

Short-Term Energy Outlook

STEO

April 2023



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Short-Term Energy Outlook

Overview

U.S. energy market indicators	2022	2023	2024
Brent crude oil spot price (dollars per barrel)	\$101	\$85	\$81
Retail gasoline price (dollars per gallon)	\$3.97	\$3.42	\$3.18
U.S. crude oil production (million barrels per day)	11.88	12.54	12.75
Natural gas price at Henry Hub (dollars per million British thermal units)	\$6.42	\$2.94	\$3.71
U.S. liquefied natural gas gross exports (billion cubic feet per day)	10.6	12.1	12.7
Shares of U.S. electricity generation			
Natural gas	39%	39%	37%
Coal	20%	17%	17%
Renewables	22%	24%	26%
Nuclear	19%	20%	20%
U.S. GDP (percentage change)	2.1%	1.1%	1.8%
U.S. CO₂ emissions (billion metric tons)	4.96	4.79	4.82

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

- Global liquid fuels production.** On April 3, OPEC and partner countries announced they would cut crude oil production by 1.2 million barrels per day (b/d) through the end of 2023. Our March STEO accounted for some declines in OPEC production in the coming months. However, as a result of the announcement, we reduced our forecast of OPEC production by 0.5 million b/d for the rest of 2023. Overall, we expect less global liquid fuels production this year than in last month's STEO. However, less production from OPEC was partly offset by a 0.3 million b/d increase in our forecast for Russia's liquid fuels production over the rest of this year.
- Crude oil prices.** The Brent crude oil spot price in our forecast averages \$85 per barrel (b) in 2023, up \$2/b from last month's forecast. The higher price forecast reflects a forecast for less global production in 2023 and a relatively unchanged outlook for global oil consumption. Despite our higher price forecast, recent issues in the banking sector raise the potential that economic and oil demand growth will be lower than our forecast, which has the potential to result in lower oil prices.
- U.S. gasoline prices.** We forecast retail gasoline prices will peak between \$3.50 per gallon (gal) and \$3.60/gal in June and average about \$3.50/gal throughout the summer season (April through September). This month we will release our [inaugural Perspectives supplement](#), which discusses alternative scenarios for summer gasoline prices and how they affect our estimates of consumer spending.

- **Natural gas storage.** Mild winter weather in the first quarter of 2023 (1Q23) resulted in natural gas inventories ending the withdrawal season (November–March) 19% higher than the five-year (2018–2022) average. We forecast natural gas inventories will end the injection season (April–October) at 3.8 trillion cubic feet, 6% above the five-year average.
- **Natural gas prices.** We forecast that the Henry Hub natural gas spot price will average about \$2.65 per million British thermal units (MMBtu) in 2Q23 as natural gas inventories begin to rise. With inventories remaining above the five-year average in 2023, we expect natural gas prices to average less than \$3.00/MMBtu for 2023, a more than 50% decrease from last year.
- **Electricity.** U.S. electricity demand in 2Q23 in our forecast is down about 1% from the same period last year. The drop in demand largely reflects our expectation for milder temperatures than last year. Less demand, along with growing generation from renewable energy sources and lower natural gas prices significantly lower electric power prices in our forecast for 2Q23 and 3Q23 compared with the same periods in 2022.

Notable forecast changes

current forecast: April 11, 2023; previous forecast: March 7, 2023	2023	2024
Brent spot average (current forecast) (dollars per barrel)	\$85.01	\$81.21
Previous forecast	\$82.95	\$77.57
Percentage change	2.5%	4.7%
OPEC crude oil production (current forecast) (million barrels per day)	33.7	34.6
Previous forecast	34.1	34.7
Percentage change	-1.1%	-0.3%
U.S. secondary coal inventories (current forecast) (million short tons)	129.8	100.2
Previous forecast	123.6	98.4
Percentage change	5.0%	1.9%

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

Global Oil Markets

Global oil supply

On April 3, OPEC and partner countries (OPEC+) [announced plans to cut crude oil production by 1.2 million barrels per day \(b/d\)](#) through the end of 2023. In March, OPEC produced less than its previous targets, and in our March STEO, we had assumed that OPEC production would fall further below the prior production targets in the coming month. Because we had already accounted for some of the reduction in crude oil output from OPEC countries subject to the cuts, we have reduced our forecast for OPEC's crude oil production from the second quarter of 2023 (2Q23) through 4Q23 by around 0.5 million b/d. We now expect OPEC's crude oil production will fall by an average 0.4 million b/d this year compared with last year.

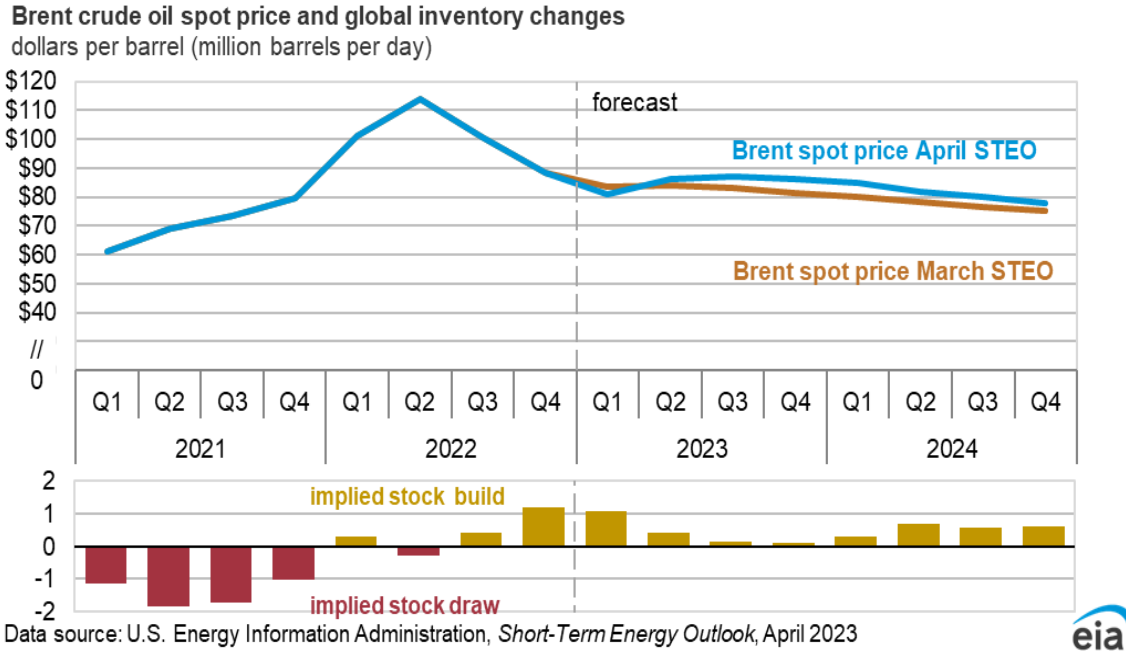
These production cuts were in addition to Russia's 0.5 million b/d cut that it previously announced would begin in March. Despite this announcement, the observable impact on Russia's liquids production and exports in the latest available data has been less significant than expected. Although we still expect Russia's production to fall this year, Russia's production outpaced our earlier expectations because its exports have continued to find buyers in markets outside of Europe. We forecast Russia's petroleum and other liquids production will decline from 10.9 million b/d in 2022 to 10.6 million b/d in 2023 and to 10.4 million b/d in 2024, which are both about 0.3 million b/d more than we forecast in last month's STEO.

Although our forecast includes declining production in OPEC and Russia, we expect global liquids fuel production will increase by 1.5 million b/d in 2023 because of strong growth from non-OPEC countries, which (excluding Russia) increase by 2.3 million b/d in our forecast. Non-OPEC production growth is largely driven by countries in North and South America, as highlighted in our latest [STEO Between the Lines](#).

Global liquids production rises by an additional 2.0 million b/d in 2024 in the forecast, driven by non-OPEC production growth of 1.0 million b/d and by OPEC crude oil production, which we expect to increase by 0.9 million b/d when current production cuts expire at the end of 2023.

Global oil demand and prices

We forecast that global liquid fuels consumption will rise by 1.4 million b/d in 2023 and by 1.8 million b/d in 2024. Our forecast for global liquid fuels consumption is unchanged from last month's outlook. However, increasing risks in the U.S. and global banking sectors increases uncertainty about macroeconomic conditions and their potential effects on liquid fuels consumption, which increases the possibility of liquid fuels consumption being lower than our current forecast.



We expect global oil markets will be in relative balance over the coming year. Global oil inventories, which increased by 0.4 million b/d in 2022 and by 1.1 million b/d in 1Q23, will be mostly unchanged during the second half of 2023 (2H23). We expect builds will average about 0.5 million b/d beginning in 2024. This forecast assumes the recent OPEC cuts expire at the beginning of 2024.

Given our forecast of relatively balanced oil markets in 2H23, we expect prices will average \$86 per barrel (b) for the rest of 2023. That price is similar to the April 6 closing spot price for Brent, which was almost \$87/b, as reported by Refinitiv. In 2023, we assess that the most uncertainty in our oil price forecast comes from less-than-forecast economic and oil demand growth.

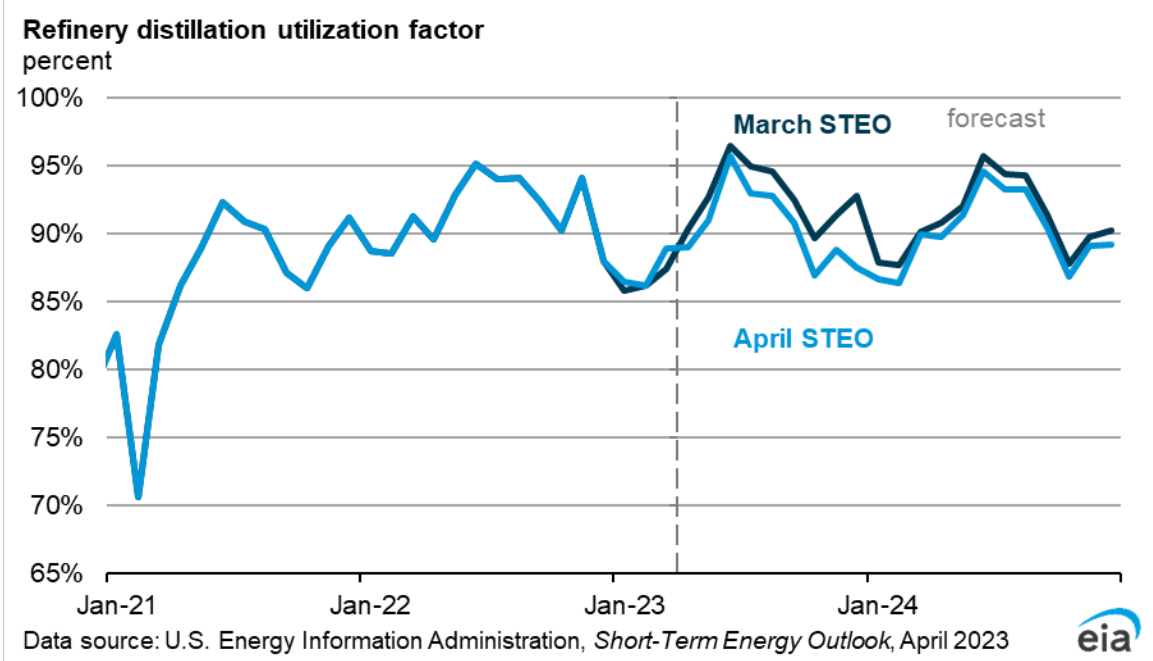
We forecast Brent prices will average \$81/b in 2024 with downward price pressures emerging in 2Q24, when we expect global oil inventories will begin to build more significantly. However, because these builds depend on OPEC increasing its crude oil production, uncertainty in the forecast for this period comes from less oil production than we forecast, which could result in higher prices than in our forecast.

