39	8.45
E. N. Central	7.72	8.55	8.99	8.50	8.33	8.32	8.65	8.38	8.67	8.56	8.92	8.56	8.45	8.42	8.68
W. N. Central	7.17	8.00	8.70	7.46	7.39	7.78	8.33	7.36	7.61	7.93	8.55	7.48	7.85	7.72	7.90
S. Atlantic	6.85	8.10	9.11	8.05	7.70	7.73	8.33	7.61	7.91	7.82	8.54	7.72	8.04	7.85	8.01
E. S. Central	6.35	7.36	8.41	7.53	6.98	6.72	7.68	7.15	7.15	6.82	7.88	7.28	7.42	7.14	7.28
W. S. Central	6.19	7.28	8.08	7.37	6.71	6.39	7.20	6.98	6.92	6.21	7.16	7.05	7.25	6.82	6.83
Mountain	6.58	7.27	8.41	7.88	7.66	7.53	8.70	7.98	7.81	7.88	8.93	8.16	7.57	7.99	8.22
Pacific	10.37	11.98	14.16	12.65	11.78	12.05	14.56	12.91	12.14	12.69	15.21	13.47	12.38	12.90	13.46
U.S. Average	7.42	8.41	9.38	8.52	8.12	8.04	8.94	8.29	8.33	8.14	9.11	8.43	8.45	8.36	8.51
All Sectors (a)															
New England	20.46	19.83	20.79	21.27	24.35	22.54	22.09	21.50	23.96	21.89	21.65	21.55	20.59	22.62	22.28
Middle Atlantic	14.09	14.68	16.17	15.29	15.39	14.72	15.36	14.25	14.81	14.67	15.67	14.54	15.10	14.96	14.96
E. N. Central	11.10	11.88	12.57	12.10	12.20	12.19	12.44	11.65	11.86	12.05	12.50	11.86	11.93	12.13	12.09
W. N. Central	9.53	10.65	11.73	10.02	9.89	10.55	11.28	9.64	9.75	10.64	11.44	9.72	10.51	10.37	10.42
S. Atlantic	10.79	11.56	12.43	11.79	12.05	12.04	12.12	11.03	11.25	11.49	11.86	10.95	11.68	11.83	11.42
E. S. Central	10.12	10.88	12.01	11.22	11.04	10.66	11.47	10.81	11.09	10.93	11.81	11.10	11.09	11.02	11.26
W. S. Central	9.05	10.06	11.21	10.44	9.98	9.74	10.76	10.01	9.97	9.89	11.18	10.35	10.25	10.16	10.39
Mountain	9.60	10.32	11.19	10.55	10.54	10.85	11.67	10.80	10.58	10.92	11.66	10.89	10.47	11.01	11.06
Pacific	15.77	17.45	19.69	17.19	17.41	18.64	20.68	17.77	17.69	19.15	21.54	18.56	17.62	18.69	19.33
U.S. Average	11.49	12.28	13.44	12.59	12.69	12.59	13.25	12.18	12.38	12.51	13.41	12.39	12.49	12.71	12.71

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

- = no data available

Notes: EIA completed modeling and analysis for this report on July 6, 2023.

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

Prices are not adjusted for inflation.

Regions refer to U.S. Census divisions.

See "Census division" in EIA's Energy Glossary (<http://www.eia.doe.gov/glossary/index.html>) for a list of States in each region.**Historical data:** Latest data available from Energy Information Administration databases supporting the following reports: *Electric Power Monthly*, DOE/EIA-0226; and *Electric*