Petroleum Products

U.S. refinery utilization

We updated our U.S. refinery capacity forecast in the April STEO. In mid-March, [ExxonMobil announced](#) that it had completed expansion of capacity at its Beaumont refinery. In last month’s STEO forecast we expected that this expanded capacity would come online by the end of May. In the April STEO, we also incorporated smaller capacity additions, including additional processing capacity at Marathon Petroleum’s Galveston Bay refinery, which we expect to be operational by the second half of 2023 (2H23), and additional capacity at Chevron’s Pasadena refinery in 2024. LyondellBasel has also announced the closure of its Houston refinery at the end of 2023, and we had already included this closure in our previous forecast.

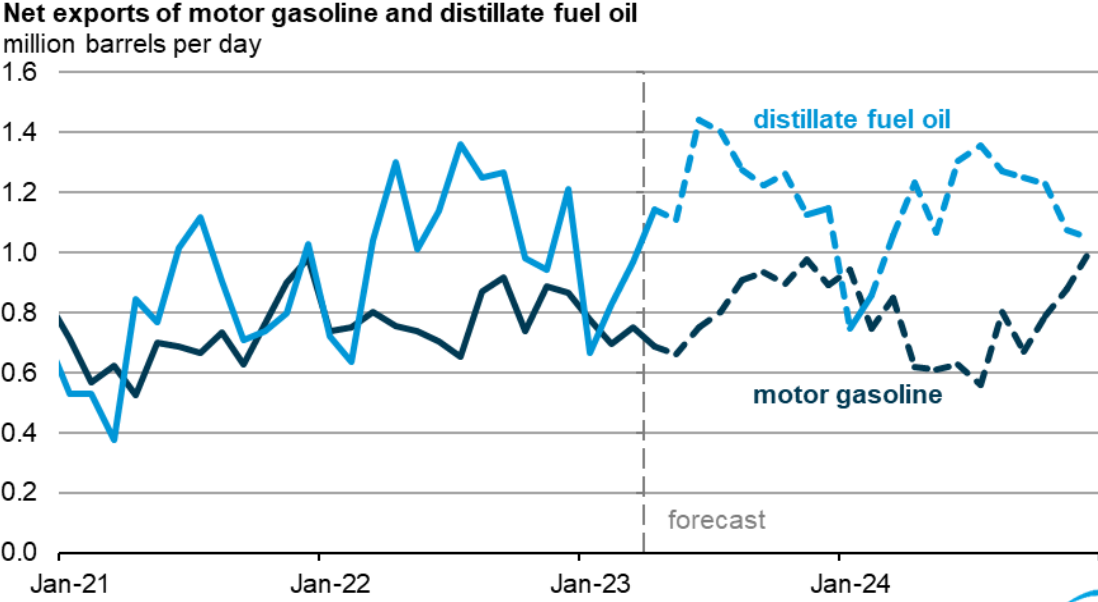
Although we increased refining capacity in the April STEO, we reduced our outlook for refinery throughput for the rest of the forecast compared with the March STEO. The reduced throughput forecast was the result of higher crude oil prices in our April STEO, in response to OPEC production cuts, which reduce refinery margins and lower runs, along with a reduced outlook for net exports. We expect U.S. refinery utilization to average 90% this year and in 2024, when we expect less net U.S. petroleum product exports will be offset by more domestic petroleum consumption.



Petroleum product net exports

U.S. exports of petroleum products set a new record in 2022. The record exports were the result of higher demand for U.S. exports amid shifting international trade as a result of policy initiatives associated with Russia’s invasion of Ukraine. Russia had been a major supplier of diesel to Europe. Following Europe’s ban on seaborne imports of petroleum from Russia, Europe struggled to find new sources of diesel, which raised demand for U.S. diesel exports. Less petroleum exported from China also increased demand for U.S. exports to meet global demand for gasoline and diesel.

In 2023, we estimate refinery production of gasoline will increase by more than U.S. consumption, raising stocks, lowering prices, and increasing net exports compared with 2022. In the forecast, net exports of gasoline average 810,000 b/d in 2023, up from 780,000 b/d in 2022, in response to increased U.S. gasoline production and more consumption globally. We expect similar trends for distillate, with net exports averaging 1.1 million b/d in both 2023 and 2024. Calls on U.S. distillate exports to replace sanctioned volumes in Europe are likely to increase U.S. distillate exports in 2023.



Many refiners have already switched to producing more expensive summer-grade gasoline to comply with [seasonal Reid vapor pressure \(RVP\) requirements](#) on gasoline. We expect regular-grade retail gasoline prices in the summer (April through September) to average about \$3.50 per gallon, almost 20% lower than retail gasoline prices last summer. The [Perspectives](#) supplement, released alongside our April STEO, discusses our forecast for gasoline expenditures and alternative scenarios for gasoline prices this summer.

Natural Gas

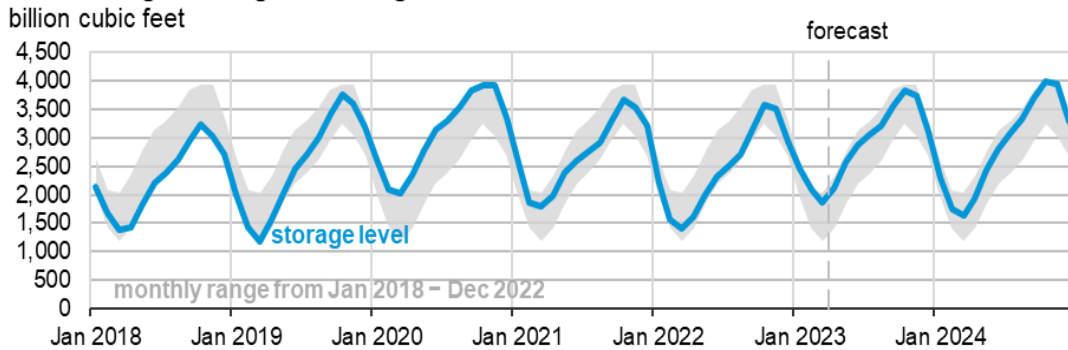
Natural gas storage

At the end of March, typically considered the end of the U.S. storage withdrawal season (November–March), we estimate working natural gas in U.S. storage reached 1,856 billion cubic feet (Bcf), 19% more than the five-year (2018–2022) average. Lower-than-average withdrawals of natural gas from storage in the first quarter of 2023 (1Q23) resulted in natural gas inventories rising above the five-year average and contributed to falling natural gas prices. The natural gas spot price at Henry Hub averaged \$5.45 per million British thermal units (MMBtu) in November 2022 and declined to average \$2.31/MMBtu in March.

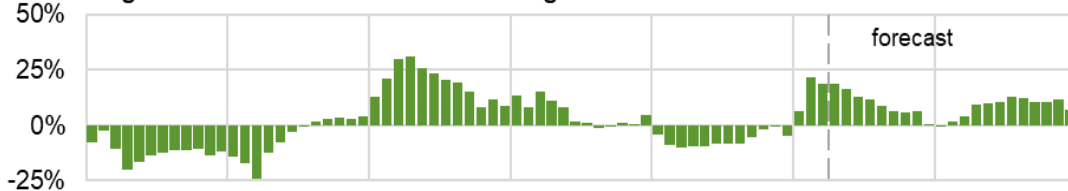
We expect U.S. natural gas inventories to increase by 1,985 Bcf during this year’s injection season (April–October), similar to the five-year average for summer injections, which would result in 8% higher inventories than last year’s end-of-October stocks. Natural gas inventories in our forecast total 3,842 Bcf at the end of October, 6% above the five-year average. Ultimately, natural gas inventories at the end of October will depend on temperatures throughout the summer. Other factors equal, a warmer summer than we forecast would result in more demand for cooling, leading to more natural gas consumption in the electric power sector and less natural gas in storage, putting upward pressure on natural gas prices.

Cooler summer weather than we forecast would reduce consumption, increase storage, and put downward pressure on prices.

U.S. working natural gas in storage



Percentage deviation from 2018 - 2022 average



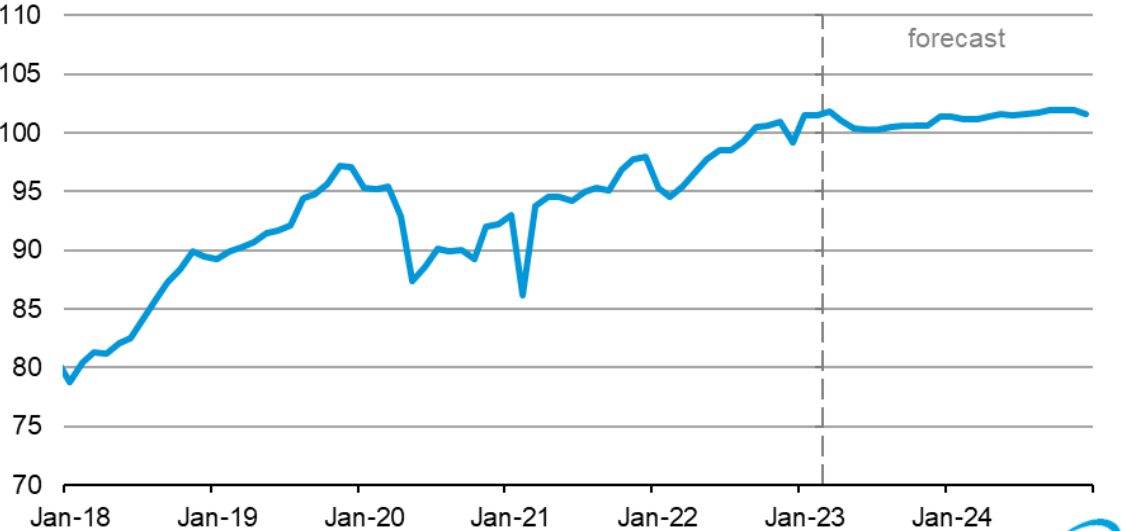
Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, April 2023



Natural gas production

Dry natural gas production averaged 101.6 billion cubic feet per day (Bcf/d) in the United States during 1Q23, up 1.4% from 4Q22. Moderate weather in 1Q23 created no major production disruptions due to freeze-offs. Associated natural gas production from the Permian Basin and production from the Haynesville region, which [established new records in early 2023](#), contributed to rising U.S. natural gas production in 1Q23. We forecast slight declines in U.S. natural gas production in April and May because of pipeline maintenance in West Texas and the Northeast, with U.S. production averaging 100.6 Bcf/d in our forecast for the remainder of 2023. In our forecast, U.S. natural gas production averages 100.9 Bcf/d for 2023, 3% more than in 2022. However, if production were to increase by more than our forecast, it could put downward pressure on natural gas prices. Alternatively, if declines are more than in our forecast, it would likely lead to higher prices, other factors equal.

U.S. dry natural gas production
billion cubic feet per day



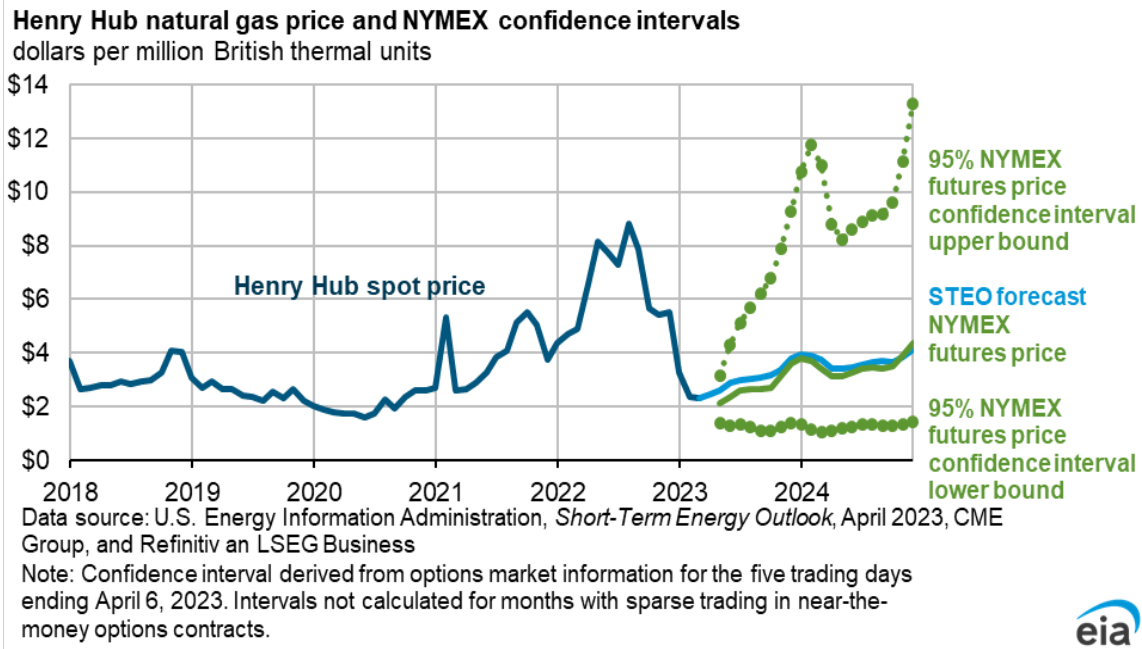
Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, April 2023



Natural gas prices

We expect the U.S. benchmark Henry Hub natural gas spot price to average \$2.65/MMBtu for 2Q23, unchanged from the 1Q23 average. Natural gas prices typically decrease in the spring as more moderate temperatures reduce demand for natural gas for space heating. However, a spring-like pattern emerged early this year, reducing natural gas consumption in the first two months of the year compared with both year-ago levels and the five-year average, reducing natural gas prices.

We expect relatively flat U.S. natural gas production, rising demand for feed gas from Freeport LNG as the export terminal returns to full operations, and increased natural gas consumption in the electric power sector to raise natural gas prices through the summer. We forecast the Henry Hub price to average slightly more than \$3.00/MMBtu in 3Q23.

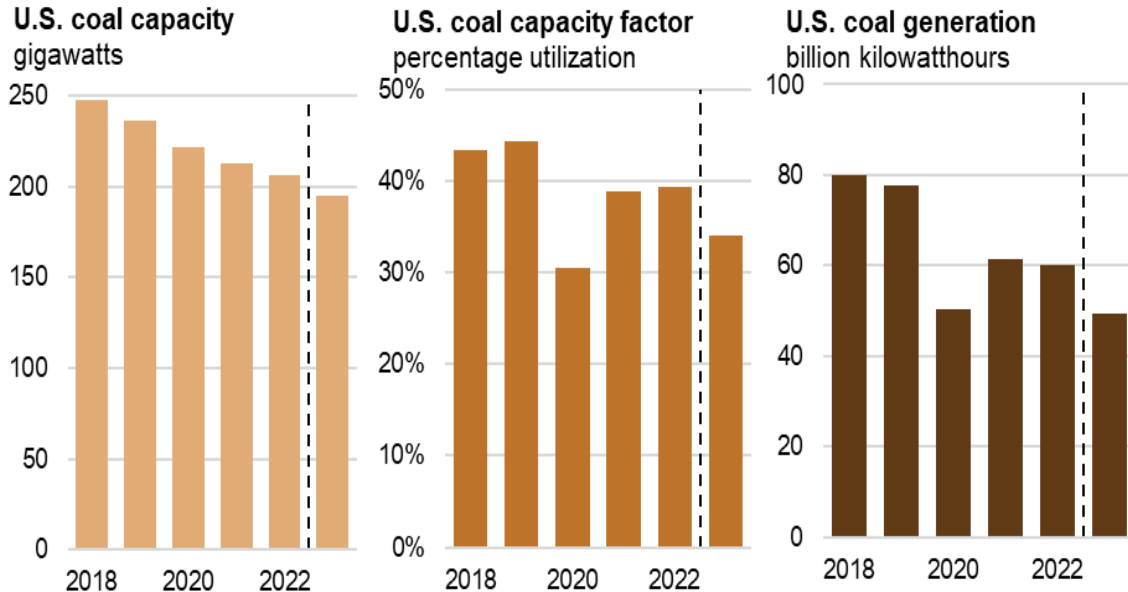


Electricity, Coal, and Renewables

Electricity markets

During the spring months (March–May), U.S. electricity demand is usually at its lowest because the need for both air conditioning and space heating declines. Power plant operators take advantage of this lull in consumption to perform necessary maintenance on their generating units, especially for thermal plants—both coal and gas-fired—and nuclear generators. In contrast, output from renewable sources, especially wind, usually increases in the spring due to stronger winds.

Even with normally low seasonal generation, we expect that coal-fired power plants will provide significantly less generation this spring than in past years. We forecast 17% less U.S. coal-fired generation in the spring of 2023 than in the spring of 2022. Coal plants that retired in the past year will reduce coal-fired generating capacity by about 11 gigawatts (5%) compared with the spring of 2022. In addition, we expect existing coal generators to operate at lower utilization rates this spring in response to lower natural gas prices.



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



Nuclear reactors are taken offline every 18 or 24 months for refueling and general maintenance. The timing of the cycles means that fewer reactors will need to refuel in the United States this spring than last spring. As a result, we forecast about the same amount of nuclear generation in spring 2023, 1% more than during the same months last year. This fairly stable amount of generation should occur despite the Palisades nuclear plant’s retirement in Michigan last summer. A new reactor is scheduled to come online at the Vogtle plant in Georgia by July 2023, which will be the first addition to the U.S. nuclear generating fleet since 2016.

We expect coal will provide an average of 17% of total U.S. generation this year, down from 20% last year. The share of total generation supplied by natural gas remains about the same this year at 39%. The nuclear share of generation rises slightly from 19% in 2022 to 20% this year. Generation from renewable energy sources grows the most in the forecast, increasing from a share of 22% last year to 24% this year. Much of the growth in renewables generation comes from an additional 27 gigawatts of new solar capacity this year, up 38% from last year.

Lower natural gas costs are major driver of our forecast that wholesale power prices in 2023 will fall from last year. For example, we expect the on-peak wholesale price at the North hub in Texas’s ERCOT power market will average about \$35 per megawatthour (MWh) this year compared with an average of nearly \$80/MWh last year.

Coal markets

U.S. coal production increased 9%, from more than 46 million short tons (MMst) in February to almost 51 MMst in March. However, we expect increases will be temporary, and annual U.S. coal production declines by 6% from last year in our forecast to less than 560 MMst this year, with a further 9% decline next year. Among the drivers of the steady decline is the ongoing retirement of coal-fired generating plants, low natural gas prices, and growing renewable generation. We expect 11 GW of coal-fired

capacity will retire and 77 GW of new wind and solar capacity will come online from the end of 2022 to the end of 2024. Low natural gas prices decrease coal’s competitiveness compared with natural gas for electricity generation. We expect the declines in coal consumption by the power sector will increase coal inventories at power plants in the coming months, because some power plants will continue to take delivery of coal purchased under contract for future delivery. However, we expect high inventory levels heading into 2024 to contribute to the accelerating declines in coal production next year.

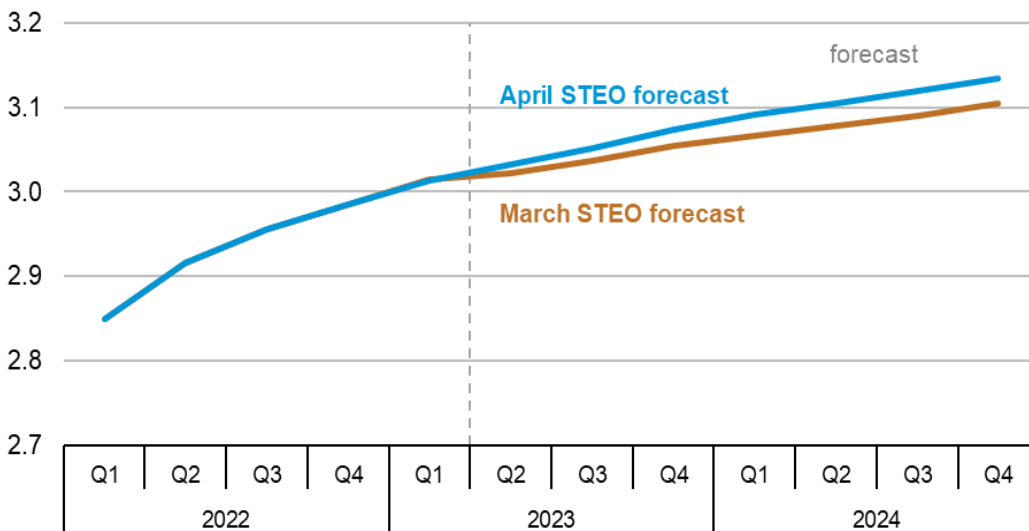
Economy, Weather, and CO₂

U.S. macroeconomics

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

S&P Global estimates that U.S. GDP contracted in the first quarter of 2023 (1Q23), but it expects a return to growth in 2Q23. Our forecast assumes the annual growth rate of real GDP for 2023 will be 1.1%. Residential fixed investment, private business inventories of goods, and industrial production continue to limit overall economic growth.

Consumer price index
normalized, 1982 = 1.0



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



U.S. consumer spending is shifting away from goods toward services, reallocating economic activity away from manufacturing. In addition to upward revisions to the forecast of real U.S. GDP, inflation was revised upward in the April STEO compared with the March STEO. High inflation in fuel prices observed in early to mid-2022 has eased, but the CPI forecast was revised upward because inflation in the service sector has remained persistent.

Emissions

Energy-related U.S. carbon dioxide (CO₂) emissions in our forecast decline by 3% in 2023 and then rise slightly in 2024. In percentage terms in 2023, CO₂ emissions from coal fall the most, 14%, followed by CO₂ emissions from natural gas which fall by 2%. Petroleum emissions fall by 1%. Reduced coal CO₂ emissions are due to less coal-fired electricity generation, which falls by about 17% in 2023. Natural gas CO₂ emissions decline mostly because of less-than-expected space heating demand in residential and commercial buildings.

Weather

The United States ended a mild winter season in 1Q23 with 10% fewer HDDs than in 1Q22. Based on forecasts from the National Oceanic and Atmospheric Administration, we expect 8% fewer CDDs in 2023 compared with 2022 and 2% fewer than the 10-year average. Realized weather patterns over the summer months will affect overall cooling demand and so introduce some uncertainty in our CDD forecast.