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
United States															
Natural Gas	336.4	365.3	509.3	375.2	368.1	388.7	526.2	377.8	359.0	373.6	524.3	369.1	1,586.2	1,660.8	1,626.0
Coal	217.6	189.1	234.6	182.1	155.1	132.7	201.9	139.3	151.5	132.9	191.0	135.1	823.4	629.1	610.5
Nuclear	195.6	184.4	201.5	190.1	194.5	182.9	203.8	195.3	200.0	193.2	208.7	194.8	771.5	776.5	796.8
Renewable Energy Sources:	233.0	245.1	197.8	207.2	227.5	243.6	213.4	231.1	261.6	279.1	239.7	246.6	883.1	915.6	1,027.0
Conventional Hydropower	74.2	69.2	62.4	55.0	62.6	70.8	63.7	62.5	73.7	81.2	65.9	60.6	260.8	259.7	281.5
Wind	119.0	121.0	80.6	113.9	125.4	111.8	84.7	121.9	135.3	116.7	87.9	127.3	434.5	443.8	467.2
Solar (a)	29.2	44.4	43.4	27.6	29.6	51.6	54.2	36.4	42.2	72.3	75.1	48.5	144.6	171.8	238.2
Biomass	6.6	6.5	7.1	6.5	6.0	5.7	6.7	6.2	6.3	6.0	6.7	6.2	26.7	24.6	25.2
Geothermal	4.1	3.9	4.2	4.2	3.9	3.6	4.1	4.1	4.1	2.9	4.1	3.9	16.5	15.8	15.0
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	-1.3	-6.0	-6.1	-6.3
Petroleum (b)	6.4	4.1	4.5	7.4	3.8	4.0	4.6	5.5	5.3	3.8	4.6	5.9	22.4	17.9	19.6
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	1.4	1.5	1.4	1.1	1.1	1.0	1.0	6.2	5.5	4.3
Total Generation	990.0	989.3	1,148.2	962.7	949.6	952.7	1,150.3	949.9	977.6	983.4	1,168.2	952.1	4,090.3	4,002.5	4,081.3
New England (ISO-NE)															
Natural Gas	12.1	12.6	17.4	11.4	11.7	12.7	16.2	11.5	11.4	10.3	16.3	11.9	53.4	52.1	50.0
Coal	0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.3	0.0	0.1	0.0	0.3	0.3	0.4
Nuclear	7.1	5.6	7.3	7.4	7.1	3.5	7.3	6.2	7.2	7.2	7.3	5.7	27.4	24.1	27.4
Conventional hydropower	1.7	1.5	1.0	1.3	1.7	1.5	1.1	1.7	2.0	2.2	1.2	1.7	5.5	6.0	7.1
Nonhydro renewables (d)	3.2	3.2	3.0	3.0	2.9	3.3	3.2	3.0	2.9	3.5	3.7	3.6	12.4	12.4	13.7
Other energy sources (e)	1.4	0.3	0.3	0.8	0.4	0.2	0.3	0.4	0.7	0.3	0.3	0.5	2.8	1.4	1.8
Total generation	25.7	23.1	29.2	23.9	24.0	21.3	28.1	23.0	24.6	23.5	28.9	23.5	101.8	96.3	100.5
Net energy for load (f)	30.6	26.8	33.5	28.0	29.0	25.5	31.9	27.8	30.0	27.4	33.6	28.9	118.9	114.3	119.8
New York (NYISO)															
Natural Gas	14.1	15.5	21.2	14.3	13.3	13.5	19.3	12.9	13.4	13.4	20.0	13.4	65.0	59.0	60.2
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	6.7	7.2	7.2	6.5	7.2	7.1	6.7	26.8	28.0	27.5
Conventional hydropower	7.3	6.9	6.6	6.6	7.1	6.6	6.7	7.0	6.9	6.8	6.9	7.1	27.4	27.4	27.6
Nonhydro renewables (d)	2.2	2.1	1.8	2.2	2.2	2.2	2.3	2.7	2.9	2.8	2.6	3.2	8.2	9.4	11.5
Other energy sources (e)	1.1	0.1	0.1	0.8	0.3	0.1	0.2	0.4	0.7	0.1	0.3	0.5	2.2	1.0	1.5
Total generation	31.0	31.6	36.1	30.9	29.7	29.2	35.8	30.2	30.3	30.3	36.8	30.8	129.6	124.9	128.3
Net energy for load (f)	38.1	35.0	44.0	35.6	36.1	33.6	42.9	35.4	37.6	36.3	44.9	36.4	152.7	148.0	155.2
Mid-Atlantic (PJM)															
Natural Gas	76.8	74.3	103.8	79.9	86.0	80.8	106.5	84.6	86.6	80.3	108.6	82.7	334.8	357.8	358.2
Coal	48.6	35.3	42.2	30.7	27.9	22.0	35.2	22.1	30.4	24.2	28.5	19.0	156.8	107.2	102.1
Nuclear	69.0	65.1	69.7	66.8	67.6	65.6	71.1	68.4	68.9	64.7	71.9	69.3	270.6	272.8	274.8
Conventional hydropower	2.7	2.4	1.4	2.0	2.7	2.1	1.6	2.1	2.7	2.6	1.7	2.1	8.6	8.6	9.0
Nonhydro renewables (d)	13.2	13.0	9.7	12.5	12.9	13.0	10.8	13.9	15.6	16.1	13.4	15.6	48.4	50.5	60.7
Other energy sources (e)	0.7	0.4	0.2	1.3	0.3	0.3	0.2	1.0	0.5	0.4	0.3	1.1	2.6	1.8	2.4
Total generation	211.1	190.3	227.1	193.3	197.4	183.9	225.3	192.1	204.7	188.4	224.4	189.8	821.8	798.7	807.2
Net energy for load (f)	203.4	185.4	216.7	189.7	192.5	177.1	214.2	183.5	198.2	182.6	216.7	183.4	795.1	767.2	781.0
Southeast (SERC)															
Natural Gas	63.0	66.9	86.2	64.5	64.1	64.4	89.2	67.2	69.3	71.0	90.2	67.6	280.6	284.8	298.1
Coal	32.3	32.8	32.0	28.1	23.6	24.7	32.6	19.8	24.0	22.7	35.1	21.3	125.1	100.7	103.0
Nuclear	51.4	51.1	55.4	51.1	51.7	52.2	56.4	56.5	55.9	57.5	59.4	55.4	209.0	216.8	228.2
Conventional hydropower	10.3	8.3	6.1	8.0	10.3	7.9	7.7	9.0	11.5	9.0	8.1	9.1	32.7	35.0	37.7
Nonhydro renewables (d)	5.0	7.0	6.6	4.7	5.0	7.6	7.1	5.5	5.8	8.9	8.3	6.3	23.3	25.1	29.3
Other energy sources (e)	-0.2	-0.3	-0.6	-0.1	-0.3	-0.4	-0.7	-0.2	-0.1	-0.5	-0.8	-0.2	-1.2	-1.5	-1.6
Total generation	161.8	165.8	185.7	156.3	154.4	156.4	192.3	157.7	166.3	168.7	200.3	159.5	669.6	660.9	694.7
Net energy for load (f)	157.0	158.2	170.6	151.0	149.1	150.4	182.9	151.3	158.4	157.8	187.1	151.7	636.7	633.7	655.1
Florida (FRCC)															
Natural Gas	38.7	47.8	57.3	41.3	37.9	49.0	59.4	42.2	37.7	46.3	56.4	41.7	185.0	188.5	182.1
Coal	3.5	4.2	3.7	4.1	2.8	2.6	2.2	1.9	1.8	1.7	1.8	1.6	15.5	9.4	6.9
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	30.3	30.0
Conventional hydropower	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.2
Nonhydro renewables (d)	2.9	3.8	3.5	2.7	3.5	4.4	3.8	3.1	4.8	5.7	4.9	4.0	12.9	14.8	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	2.6	2.5
Total generation	53.2	64.2	72.7	56.8	52.3	64.1	73.8	55.6	52.3	62.4	71.7	54.7	247.0	245.8	241.1
Net energy for load (f)	52.2	63.6	73.9	57.8	54.4	64.2	73.5	55.6	51.7	63.2	73.2	55.0	247.5	247.7	243.1

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

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

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

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

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

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

Notes: EIA completed modeling and analysis for this report on July 6, 2023.