Short-Term Energy Outlook Chart Gallery



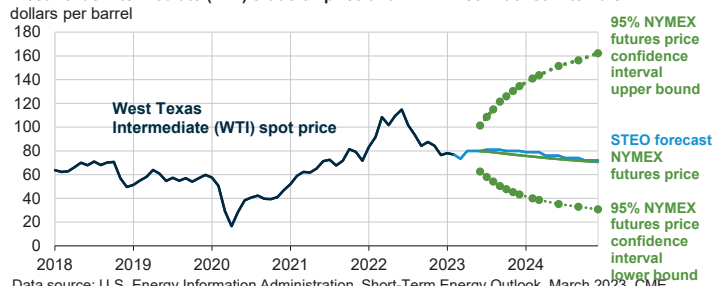
April 11, 2023



U.S. Energy Information Administration

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

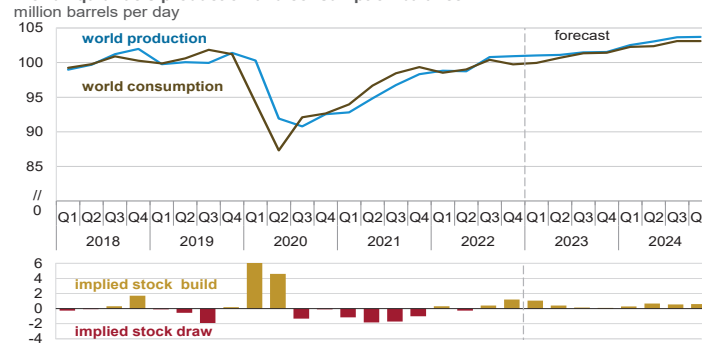


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023, CME Group, Bloomberg, L.P., and Refinitiv an LSEG Business

Note: Confidence interval derived from options market information for the five trading days ending April 6, 2023. Intervals not calculated for months with sparse trading in near-the-money options contracts.



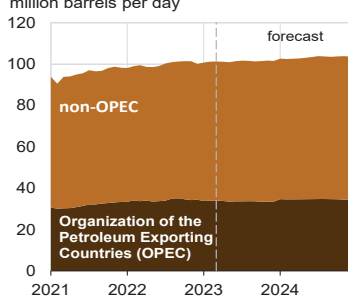
World liquid fuels production and consumption balance



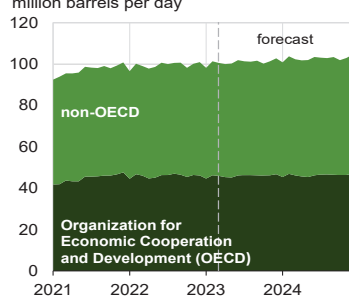
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023



World liquid fuels production



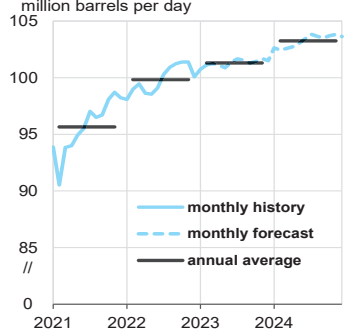
World liquid fuels consumption



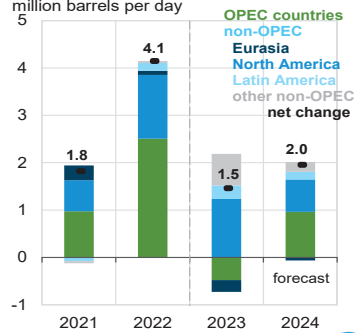
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023



World crude oil and liquid fuels production



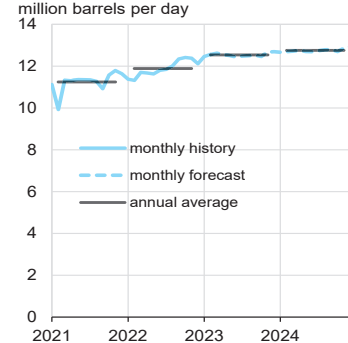
Components of annual change



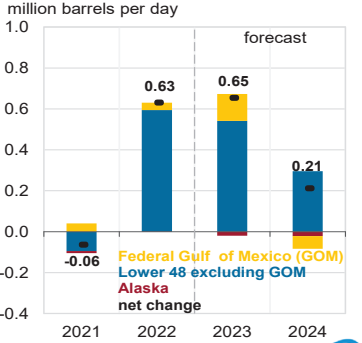
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023



U.S. crude oil production



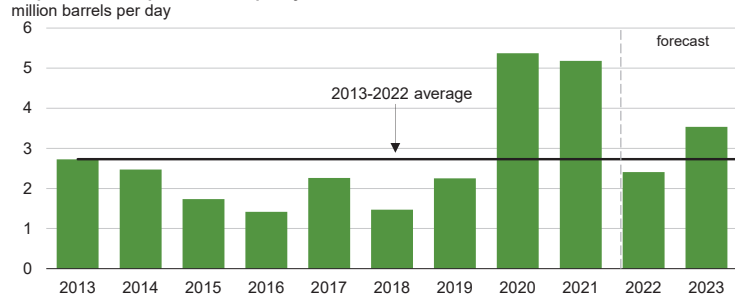
Components of annual change



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



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

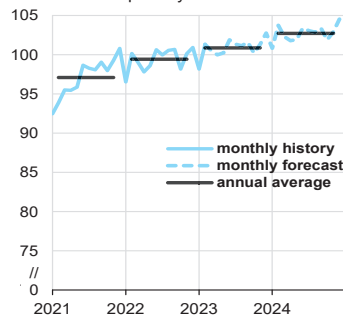


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023

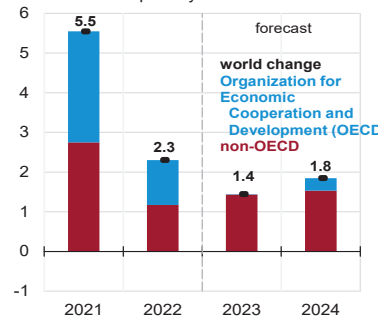
Note: Black line represents 2013-2022 average (2.7 million barrels per day).



World liquid fuels consumption



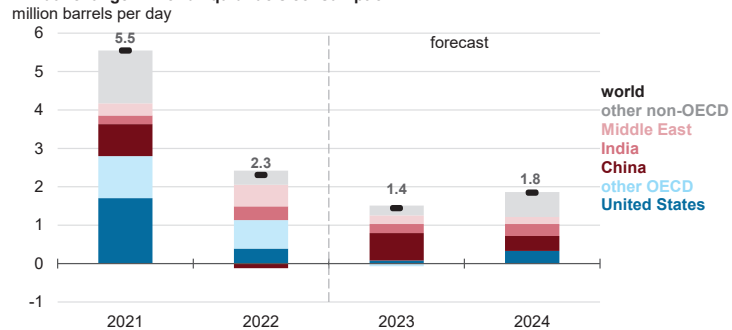
Components of annual change



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



Annual change in world liquid fuels consumption

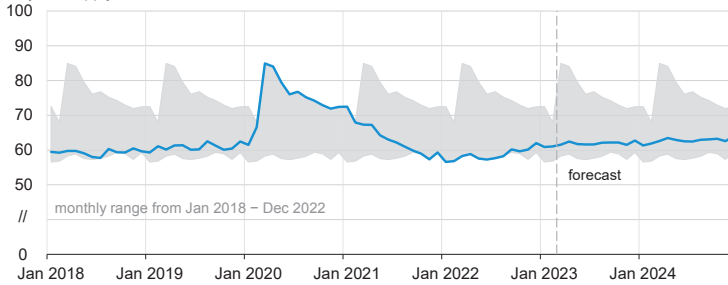


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023



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

days of supply

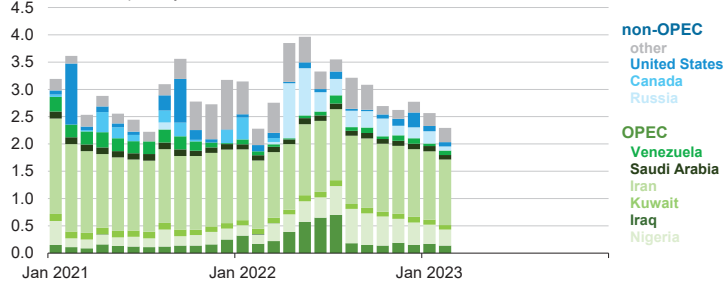


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023



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

million barrels per day

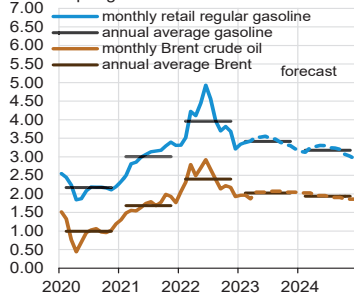


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023



U.S. gasoline and crude oil prices

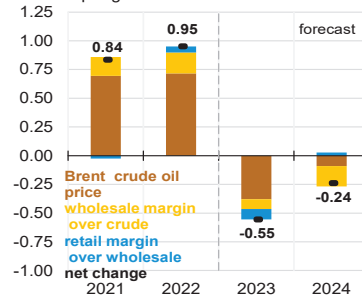
dollars per gallon



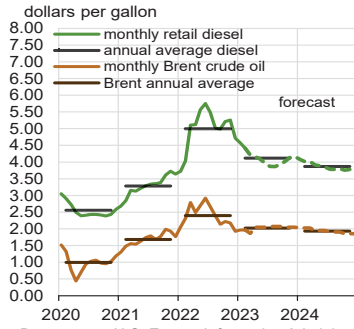
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023, and Refinitiv an LSEG Business

Components of annual gasoline price changes

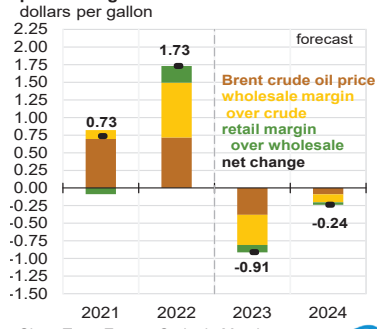
dollars per gallon



U.S. diesel and crude oil prices



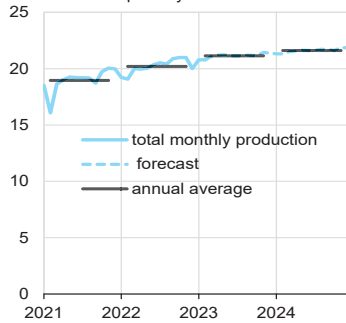
Components of annual diesel price changes



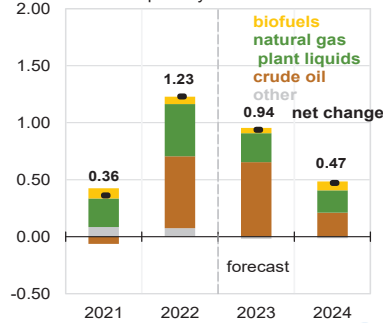
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023, and Refinitiv an LSEG Business



U.S. crude oil and liquid fuels production



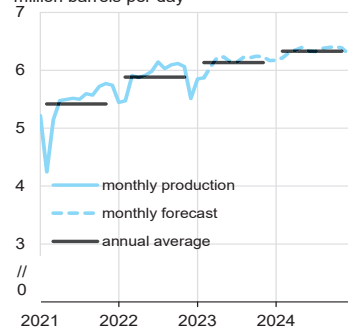
Components of annual change



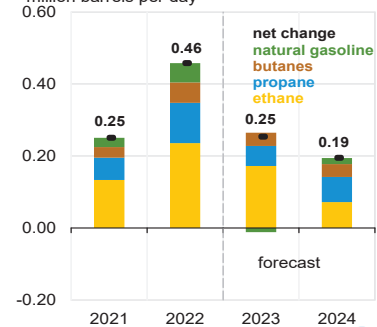
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023