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

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

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

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

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Midwest (MISO)															
Natural Gas	39.4	45.6	57.3	41.8	45.4	52.9	60.8	49.5	50.2	51.4	66.2	47.2	184.1	208.6	215.0
Coal	60.4	51.0	65.0	49.3	43.0	35.3	58.8	38.7	43.6	38.2	54.3	38.7	225.8	175.8	174.9
Nuclear	23.8	19.6	24.3	23.7	23.4	21.2	23.2	20.7	23.3	22.6	24.4	23.4	91.4	88.5	93.7
Conventional hydropower	2.8	2.7	2.5	2.3	2.5	2.2	2.1	2.1	2.5	2.9	2.4	2.2	10.3	8.9	10.0
Nonhydro renewables (d)	31.2	28.0	19.8	30.4	29.9	29.6	22.6	34.6	33.9	33.0	26.0	36.9	109.4	116.7	129.8
Other energy sources (e)	1.4	1.6	1.3	1.8	0.9	1.3	1.5	1.6	1.4	1.4	1.5	1.7	6.1	5.3	6.0
Total generation	159.0	148.5	170.2	149.3	145.0	142.4	169.1	147.2	155.0	149.5	174.8	150.0	627.0	603.7	629.3
Net energy for load (f)	167.1	163.4	182.5	158.8	158.6	157.1	184.5	158.4	164.3	161.1	186.8	158.7	671.8	658.6	671.0
Central (Southwest Power Pool)															
Natural Gas	12.5	15.3	24.8	16.4	15.4	19.9	24.6	15.3	13.3	16.3	24.4	14.7	69.0	75.2	68.7
Coal	26.2	23.5	33.8	22.8	20.4	17.7	28.1	17.2	18.6	18.5	27.1	16.3	106.3	83.3	80.4
Nuclear	4.3	4.3	3.9	2.1	4.3	4.3	4.3	4.3	4.3	3.0	4.3	3.5	14.6	17.2	15.1
Conventional hydropower	4.3	3.9	3.2	3.1	3.5	3.3	3.4	3.0	3.5	4.2	3.7	3.1	14.6	13.1	14.5
Nonhydro renewables (d)	29.5	30.4	21.8	28.5	31.1	27.5	23.9	29.3	32.7	28.9	24.9	30.8	110.2	111.8	117.4
Other energy sources (e)	0.3	0.4	0.2	0.4	0.2	0.4	0.2	0.2	0.3	0.3	0.2	0.3	1.3	1.0	1.1
Total generation	77.0	77.7	87.7	73.5	74.8	72.9	84.5	69.3	72.6	71.2	84.5	68.7	316.0	301.6	297.0
Net energy for load (f)	67.4	67.7	81.7	66.0	66.6	67.0	79.0	63.1	65.5	65.5	79.1	62.7	282.8	275.8	272.9
Texas (ERCOT)															
Natural Gas	33.4	42.8	64.7	40.9	36.2	49.5	66.4	41.4	32.3	43.8	60.9	37.0	181.9	193.4	174.1
Coal	17.7	16.8	20.2	16.6	10.5	14.0	16.4	12.2	10.2	11.3	15.3	12.0	71.2	53.2	48.8
Nuclear	11.0	9.9	10.7	10.0	10.5	9.1	11.0	10.1	10.9	9.8	10.6	9.5	41.6	40.8	40.8
Conventional hydropower	0.2	0.1	0.0	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.5	0.6	0.6
Nonhydro renewables (d)	30.8	39.2	28.1	29.3	36.5	35.4	31.3	33.2	42.4	43.4	39.7	39.7	127.4	136.3	165.1
Other energy sources (e)	0.4	0.5	0.4	0.3	0.2	0.4	0.4	0.5	0.3	0.3	0.2	0.3	1.5	1.5	1.2
Total generation	93.5	109.3	124.1	97.2	94.1	108.6	125.7	97.5	96.3	108.8	126.9	98.7	424.1	425.8	430.6
Net energy for load (f)	95.1	111.3	126.4	97.1	94.1	108.3	125.7	97.5	96.3	108.8	126.9	98.7	429.9	425.6	430.6
Northwest															
Natural Gas	20.2	15.9	27.3	24.6	25.6	17.1	32.6	19.3	19.8	11.7	30.1	18.1	88.1	94.6	79.7
Coal	21.7	18.1	26.9	22.1	20.0	12.9	20.2	20.2	16.6	11.3	20.4	19.4	88.8	73.2	67.7
Nuclear	2.5	2.3	2.5	2.6	2.4	1.1	2.4	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	33.2	25.6	27.2	34.2	40.5	30.8	28.3	135.2	112.4	133.8
Nonhydro renewables (d)	19.2	20.4	16.0	18.0	19.1	22.4	18.0	20.5	21.1	24.5	21.1	22.0	73.6	80.1	88.7
Other energy sources (e)	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.8	0.6	0.6
Total generation	102.5	92.6	106.9	94.4	93.7	86.8	99.0	89.7	94.4	90.6	104.9	90.3	396.3	369.2	380.2
Net energy for load (f)	85.2	76.8	87.4	86.8	88.7	78.4	86.8	81.8	84.1	76.9	87.3	81.3	336.1	335.6	329.7
Southwest															
Natural Gas	9.7	13.2	19.0	13.9	11.5	15.5	25.0	14.0	10.5	14.9	24.6	14.3	55.8	66.0	64.4
Coal	6.1	6.3	8.1	6.2	5.5	2.9	5.6	5.1	4.1	4.2	5.5	4.9	26.7	19.1	18.7
Nuclear	8.2	7.5	8.7	7.6	8.6	6.8	8.6	7.4	8.5	7.4	8.6	7.5	31.9	31.4	32.0
Conventional hydropower	2.0	2.1	1.8	1.4	1.5	2.2	2.5	1.5	1.9	2.3	2.0	1.7	7.4	7.7	7.9
Nonhydro renewables (d)	5.8	7.0	5.2	5.6	6.4	7.2	5.9	6.6	8.4	8.3	6.5	7.3	23.6	26.2	30.5
Other energy sources (e)	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.3	0.2
Total generation	31.8	36.0	43.0	34.7	33.6	34.8	47.6	34.8	33.4	37.2	47.3	35.7	145.5	150.7	153.6
Net energy for load (f)	27.4	34.2	42.0	28.8	28.2	32.6	44.6	29.1	27.9	35.1	45.8	29.1	132.4	134.5	137.8
California															
Natural Gas	15.7	15.2	29.4	25.5	20.4	12.8	25.6	19.1	13.7	13.4	25.8	19.8	85.9	77.9	72.8
Coal	0.5	0.7	2.4	1.9	1.1	0.3	2.3	1.7	1.5	0.4	2.4	1.6	5.5	5.4	5.9
Nuclear	4.6	4.2	5.0	3.8	4.7	5.0	4.6	4.1	4.7	3.6	4.7	4.7	17.6	18.3	17.8
Conventional hydropower	3.6	5.2	5.2	2.8	6.4	11.2	12.6	8.4	7.9	10.0	8.8	4.9	16.9	38.6	31.6
Nonhydro renewables (d)	15.4	21.5	19.4	14.8	14.9	19.9	20.2	15.8	17.1	22.1	22.1	16.0	71.2	70.8	77.3
Other energy sources (e)	0.0	-0.2	0.1	-0.2	-0.6	-0.2	0.2	-0.2	-0.7	-0.3	0.0	-0.3	-0.2	-0.7	-1.4
Total generation	39.8	46.6	61.6	48.7	46.9	48.9	65.5	48.9	44.1	49.2	63.9	46.7	196.7	210.2	203.9
Net energy for load (f)	59.2	64.4	81.3	63.6	60.5	60.4	80.7	62.5	59.9	65.0	83.1	62.3	268.4	264.1	270.2