U.S. natural gas plant liquids production



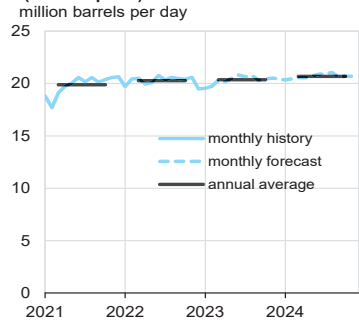
Components of annual change



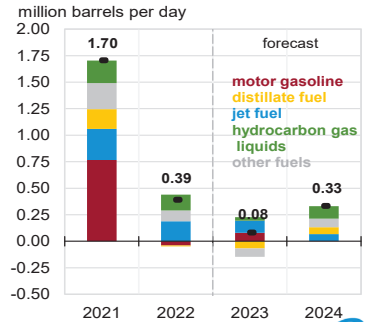
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023



U.S. liquid fuels product supplied (consumption)



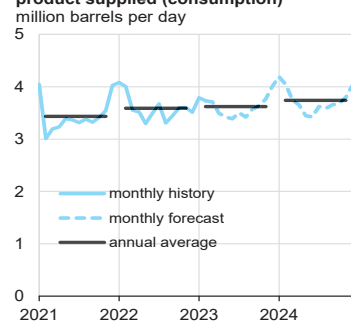
Components of annual change



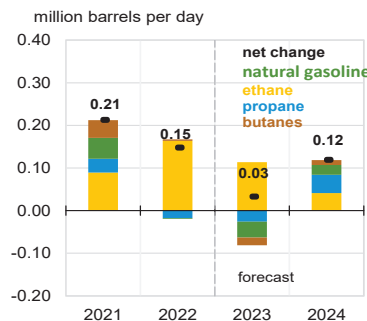
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023



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



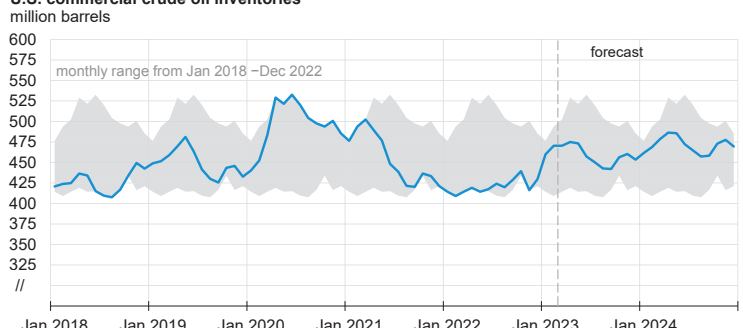
Components of annual change



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



U.S. commercial crude oil inventories

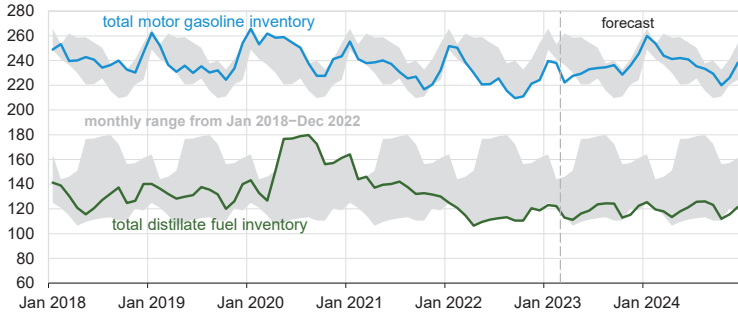


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023



U.S. gasoline and distillate inventories

million barrels

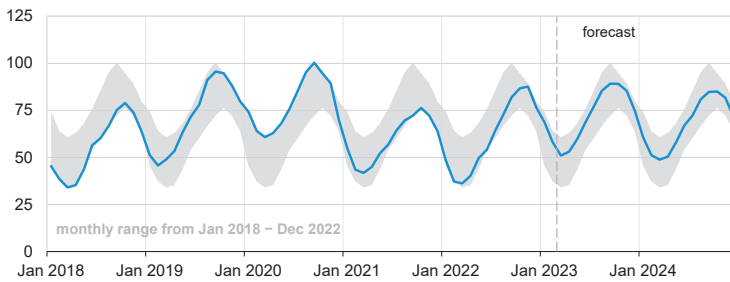


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023



U.S. commercial propane inventories

million barrels



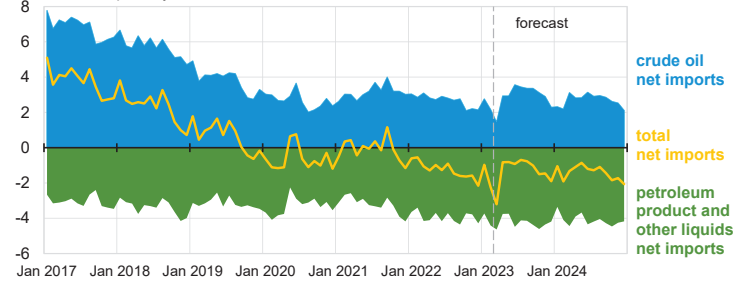
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023

Note: Excludes propylene.



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

million barrels per day

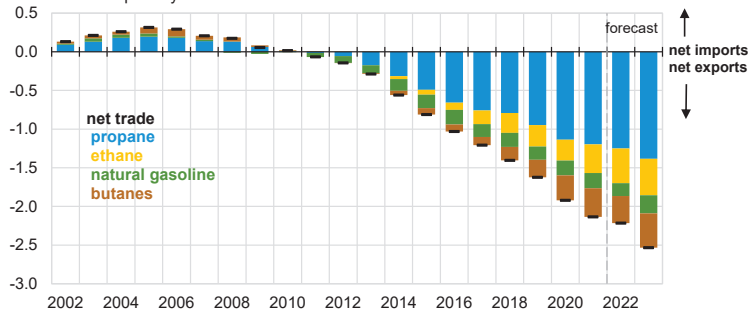


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023

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.



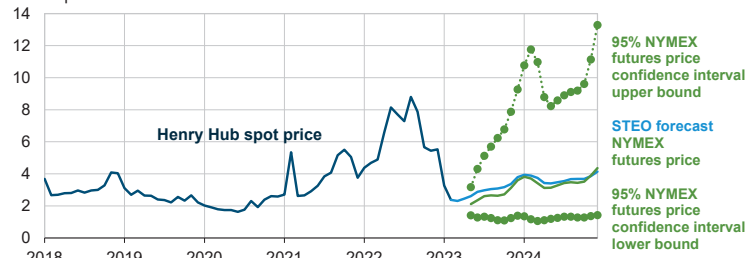
U.S. net trade of hydrocarbon gas liquids (HGL)
million barrels per day



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



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

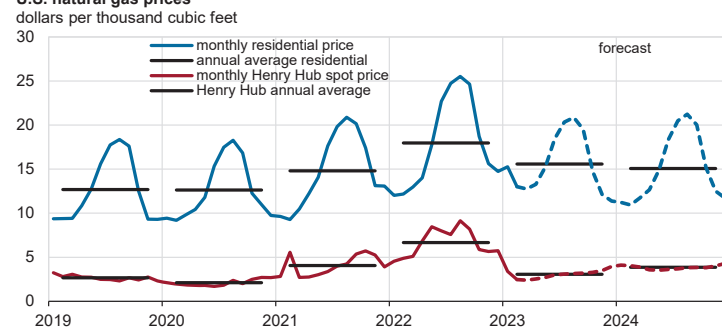


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023, CME Group, and Refinitiv an LSEG Business

Note: Confidence interval derived from options market information for the five trading days ending April 6, 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

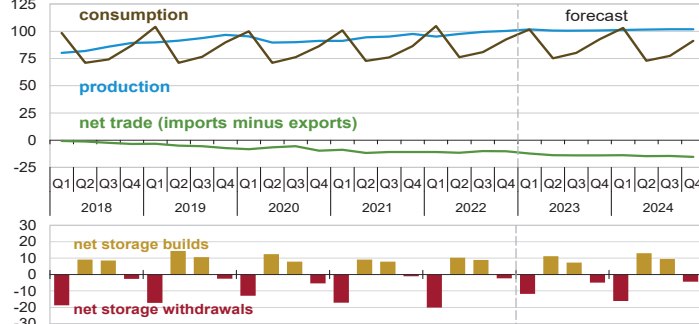


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023, and Refinitiv an LSEG Business



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

billion cubic feet per day

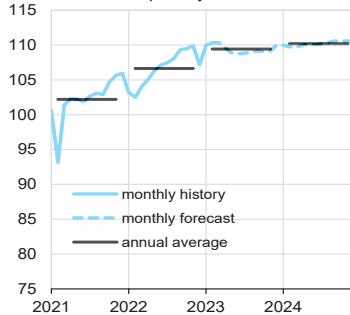


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023



U.S. marketed natural gas production

billion cubic feet per day

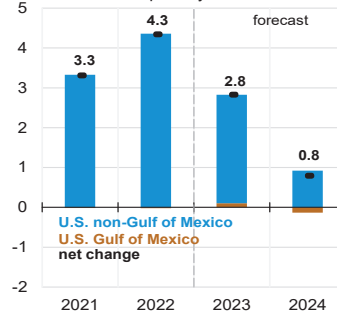


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023



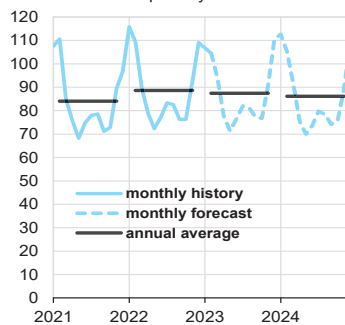
Components of annual change

billion cubic feet per day



U.S. natural gas consumption

billion cubic feet per day

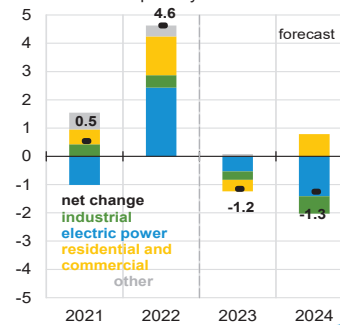


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023

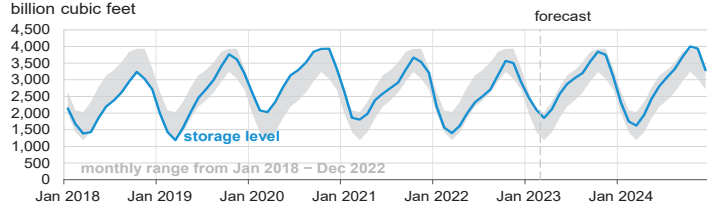


Components of annual change

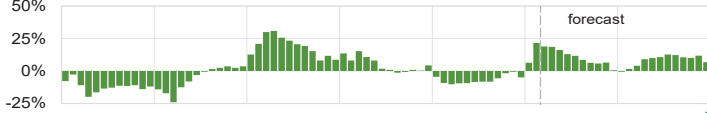
billion cubic feet per day



U.S. working natural gas in storage



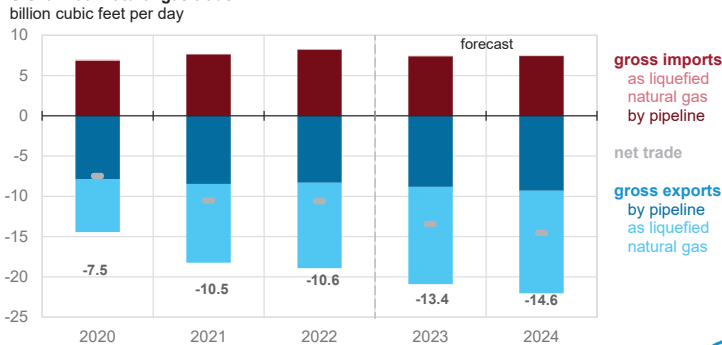
Percentage deviation from 2018 – 2022 average