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

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

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

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

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

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

Notes: EIA completed modeling and analysis for this report on July 6, 2023.

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

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

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

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

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Electric Power Sector															
Geothermal	0.036	0.035	0.037	0.037	0.035	0.032	0.036	0.036	0.036	0.026	0.036	0.035	0.146	0.139	0.132
Hydroelectric Power (a)	0.656	0.612	0.552	0.486	0.554	0.643	0.564	0.553	0.652	0.718	0.583	0.536	2.307	2.313	2.489
Solar (b)	0.258	0.393	0.384	0.244	0.262	0.456	0.479	0.322	0.374	0.640	0.664	0.429	1.279	1.519	2.106
Waste Biomass (c)	0.055	0.053	0.053	0.052	0.051	0.049	0.051	0.050	0.051	0.050	0.051	0.050	0.213	0.202	0.203
Wood Biomass	0.051	0.046	0.055	0.047	0.045	0.041	0.052	0.046	0.048	0.043	0.054	0.046	0.200	0.184	0.191
Wind	1.052	1.070	0.713	1.007	1.109	0.989	0.749	1.078	1.197	1.032	0.777	1.126	3.842	3.925	4.132
Subtotal	2.109	2.210	1.794	1.874	2.055	2.211	1.932	2.085	2.357	2.509	2.165	2.222	7.987	8.282	9.254
Industrial Sector															
Biofuel Losses and Co-products (d)	0.203	0.203	0.197	0.206	0.199	0.205	0.206	0.201	0.203	0.204	0.207	0.207	0.808	0.811	0.821
Geothermal	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.004	0.004	0.004
Hydroelectric Power (a)	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.008	0.008	0.008
Solar (b)	0.008	0.011	0.011	0.008	0.008	0.012	0.013	0.009	0.009	0.013	0.014	0.010	0.038	0.042	0.046
Waste Biomass (c)	0.042	0.040	0.037	0.042	0.042	0.040	0.039	0.042	0.041	0.040	0.039	0.041	0.161	0.163	0.163
Wood Biomass	0.319	0.324	0.322	0.314	0.309	0.312	0.337	0.344	0.335	0.332	0.344	0.346	1.278	1.303	1.356
Subtotal (e)	0.580	0.586	0.576	0.578	0.566	0.578	0.602	0.603	0.596	0.598	0.611	0.612	2.318	2.350	2.417
Commercial Sector															
Geothermal	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.024	0.025	0.025
Solar (b)	0.032	0.047	0.047	0.031	0.036	0.055	0.056	0.039	0.045	0.066	0.067	0.047	0.157	0.186	0.225
Waste Biomass (c)	0.009	0.009	0.009	0.009	0.010	0.009	0.009	0.009	0.010	0.010	0.009	0.009	0.037	0.037	0.038
Wood Biomass	0.020	0.021	0.021	0.021	0.020	0.021	0.021	0.021	0.020	0.021	0.021	0.021	0.083	0.083	0.083
Subtotal (e)	0.076	0.091	0.091	0.075	0.080	0.099	0.100	0.083	0.089	0.110	0.111	0.090	0.333	0.362	0.400
Residential Sector															
Geothermal	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.040	0.040	0.040
Solar (f)	0.078	0.116	0.117	0.084	0.099	0.150	0.152	0.107	0.120	0.184	0.188	0.132	0.395	0.507	0.624
Wood Biomass	0.133	0.134	0.136	0.136	0.142	0.134	0.136	0.136	0.142	0.134	0.136	0.136	0.539	0.548	0.548
Subtotal	0.221	0.260	0.263	0.230	0.250	0.294	0.298	0.253	0.271	0.329	0.334	0.278	0.974	1.095	1.211
Transportation Sector															
Biodiesel, Renewable Diesel, and Other (g) ...	0.094	0.117	0.116	0.125	0.140	0.153	0.153	0.162	0.166	0.181	0.189	0.199	0.451	0.608	0.736
Ethanol (g)	0.259	0.281	0.279	0.281	0.267	0.289	0.295	0.280	0.274	0.290	0.295	0.287	1.100	1.132	1.145
Subtotal	0.353	0.397	0.395	0.406	0.407	0.442	0.448	0.442	0.440	0.471	0.484	0.486	1.551	1.740	1.881
All Sectors Total															
Biodiesel, Renewable Diesel, and Other (g) ...	0.094	0.117	0.116	0.125	0.140	0.153	0.153	0.162	0.166	0.181	0.189	0.199	0.451	0.608	0.736
Biofuel Losses and Co-products (d)	0.203	0.203	0.197	0.206	0.199	0.205	0.206	0.201	0.203	0.204	0.207	0.207	0.808	0.811	0.821
Ethanol (f)	0.271	0.293	0.292	0.294	0.279	0.302	0.307	0.292	0.285	0.302	0.307	0.298	1.149	1.180	1.192
Geothermal	0.053	0.052	0.054	0.055	0.052	0.049	0.053	0.053	0.053	0.043	0.053	0.052	0.214	0.208	0.201
Hydroelectric Power (a)	0.659	0.615	0.555	0.489	0.556	0.646	0.566	0.555	0.655	0.721	0.585	0.538	2.317	2.323	2.499
Solar (b)(f)	0.377	0.568	0.559	0.366	0.405	0.673	0.700	0.477	0.548	0.903	0.933	0.617	1.870	2.255	3.001
Waste Biomass (c)	0.106	0.102	0.099	0.103	0.103	0.100	0.100	0.101	0.103	0.100	0.100	0.101	0.411	0.403	0.404
Wood Biomass	0.523	0.525	0.534	0.518	0.516	0.508	0.546	0.547	0.544	0.531	0.555	0.549	2.100	2.117	2.178
Wind	1.052	1.070	0.713	1.007	1.109	0.989	0.749	1.078	1.197	1.032	0.777	1.126	3.842	3.925	4.132
Total Consumption	3.337	3.543	3.118	3.161	3.358	3.623	3.381	3.465	3.753	4.016	3.705	3.688	13.159	13.827	15.163