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



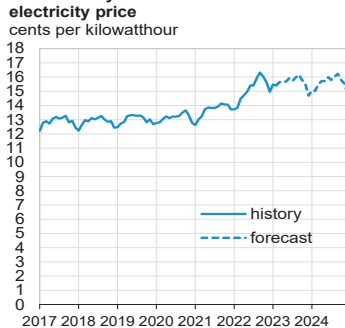
U.S. annual natural gas trade



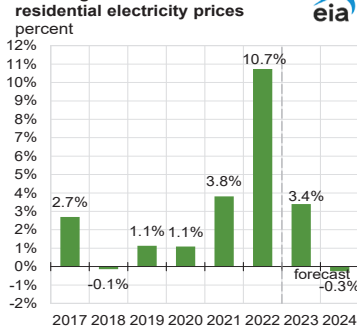
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023



U.S. monthly nominal residential electricity price



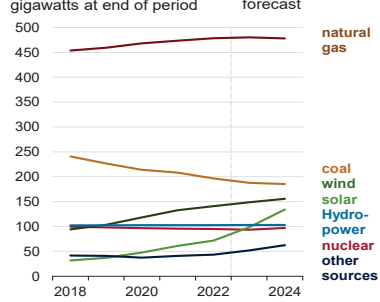
Annual growth in nominal residential electricity prices



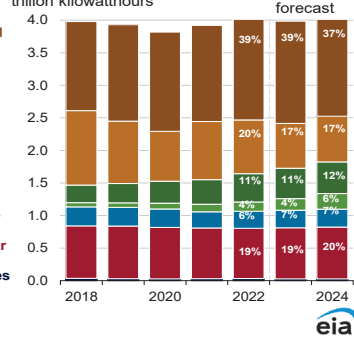
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023



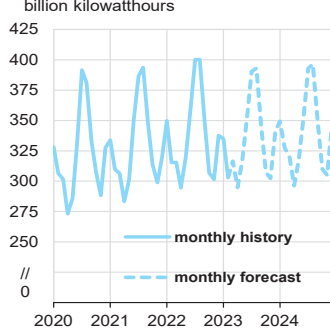
U.S. electricity generation capacity
gigawatts at end of period forecast



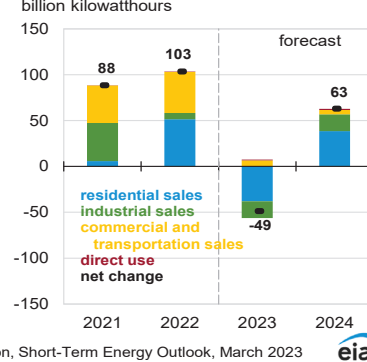
U.S. electricity generation by source, all sectors
trillion kilowatt-hours forecast



U.S. electricity consumption
billion kilowatt-hours

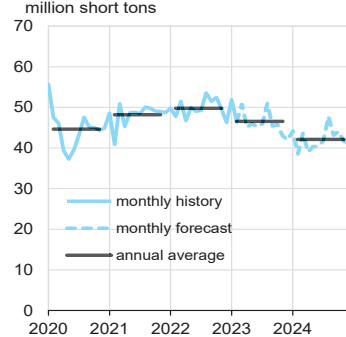


Components of annual change
billion kilowatt-hours

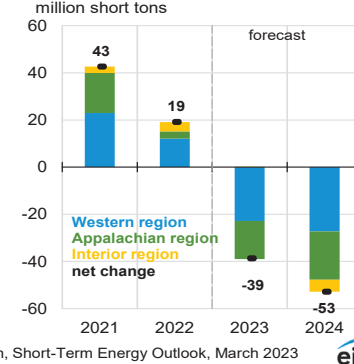


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023

U.S. coal production
million short tons

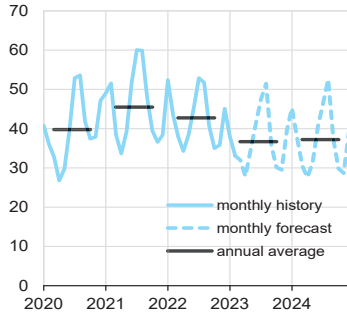


Components of annual change
million short tons

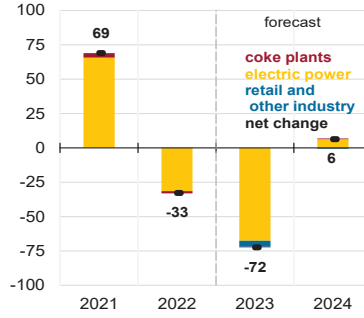


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023

U.S. coal consumption
million short tons



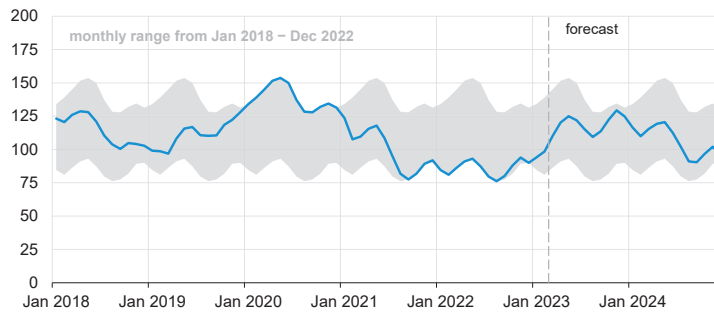
Components of annual change
million short tons



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



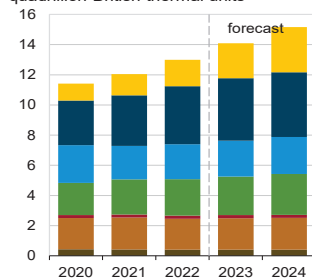
U.S. electric power coal inventories
million short tons



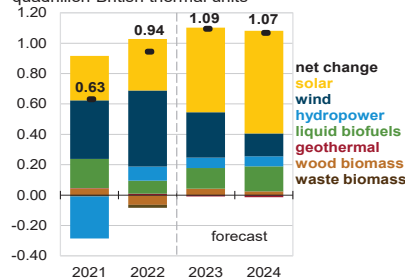
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023



U.S. renewable energy supply
quadrillion British thermal units



Components of annual change
quadrillion British thermal units

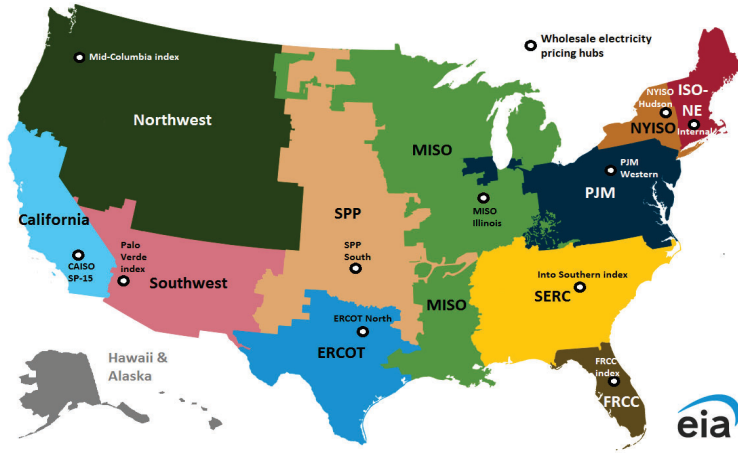


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023

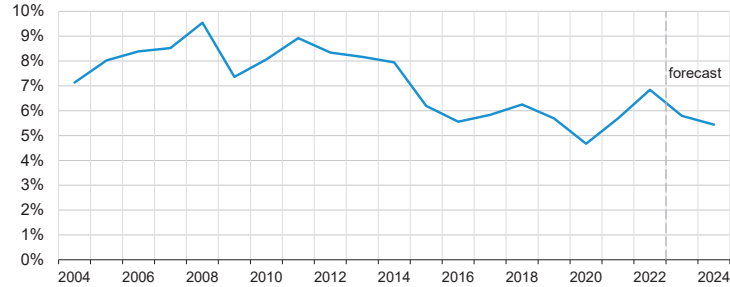
Note: Hydropower excludes pumped storage generation. Liquids include ethanol, biodiesel, renewable diesel, other biofuels, and biofuel losses and coproducts. Waste biomass includes municipal waste from biogenic sources, landfill gas, and non-wood waste.



Short-Term Energy Outlook electricity supply regions



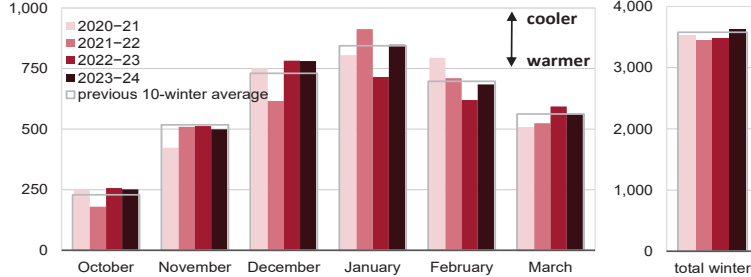
U.S. annual energy expenditures share of gross domestic product



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



U.S. winter heating degree days population-weighted

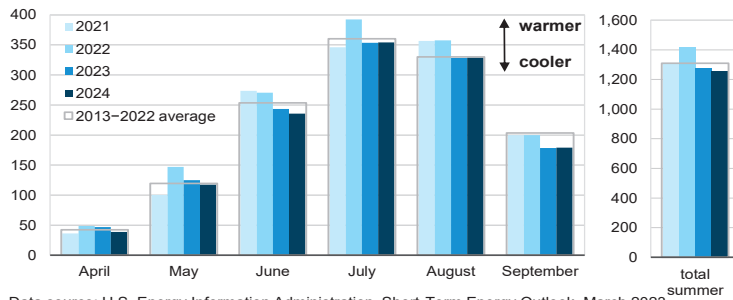


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023

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



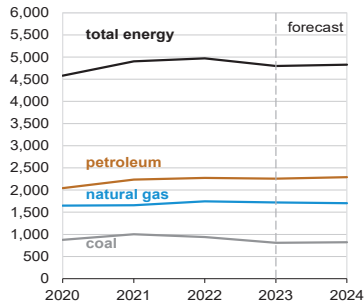
U.S. summer cooling degree days
population-weighted



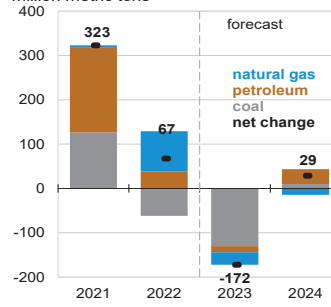
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, March 2023
 Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Projections reflect NOAA's 14-16 month outlook.