(a) Conventional hydroelectric power only. Hydroelectricity generated by pumped storage is not included in renewable energy.

(b) Solar consumption in the electric power, commercial, and industrial sectors includes energy produced from large scale (>1 MW) solar thermal and photovoltaic generators and small-scale (<1 MW) distrib

(c) Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass.

(d) Losses and co-products from the production of fuel ethanol and biomass-based diesel

(e) Subtotals for the industrial and commercial sectors might not equal the sum of the components. The subtotal for the industrial sector includes ethanol consumption that is not shown separately. The subtotal for the commercial sector includes ethanol and hydroelectric consumption that are not shown separately.

(f) Solar consumption in the residential sector includes energy from small-scale (<1 MW) solar photovoltaic systems. Also includes solar heating consumption in all sectors.

(g) Fuel ethanol and biodiesel, renewable diesel, and other biofuels consumption in the transportation sector includes production, stock change, and imports less exports. Some biomass-based diesel may be consumed in the residential sector in heating oil.

- = no data available

Notes: EIA completed modeling and analysis for this report on July 6, 2023.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

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

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Macroeconomic															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR)	19,924	19,895	20,055	20,182	20,246	20,285	20,334	20,397	20,459	20,544	20,627	20,710	20,014	20,316	20,585
Real Personal Consumption Expend. (billion chained 2012 dollars - SAAR)	14,028	14,099	14,179	14,215	14,347	14,396	14,416	14,468	14,514	14,561	14,620	14,675	14,130	14,407	14,592
Real Private Fixed Investment (billion chained 2012 dollars - SAAR)	3,629	3,582	3,550	3,516	3,514	3,531	3,540	3,545	3,552	3,564	3,574	3,593	3,569	3,533	3,571
Business Inventory Change (billion chained 2012 dollars - SAAR)	257	145	71	162	17	51	24	11	15	42	55	58	159	26	42
Real Government Expenditures (billion chained 2012 dollars - SAAR)	3,393	3,379	3,411	3,442	3,486	3,495	3,514	3,518	3,525	3,532	3,537	3,544	3,406	3,503	3,535
Real Exports of Goods & Services (billion chained 2012 dollars - SAAR)	2,437	2,517	2,604	2,580	2,612	2,587	2,621	2,654	2,684	2,714	2,746	2,780	2,534	2,618	2,731
Real Imports of Goods & Services (billion chained 2012 dollars - SAAR)	3,926	3,947	3,873	3,818	3,856	3,903	3,926	3,945	3,980	4,013	4,048	4,086	3,891	3,908	4,031
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	15,109	15,022	15,141	15,236	15,526	15,620	15,740	15,819	15,922	16,039	16,127	16,205	15,127	15,676	16,073
Non-Farm Employment (millions)	150.8	152.0	153.3	154.3	155.2	156.0	156.5	156.6	156.6	156.5	156.5	156.5	152.6	156.1	156.5
Civilian Unemployment Rate (percent)	3.8	3.6	3.6	3.6	3.5	3.6	3.6	3.7	3.8	3.9	4.0	4.2	3.6	3.6	4.0
Housing Starts (millions - SAAR)	1.72	1.64	1.45	1.41	1.39	1.45	1.35	1.34	1.33	1.32	1.37	1.41	1.55	1.38	1.35
Industrial Production Indices (Index, 2017=100)															
Total Industrial Production	101.7	102.8	103.3	102.7	102.6	103.0	102.5	102.2	102.0	102.1	102.3	102.5	102.6	102.5	102.2
Manufacturing	100.1	100.8	100.9	100.0	99.8	100.4	99.5	99.6	99.7	99.9	100.3	100.8	100.5	99.8	100.2
Food	105.1	105.1	104.8	104.5	105.1	104.5	105.3	105.6	105.9	106.2	106.6	107.1	104.9	105.1	106.5
Paper	95.9	96.2	92.7	89.1	87.5	87.5	87.0	87.1	86.8	86.8	86.9	87.0	93.5	87.3	86.9
Petroleum and Coal Products	89.8	89.6	90.1	89.8	88.6	91.0	90.6	90.9	90.8	90.4	90.2	90.0	89.8	90.3	90.4
Chemicals	102.1	102.3	102.4	100.9	103.2	103.8	104.1	104.5	104.7	105.1	105.7	106.2	101.9	103.9	105.4
Nonmetallic Mineral Products	107.1	108.0	109.7	110.6	111.5	109.2	109.4	110.0	110.6	111.6	112.4	113.4	108.9	110.0	112.0
Primary Metals	94.9	96.4	95.7	92.5	92.2	93.9	92.1	92.4	91.4	91.7	92.6	92.8	94.9	92.7	92.2
Coal-weighted Manufacturing (a)	97.4	97.7	97.2	95.2	95.6	95.9	95.4	95.7	95.4	95.6	96.1	96.4	96.9	95.6	95.8
Distillate-weighted Manufacturing (a)	100.0	100.5	100.4	99.2	99.3	99.1	98.6	98.9	99.1	99.4	100.0	100.5	100.0	99.0	99.8
Electricity-weighted Manufacturing (a)	98.5	98.8	98.2	96.0	96.3	96.6	96.3	96.6	96.5	96.7	97.2	97.6	97.9	96.5	97.0
Natural Gas-weighted Manufacturing (a)	97.0	96.7	95.6	92.7	93.9	94.1	94.1	94.3	94.0	94.1	94.5	94.7	95.5	94.1	94.3
Price Indexes															
Consumer Price Index (all urban consumers) (index, 1982-1984=1.00)	2.85	2.92	2.95	2.99	3.01	3.03	3.05	3.07	3.09	3.11	3.13	3.15	2.93	3.04	3.12
Producer Price Index: All Commodities (index, 1982=1.00)	2.53	2.72	2.70	2.63	2.59	2.47	2.44	2.44	2.43	2.42	2.43	2.43	2.64	2.48	2.43
Producer Price Index: Petroleum (index, 1982=1.00)	3.16	4.21	3.74	3.44	3.09	2.82	2.48	2.45	2.50	2.58	2.57	2.55	3.64	2.71	2.55
GDP Implicit Price Deflator (index, 2012=100)	124.2	126.9	128.3	129.5	130.8	131.8	132.6	133.5	134.5	135.3	136.0	136.8	127.2	132.2	135.7
Miscellaneous															
Vehicle Miles Traveled (b) (million miles/day)	8,142	8,910	9,066	8,604	8,362	9,019	9,372	8,837	8,496	9,231	9,483	8,967	8,683	8,900	9,045
Air Travel Capacity (Available ton-miles/day, thousands)	656	686	692	700	683	720	722	702	672	716	742	718	684	707	712
Aircraft Utilization (Revenue ton-miles/day, thousands)	356	419	422	407	389	437	437	415	394	440	446	425	401	420	427
Airline Ticket Price Index (index, 1982-1984=100)	225.6	328.7	293.1	285.2	277.6	289.6	260.8	268.0	275.7	321.3	286.8	281.8	283.1	274.0	291.4
Raw Steel Production (million short tons per day)	0.253	0.253	0.247	0.235	0.236	0.242	0.248	0.246	0.240	0.239	0.247	0.246	0.247	0.243	0.243
Carbon Dioxide (CO2) Emissions (million metric tons)															
Petroleum	562	564	576	571	555	571	574	574	565	570	582	577	2,273	2,274	2,294
Natural Gas	510	374	401	461	501	384	413	456	508	371	408	450	1,746	1,755	1,737
Coal	244	215	264	212	183	157	237	172	180	162	224	167	935	749	732
Total Energy (c)	1,319	1,155	1,244	1,246	1,242	1,115	1,226	1,205	1,255	1,105	1,216	1,198	4,964	4,789	4,774