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



Components of annual change
million metric tons



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



Table 1. U.S. Energy Markets Summary

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
Energy Production															
Crude Oil Production (a) (million barrels per day)	11.47	11.70	12.06	12.30	12.54	<i>12.50</i>	<i>12.50</i>	<i>12.61</i>	<i>12.69</i>	<i>12.71</i>	<i>12.77</i>	<i>12.83</i>	11.88	<i>12.54</i>	<i>12.75</i>
Dry Natural Gas Production (billion cubic feet per day)	95.09	97.59	99.46	100.22	101.60	<i>100.54</i>	<i>100.47</i>	<i>100.88</i>	<i>101.23</i>	<i>101.49</i>	<i>101.77</i>	<i>101.83</i>	98.11	<i>100.87</i>	<i>101.58</i>
Coal Production (million short tons)	149	146	154	148	149	<i>136</i>	<i>142</i>	<i>131</i>	<i>126</i>	<i>120</i>	<i>133</i>	<i>127</i>	597	<i>558</i>	<i>506</i>
Energy Consumption															
Liquid Fuels (million barrels per day)	20.22	20.27	20.47	20.16	19.87	<i>20.51</i>	<i>20.58</i>	<i>20.48</i>	<i>20.45</i>	<i>20.72</i>	<i>20.88</i>	<i>20.71</i>	20.28	<i>20.36</i>	<i>20.69</i>
Natural Gas (billion cubic feet per day)	104.83	76.13	80.77	92.61	101.59	<i>75.14</i>	<i>80.21</i>	<i>92.72</i>	<i>103.02</i>	<i>72.92</i>	<i>77.47</i>	<i>91.09</i>	88.53	<i>87.37</i>	<i>86.12</i>
Coal (b) (million short tons)	134	118	145	116	103	<i>104</i>	<i>135</i>	<i>99</i>	<i>113</i>	<i>100</i>	<i>136</i>	<i>98</i>	513	<i>440</i>	<i>447</i>
Electricity (billion kilowatt hours per day)	10.90	10.68	12.50	10.28	10.61	<i>10.59</i>	<i>12.28</i>	<i>10.34</i>	<i>10.96</i>	<i>10.63</i>	<i>12.38</i>	<i>10.43</i>	11.09	<i>10.96</i>	<i>11.10</i>
Renewables (c) (quadrillion Btu)	3.30	3.50	3.07	3.12	3.42	<i>3.84</i>	<i>3.39</i>	<i>3.43</i>	<i>3.71</i>	<i>4.11</i>	<i>3.67</i>	<i>3.66</i>	12.99	<i>14.09</i>	<i>15.16</i>
Total Energy Consumption (d) (quadrillion Btu)	26.51	23.84	24.90	25.18	25.44	<i>23.92</i>	<i>24.97</i>	<i>25.28</i>	<i>26.65</i>	<i>24.01</i>	<i>25.10</i>	<i>25.32</i>	100.42	<i>99.61</i>	<i>101.07</i>
Energy Prices															
Crude Oil West Texas Intermediate Spot (dollars per barrel)	95.18	108.93	93.07	82.69	75.96	<i>80.00</i>	<i>81.00</i>	<i>80.00</i>	<i>79.00</i>	<i>76.00</i>	<i>74.00</i>	<i>72.00</i>	94.91	<i>79.24</i>	<i>75.21</i>
Natural Gas Henry Hub Spot (dollars per million Btu)	4.66	7.48	7.99	5.55	2.65	<i>2.65</i>	<i>3.03</i>	<i>3.44</i>	<i>3.86</i>	<i>3.44</i>	<i>3.64</i>	<i>3.89</i>	6.42	<i>2.94</i>	<i>3.71</i>
Coal (dollars per million Btu)	2.18	2.26	2.50	2.55	2.58	<i>2.56</i>	<i>2.55</i>	<i>2.50</i>	<i>2.51</i>	<i>2.52</i>	<i>2.52</i>	<i>2.48</i>	2.37	<i>2.55</i>	<i>2.51</i>
Macroeconomic															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR)	19,924	19,895	20,055	20,182	20,167	<i>20,168</i>	<i>20,248</i>	<i>20,356</i>	<i>20,450</i>	<i>20,550</i>	<i>20,643</i>	<i>20,729</i>	20,014	<i>20,235</i>	<i>20,593</i>
Percent change from prior year	3.7	1.8	1.9	0.9	1.2	<i>1.4</i>	<i>1.0</i>	<i>0.9</i>	<i>1.4</i>	<i>1.9</i>	<i>2.0</i>	<i>1.8</i>	2.1	<i>1.1</i>	<i>1.8</i>
GDP Implicit Price Deflator (Index, 2012=100)	124.2	126.9	128.3	129.5	130.7	<i>131.6</i>	<i>132.5</i>	<i>133.5</i>	<i>134.4</i>	<i>135.2</i>	<i>135.8</i>	<i>136.6</i>	127.2	<i>132.1</i>	<i>135.5</i>
Percent change from prior year	6.9	7.6	7.1	6.4	5.2	<i>3.7</i>	<i>3.3</i>	<i>3.1</i>	<i>2.9</i>	<i>2.7</i>	<i>2.6</i>	<i>2.3</i>	7.0	<i>3.8</i>	<i>2.6</i>
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	15,109	15,022	15,141	15,325	15,607	<i>15,613</i>	<i>15,697</i>	<i>15,786</i>	<i>15,916</i>	<i>16,055</i>	<i>16,171</i>	<i>16,271</i>	15,149	<i>15,676</i>	<i>16,103</i>
Percent change from prior year	-12.8	-5.7	-3.8	-1.4	3.3	<i>3.9</i>	<i>3.7</i>	<i>3.0</i>	<i>2.0</i>	<i>2.8</i>	<i>3.0</i>	<i>3.1</i>	-6.1	<i>3.5</i>	<i>2.7</i>
Manufacturing Production Index (Index, 2017=100)	100.1	100.8	100.9	100.1	99.7	<i>99.1</i>	<i>99.4</i>	<i>100.2</i>	<i>100.8</i>	<i>101.4</i>	<i>102.1</i>	<i>102.7</i>	100.5	<i>99.6</i>	<i>101.7</i>
Percent change from prior year	4.5	3.6	2.8	0.8	-0.4	<i>-1.7</i>	<i>-1.5</i>	<i>0.1</i>	<i>1.0</i>	<i>2.3</i>	<i>2.7</i>	<i>2.5</i>	2.9	<i>-0.9</i>	<i>2.1</i>
Weather															
U.S. Heating Degree-Days	2,147	490	54	1,552	1,928	<i>490</i>	<i>75</i>	<i>1,532</i>	<i>2,094</i>	<i>496</i>	<i>74</i>	<i>1,530</i>	4,244	<i>4,024</i>	<i>4,194</i>
U.S. Cooling Degree-Days	47	466	950	89	63	<i>415</i>	<i>860</i>	<i>95</i>	<i>43</i>	<i>392</i>	<i>862</i>	<i>96</i>	1,552	<i>1,433</i>	<i>1,393</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 April 6, 2022.

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

Prices are not adjusted for inflation.

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

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

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

Weather forecasts from National Oceanic and Atmospheric Administration.

Table 2. Energy Prices

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Crude Oil (dollars per barrel)															
West Texas Intermediate Spot Average	95.18	108.93	93.07	82.69	75.96	<i>80.00</i>	<i>81.00</i>	<i>80.00</i>	<i>79.00</i>	<i>76.00</i>	<i>74.00</i>	<i>72.00</i>	94.91	<i>79.24</i>	<i>75.21</i>
Brent Spot Average	101.17	113.84	100.53	88.44	81.04	<i>86.00</i>	<i>87.00</i>	<i>86.00</i>	<i>85.00</i>	<i>82.00</i>	<i>80.00</i>	<i>78.00</i>	100.94	<i>85.01</i>	<i>81.21</i>
U.S. Imported Average	89.85	107.23	91.86	78.09	72.15	<i>77.25</i>	<i>78.25</i>	<i>77.25</i>	<i>76.25</i>	<i>73.25</i>	<i>71.25</i>	<i>69.25</i>	92.55	<i>76.62</i>	<i>72.51</i>
U.S. Refiner Average Acquisition Cost	92.62	109.86	95.20	83.10	75.21	<i>79.50</i>	<i>80.50</i>	<i>79.50</i>	<i>78.50</i>	<i>75.50</i>	<i>73.50</i>	<i>71.50</i>	95.25	<i>78.76</i>	<i>74.73</i>
U.S. Liquid Fuels (cents per gallon)															
Refiner Prices for Resale															
Gasoline	278	376	311	267	261	<i>280</i>	<i>266</i>	<i>241</i>	<i>236</i>	<i>247</i>	<i>240</i>	<i>218</i>	309	<i>262</i>	<i>235</i>
Diesel Fuel	301	418	357	364	294	<i>269</i>	<i>272</i>	<i>285</i>	<i>276</i>	<i>260</i>	<i>254</i>	<i>249</i>	361	<i>280</i>	<i>260</i>
Fuel Oil	284	419	344	359	276	<i>251</i>	<i>257</i>	<i>276</i>	<i>265</i>	<i>247</i>	<i>238</i>	<i>238</i>	352	<i>268</i>	<i>238</i>
Refiner Prices to End Users															
Jet Fuel	283	400	340	332	306	<i>258</i>	<i>260</i>	<i>272</i>	<i>265</i>	<i>256</i>	<i>246</i>	<i>241</i>	340	<i>273</i>	<i>252</i>
No. 6 Residual Fuel Oil (a)	252	258	228	201	197	<i>200</i>	<i>206</i>	<i>205</i>	<i>205</i>	<i>195</i>	<i>191</i>	<i>187</i>	236	<i>203</i>	<i>194</i>
Retail Prices Including Taxes															
Gasoline Regular Grade (b)	371	450	408	357	338	<i>354</i>	<i>345</i>	<i>328</i>	<i>317</i>	<i>329</i>	<i>323</i>	<i>301</i>	397	<i>342</i>	<i>318</i>
Gasoline All Grades (b)	380	460	419	369	349	<i>365</i>	<i>357</i>	<i>340</i>	<i>329</i>	<i>340</i>	<i>334</i>	<i>313</i>	408	<i>353</i>	<i>329</i>
On-highway Diesel Fuel	432	549	516	508	440	<i>407</i>	<i>389</i>	<i>410</i>	<i>404</i>	<i>389</i>	<i>379</i>	<i>377</i>	502	<i>411</i>	<i>387</i>
Heating Oil	415	555	497	488	406	<i>368</i>	<i>358</i>	<i>388</i>	<i>382</i>	<i>358</i>	<i>342</i>	<i>366</i>	465	<i>389</i>	<i>370</i>
Natural Gas															
Henry Hub Spot (dollars per thousand cubic feet)	4.84	7.77	8.30	5.76	2.76	<i>2.75</i>	<i>3.15</i>	<i>3.58</i>	<i>4.01</i>	<i>3.57</i>	<i>3.78</i>	<i>4.04</i>	6.67	<i>3.06</i>	<i>3.85</i>
Henry Hub Spot (dollars per million Btu)	4.66	7.48	7.99	5.55	2.65	<i>2.65</i>	<i>3.03</i>	<i>3.44</i>	<i>3.86</i>	<i>3.44</i>	<i>3.64</i>	<i>3.89</i>	6.42	<i>2.94</i>	<i>3.71</i>
U.S. Retail Prices (dollars per thousand cubic feet)															
Industrial Sector	6.82	8.24	9.27	7.53	6.09	<i>4.08</i>	<i>4.11</i>	<i>4.78</i>	<i>5.48</i>	<i>4.64</i>	<i>4.68</i>	<i>5.28</i>	7.90	<i>4.81</i>	<i>5.05</i>
Commercial Sector	10.00	11.71	14.12	12.14	11.64	<i>10.57</i>	<i>10.67</i>	<i>8.99</i>	<i>8.87</i>	<i>9.64</i>	<i>10.47</i>	<i>9.17</i>	11.37	<i>10.52</i>	<i>9.27</i>
Residential Sector	12.32	16.57	24.95	15.63	13.79	<i>14.92</i>	<i>20.18</i>	<i>12.17</i>	<i>11.27</i>	<i>14.52</i>	<i>20.54</i>	<i>12.54</i>	14.82	<i>13.94</i>	<i>12.87</i>
U.S. Electricity															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	2.18	2.26	2.50	2.55	2.58	<i>2.56</i>	<i>2.55</i>	<i>2.50</i>	<i>2.51</i>	<i>2.52</i>	<i>2.52</i>	<i>2.48</i>	2.37	<i>2.55</i>	<i>2.51</i>
Natural Gas	5.95	7.39	8.23	6.90	4.88	<i>3.01</i>	<i>3.21</i>	<i>3.81</i>	<i>4.45</i>	<i>3.70</i>	<i>3.84</i>	<i>4.26</i>	7.24	<i>3.68</i>	<i>4.05</i>
Residual Fuel Oil (c)	16.81	26.17	26.53	21.27	18.10	<i>16.68</i>	<i>16.21</i>	<i>16.31</i>	<i>16.43</i>	<i>16.51</i>	<i>15.33</i>	<i>14.83</i>	21.80	<i>16.82</i>	<i>15.74</i>
Distillate Fuel Oil	21.23	30.71	26.79	24.48	23.60	<i>20.72</i>	<i>20.71</i>	<i>21.75</i>	<i>21.27</i>	<i>20.08</i>	<i>19.48</i>	<i>19.14</i>	24.89	<i>21.82</i>	<i>20.02</i>
Prices to Ultimate Customers (cents per kilowatthour)															
Industrial Sector	7.42	8.41	9.38	8.52	7.93	<i>8.23</i>	<i>9.02</i>	<i>8.31</i>	<i>8.03</i>	<i>8.19</i>	<i>8.97</i>	<i>8.31</i>	8.45	<i>8.38</i>	<i>8.39</i>
Commercial Sector	11.63	12.35	13.38	12.66	12.57	<i>12.59</i>	<i>13.34</i>	<i>12.41</i>	<i>12.36</i>	<i>12.57</i>	<i>13.40</i>	<i>12.39</i>	12.55	<i>12.75</i>	<i>12.71</i>
Residential Sector	13.98	15.07	15.85	15.48	15.51	<i>15.77</i>	<i>15.94</i>	<i>15.25</i>	<i>15.17</i>	<i>15.82</i>	<i>16.00</i>	<i>15.33</i>	15.12	<i>15.64</i>	<i>15.60</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 April 6, 2022.