(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 July 6, 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 - July 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Real Gross State Product (Billion \$2012)															
New England	1,032	1,024	1,031	1,037	1,041	1,040	1,043	1,045	1,048	1,052	1,056	1,059	1,031	1,042	1,054
Middle Atlantic	2,858	2,858	2,879	2,886	2,894	2,898	2,903	2,911	2,920	2,932	2,943	2,954	2,870	2,901	2,937
E. N. Central	2,596	2,583	2,592	2,596	2,600	2,606	2,611	2,617	2,623	2,631	2,639	2,646	2,592	2,608	2,635
W. N. Central	1,220	1,215	1,220	1,221	1,226	1,227	1,228	1,232	1,236	1,241	1,246	1,250	1,219	1,228	1,243
S. Atlantic	3,578	3,578	3,601	3,627	3,637	3,645	3,657	3,672	3,684	3,701	3,717	3,733	3,596	3,653	3,709
E. S. Central	884	883	887	895	897	898	899	901	903	906	909	911	887	899	907
W. S. Central	2,377	2,383	2,424	2,460	2,478	2,486	2,494	2,502	2,511	2,524	2,537	2,549	2,411	2,490	2,530
Mountain	1,359	1,354	1,366	1,378	1,382	1,384	1,389	1,394	1,399	1,406	1,412	1,419	1,364	1,387	1,409
Pacific	3,805	3,802	3,838	3,865	3,874	3,882	3,891	3,902	3,915	3,931	3,947	3,964	3,828	3,887	3,939
Industrial Output, Manufacturing (Index, Year 2017=100)															
New England	97.6	97.9	97.5	96.2	96.1	96.3	95.3	95.3	95.5	95.7	96.2	96.6	97.3	95.8	96.0
Middle Atlantic	95.9	96.6	96.4	95.4	95.0	95.4	94.5	94.4	94.3	94.5	94.8	95.2	96.1	94.8	94.7
E. N. Central	97.4	97.8	97.8	96.6	96.2	96.8	96.1	96.1	96.2	96.3	96.6	96.9	97.4	96.3	96.5
W. N. Central	100.9	101.7	101.8	101.3	101.3	102.0	101.1	101.2	101.4	101.6	102.1	102.5	101.5	101.4	101.9
S. Atlantic	102.5	103.2	103.2	102.3	102.0	102.5	101.7	101.8	102.0	102.3	102.9	103.4	102.8	102.0	102.6
E. S. Central	100.2	101.2	101.5	100.5	100.3	100.9	100.1	100.0	99.9	100.0	100.3	100.6	100.9	100.3	100.2
W. S. Central	102.4	103.6	104.3	104.1	104.1	104.8	104.0	104.1	104.3	104.6	105.1	105.6	103.6	104.2	104.9
Mountain	111.6	112.5	112.7	111.3	111.5	112.2	111.3	111.4	111.5	111.7	112.2	112.6	112.0	111.6	112.0
Pacific	97.7	98.3	98.4	97.5	97.2	97.5	96.6	96.7	96.9	97.1	97.6	98.0	98.0	97.0	97.4
Real Personal Income (Billion \$2012)															
New England	950	940	940	947	942	945	950	953	958	962	966	970	944	947	964
Middle Atlantic	2,414	2,392	2,398	2,402	2,407	2,415	2,426	2,434	2,446	2,458	2,468	2,477	2,401	2,421	2,462
E. N. Central	2,449	2,430	2,438	2,440	2,439	2,445	2,457	2,465	2,478	2,490	2,501	2,510	2,439	2,451	2,495
W. N. Central	1,165	1,161	1,175	1,173	1,175	1,176	1,181	1,186	1,192	1,198	1,204	1,209	1,169	1,180	1,201
S. Atlantic	3,396	3,385	3,423	3,434	3,448	3,466	3,490	3,509	3,533	3,555	3,575	3,593	3,410	3,478	3,564
E. S. Central	943	937	943	944	946	947	951	953	956	960	963	966	942	949	961
W. S. Central	2,084	2,085	2,111	2,117	2,128	2,137	2,149	2,158	2,172	2,186	2,199	2,210	2,099	2,143	2,192
Mountain	1,307	1,307	1,324	1,320	1,322	1,327	1,334	1,340	1,347	1,354	1,360	1,366	1,315	1,331	1,357
Pacific	2,956	2,929	2,943	2,974	2,960	2,973	2,993	3,007	3,025	3,043	3,059	3,074	2,951	2,983	3,050
Households (Thousands)															
New England	6,101	6,100	6,098	6,100	6,118	6,128	6,140	6,150	6,157	6,164	6,170	6,176	6,100	6,150	6,176
Middle Atlantic	16,124	16,119	16,108	16,110	16,151	16,174	16,201	16,229	16,249	16,268	16,288	16,308	16,110	16,229	16,308
E. N. Central	19,058	19,063	19,061	19,069	19,112	19,139	19,175	19,211	19,235	19,257	19,281	19,302	19,069	19,211	19,302
W. N. Central	8,655	8,668	8,678	8,690	8,722	8,745	8,772	8,798	8,820	8,839	8,857	8,875	8,690	8,798	8,875
S. Atlantic	27,104	27,219	27,316	27,397	27,530	27,632	27,736	27,832	27,908	27,977	28,045	28,106	27,397	27,832	28,106
E. S. Central	7,825	7,847	7,864	7,886	7,924	7,955	7,985	8,016	8,041	8,064	8,085	8,106	7,886	8,016	8,106
W. S. Central	15,856	15,922	15,980	16,030	16,109	16,171	16,238	16,301	16,352	16,400	16,453	16,504	16,030	16,301	16,504
Mountain	9,792	9,826	9,858	9,882	9,934	9,975	10,018	10,060	10,097	10,133	10,168	10,204	9,882	10,060	10,204
Pacific	19,052	19,064	19,068	19,074	19,128	19,158	19,191	19,222	19,244	19,265	19,289	19,315	19,074	19,222	19,315
Total Non-farm Employment (Millions)															
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	20.3	19.8	20.2	20.3
E. N. Central	21.9	22.0	22.2	22.3	22.4	22.5	22.5	22.5	22.5	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	30.9	30.9	30.9	30.9	30.9	30.9	30.0	30.8	30.9
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	19.0	19.1	19.1	19.1	19.1	19.1	18.4	19.0	19.1
Mountain	11.5	11.6	11.7	11.7	11.8	11.9	11.9	11.9	11.9	11.9	11.9	12.0	11.6	11.9	11.9
Pacific	23.8	24.1	24.2	24.4	24.6	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.1	24.7	24.7

- = no data available

Notes: EIA completed modeling and analysis for this report on July 6, 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 - July 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Heating Degree Days															
New England	3,136	785	113	1,978	2,712	851	129	2,061	2,980	828	132	2,054	6,013	5,753	5,993
Middle Atlantic	2,933	667	72	1,960	2,452	655	86	1,887	2,755	662	87	1,880	5,632	5,080	5,384
E. N. Central	3,269	754	98	2,227	2,728	717	118	2,160	3,038	710	122	2,155	6,348	5,723	6,026
W. N. Central	3,486	792	111	2,516	3,167	652	152	2,363	3,183	708	154	2,360	6,905	6,334	6,406
South Atlantic	1,341	188	13	979	1,057	189	13	898	1,295	181	13	891	2,522	2,156	2,380
E. S. Central	1,830	249	22	1,339	1,395	261	20	1,247	1,712	236	19	1,243	3,439	2,922	3,210
W. S. Central	1,334	56	2	802	928	94	5	775	1,105	86	5	772	2,193	1,802	1,968
Mountain	2,298	733	84	2,016	2,566	692	150	1,820	2,139	701	152	1,815	5,131	5,227	4,807
Pacific	1,399	605	49	1,298	1,834	630	88	1,147	1,423	576	94	1,144	3,351	3,699	3,238
U.S. Average	2,146	490	54	1,552	1,921	482	73	1,461	2,005	472	75	1,454	4,242	3,938	4,006
Heating Degree Days, Prior 10-year Average															
New England	3,100	853	107	2,103	3,150	859	106	2,093	3,110	859	102	2,069	6,163	6,208	6,141
Middle Atlantic	2,881	681	70	1,904	2,939	689	69	1,907	2,889	685	65	1,889	5,536	5,603	5,529
E. N. Central	3,133	727	97	2,162	3,215	741	93	2,169	3,159	737	93	2,139	6,119	6,218	6,128
W. N. Central	3,221	726	125	2,358	3,319	754	121	2,374	3,295	729	126	2,338	6,430	6,568	6,488
South Atlantic	1,381	187	11	907	1,403	190	10	905	1,357	188	10	896	2,486	2,508	2,450
E. S. Central	1,764	244	15	1,229	1,811	251	14	1,231	1,757	248	15	1,214	3,251	3,307	3,234
W. S. Central	1,144	93	3	753	1,188	95	3	762	1,163	91	3	738	1,993	2,047	1,995
Mountain	2,173	681	131	1,810	2,193	696	128	1,834	2,208	693	130	1,817	4,794	4,851	4,848
Pacific	1,457	523	79	1,138	1,441	523	75	1,150	1,469	536	76	1,142	3,196	3,190	3,223
U.S. Average	2,095	478	62	1,472	2,132	485	60	1,477	2,102	482	60	1,457	4,107	4,155	4,101
Cooling Degree Days															
New England	0	81	566	0	0	63	495	1	0	99	509	1	647	559	610
Middle Atlantic	0	153	688	1	0	91	637	5	0	185	664	5	842	733	854
E. N. Central	1	257	556	2	0	164	587	7	1	249	608	7	816	759	865
W. N. Central	3	306	734	8	1	310	698	11	5	298	736	11	1,051	1,020	1,049
South Atlantic	156	713	1,196	231	202	580	1,248	254	138	711	1,286	257	2,296	2,285	2,391
E. S. Central	28	598	1,065	37	63	438	1,106	67	34	545	1,129	68	1,728	1,674	1,776
W. S. Central	57	1,094	1,667	171	152	878	1,601	209	104	923	1,626	210	2,989	2,841	2,863
Mountain	17	473	1,022	65	3	324	992	83	21	456	1,031	84	1,577	1,402	1,592
Pacific	31	221	756	80	26	96	660	78	28	205	719	79	1,089	860	1,031
U.S. Average	47	467	951	89	68	353	932	104	50	444	968	105	1,554	1,457	1,567
Cooling Degree Days, Prior 10-year Average															
New England	0	87	472	2	0	87	480	2	0	84	485	2	561	569	571
Middle Atlantic	0	163	612	8	0	160	617	8	0	154	629	8	783	785	790
E. N. Central	3	238	571	9	1	234	561	10	1	229	573	10	821	805	812
W. N. Central	7	299	682	11	4	292	674	12	4	300	679	12	999	982	995
South Atlantic	146	667	1,188	268	143	675	1,192	272	153	673	1,213	272	2,269	2,282	2,311
E. S. Central	44	517	1,056	83	36	520	1,058	83	41	519	1,078	84	1,701	1,697	1,721
W. S. Central	113	852	1,537	224	101	860	1,549	223	109	870	1,558	227	2,726	2,733	2,764
Mountain	24	463	954	85	24	460	959	83	22	445	966	86	1,526	1,526	1,519
Pacific	31	208	664	85	32	214	675	86	32	201	681	89	988	1,006	1,003
U.S. Average	53	413	890	109	50	416	895	109	53	413	908	111	1,464	1,470	1,485

- = no data available

Notes: EIA completed modeling and analysis for this report on July 6, 2023.

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

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

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

Regions refer to U.S. Census divisions. See "Census division" in EIA's Energy Glossary (<http://www.eia.gov/tools/glossary/>) for a list of states in each region.**Historical data:** Latest data available from U.S. Department of Commerce, National Oceanic and Atmospheric Association (NOAA).**Forecasts:** Current month based on forecasts by the NOAA Climate Prediction Center (<http://www.cpc.ncep.noaa.gov/pacdir/DDdir/NHOME3.shtml>). Remaining months based on the 30-year trend.