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

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

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

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

U.S. Energy Information Administration | Short-Term Energy Outlook - April 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	32.88	33.40	<i>33.78</i>	<i>33.93</i>	<i>34.45</i>	<i>34.65</i>	<i>34.49</i>	<i>34.64</i>	<i>35.16</i>	32.23	<i>33.89</i>	<i>34.74</i>
U.S. (50 States)	19.44	20.12	20.60	20.66	20.90	<i>21.19</i>	<i>21.17</i>	<i>21.32</i>	<i>21.38</i>	<i>21.62</i>	<i>21.69</i>	<i>21.78</i>	20.21	<i>21.15</i>	<i>21.62</i>
Canada	5.66	5.51	5.72	5.83	5.89	<i>5.70</i>	<i>5.93</i>	<i>6.14</i>	<i>6.22</i>	<i>5.93</i>	<i>6.13</i>	<i>6.35</i>	5.68	<i>5.92</i>	<i>6.16</i>
Mexico	1.91	1.89	1.90	1.90	1.97	<i>1.97</i>	<i>1.97</i>	<i>1.95</i>	<i>1.97</i>	<i>1.96</i>	<i>1.93</i>	<i>1.89</i>	1.90	<i>1.96</i>	<i>1.94</i>
Other OECD	4.61	4.35	4.32	4.49	4.64	<i>4.92</i>	<i>4.86</i>	<i>5.04</i>	<i>5.08</i>	<i>4.99</i>	<i>4.89</i>	<i>5.15</i>	4.44	<i>4.87</i>	<i>5.03</i>
Non-OECD	67.21	66.87	68.26	68.07	67.64	<i>67.34</i>	<i>67.57</i>	<i>67.08</i>	<i>67.90</i>	<i>68.57</i>	<i>69.02</i>	<i>68.56</i>	67.61	<i>67.41</i>	<i>68.51</i>
OPEC	33.75	33.76	34.71	34.43	33.94	<i>33.66</i>	<i>33.67</i>	<i>33.48</i>	<i>34.65</i>	<i>34.68</i>	<i>34.76</i>	<i>34.50</i>	34.17	<i>33.69</i>	<i>34.65</i>
Crude Oil Portion	28.19	28.33	29.23	28.92	28.45	<i>28.30</i>	<i>28.27</i>	<i>28.04</i>	<i>29.12</i>	<i>29.27</i>	<i>29.32</i>	<i>29.02</i>	28.67	<i>28.26</i>	<i>29.19</i>
Other Liquids (b)	5.56	5.43	5.48	5.52	5.49	<i>5.36</i>	<i>5.40</i>	<i>5.44</i>	<i>5.53</i>	<i>5.40</i>	<i>5.44</i>	<i>5.48</i>	5.50	<i>5.42</i>	<i>5.46</i>
Eurasia	14.39	13.39	13.56	13.91	14.05	<i>13.44</i>	<i>13.39</i>	<i>13.45</i>	<i>13.51</i>	<i>13.50</i>	<i>13.48</i>	<i>13.56</i>	13.81	<i>13.58</i>	<i>13.51</i>
China	5.18	5.18	5.05	5.07	5.28	<i>5.24</i>	<i>5.23</i>	<i>5.28</i>	<i>5.21</i>	<i>5.24</i>	<i>5.23</i>	<i>5.27</i>	5.12	<i>5.26</i>	<i>5.24</i>
Other Non-OECD	13.90	14.54	14.95	14.65	14.36	<i>15.01</i>	<i>15.27</i>	<i>14.88</i>	<i>14.53</i>	<i>15.16</i>	<i>15.56</i>	<i>15.23</i>	14.51	<i>14.88</i>	<i>15.12</i>
Total World Production	98.83	98.75	100.80	100.94	101.04	<i>101.12</i>	<i>101.50</i>	<i>101.54</i>	<i>102.55</i>	<i>103.06</i>	<i>103.67</i>	<i>103.72</i>	99.84	<i>101.30</i>	<i>103.25</i>
Non-OPEC Production	65.09	64.99	66.10	66.51	67.10	<i>67.46</i>	<i>67.83</i>	<i>68.06</i>	<i>67.89</i>	<i>68.38</i>	<i>68.90</i>	<i>69.22</i>	65.68	<i>67.61</i>	<i>68.60</i>
Consumption (million barrels per day) (c)															
OECD	45.76	45.37	46.63	45.98	45.59	<i>45.55</i>	<i>46.26</i>	<i>46.38</i>	<i>46.15</i>	<i>45.75</i>	<i>46.56</i>	<i>46.59</i>	45.94	<i>45.95</i>	<i>46.26</i>
U.S. (50 States)	20.22	20.27	20.47	20.16	19.87	<i>20.51</i>	<i>20.58</i>	<i>20.48</i>	<i>20.45</i>	<i>20.72</i>	<i>20.88</i>	<i>20.71</i>	20.28	<i>20.36</i>	<i>20.69</i>
U.S. Territories	0.11	0.12	0.13	0.12	0.12	<i>0.12</i>	<i>0.12</i>	<i>0.12</i>	<i>0.12</i>	<i>0.12</i>	<i>0.12</i>	<i>0.12</i>	0.12	<i>0.12</i>	<i>0.12</i>
Canada	2.24	2.21	2.38	2.35	2.28	<i>2.23</i>	<i>2.33</i>	<i>2.31</i>	<i>2.30</i>	<i>2.25</i>	<i>2.35</i>	<i>2.33</i>	2.29	<i>2.29</i>	<i>2.31</i>
Europe	13.19	13.42	14.09	13.34	13.27	<i>13.42</i>	<i>13.83</i>	<i>13.60</i>	<i>13.26</i>	<i>13.41</i>	<i>13.83</i>	<i>13.59</i>	13.51	<i>13.53</i>	<i>13.52</i>
Japan	3.70	3.03	3.19	3.56	3.62	<i>3.00</i>	<i>3.10</i>	<i>3.44</i>	<i>3.56</i>	<i>2.95</i>	<i>3.05</i>	<i>3.38</i>	3.37	<i>3.29</i>	<i>3.24</i>
Other OECD	6.30	6.33	6.37	6.45	6.43	<i>6.27</i>	<i>6.30</i>	<i>6.44</i>	<i>6.46</i>	<i>6.30</i>	<i>6.32</i>	<i>6.47</i>	6.36	<i>6.36</i>	<i>6.39</i>
Non-OECD	52.77	53.65	53.77	53.76	54.38	<i>55.15</i>	<i>55.10</i>	<i>55.05</i>	<i>56.11</i>	<i>56.62</i>	<i>56.55</i>	<i>56.53</i>	53.49	<i>54.92</i>	<i>56.45</i>
Eurasia	4.28	4.43	4.73	4.65	4.27	<i>4.42</i>	<i>4.73</i>	<i>4.64</i>	<i>4.42</i>	<i>4.57</i>	<i>4.89</i>	<i>4.80</i>	4.53	<i>4.52</i>	<i>4.67</i>
Europe	0.74	0.76	0.76	0.77	0.74	<i>0.76</i>	<i>0.77</i>	<i>0.77</i>	<i>0.75</i>	<i>0.77</i>	<i>0.77</i>	<i>0.78</i>	0.76	<i>0.76</i>	<i>0.77</i>
China	15.11	15.30	14.99	15.19	15.83	<i>16.02</i>	<i>15.70</i>	<i>15.91</i>	<i>16.21</i>	<i>16.41</i>	<i>16.08</i>	<i>16.30</i>	15.15	<i>15.86</i>	<i>16.25</i>
Other Asia	13.75	13.76	13.42	13.85	14.23	<i>14.29</i>	<i>13.71</i>	<i>14.01</i>	<i>14.88</i>	<i>14.86</i>	<i>14.25</i>	<i>14.57</i>	13.70	<i>14.06</i>	<i>14.64</i>
Other Non-OECD	18.88	19.39	19.86	19.30	19.30	<i>19.65</i>	<i>20.19</i>	<i>19.72</i>	<i>19.85</i>	<i>20.02</i>	<i>20.56</i>	<i>20.09</i>	19.36	<i>19.72</i>	<i>20.13</i>
Total World Consumption	98.53	99.01	100.40	99.74	99.97	<i>100.70</i>	<i>101.36</i>	<i>101.43</i>	<i>102.26</i>	<i>102.38</i>	<i>103.11</i>	<i>103.11</i>	99.43	<i>100.87</i>	<i>102.72</i>
Total Crude Oil and Other Liquids Inventory Net Withdrawals (million barrels per day)															
U.S. (50 States)	0.81	0.51	0.45	0.41	0.14	<i>-0.30</i>	<i>-0.26</i>	<i>0.35</i>	<i>-0.06</i>	<i>-0.44</i>	<i>-0.02</i>	<i>0.37</i>	0.54	<i>-0.02</i>	<i>-0.03</i>
Other OECD	-0.09	-0.29	-0.48	-0.29	-0.38	<i>-0.04</i>	<i>0.04</i>	<i>-0.15</i>	<i>-0.07</i>	<i>-0.08</i>	<i>-0.17</i>	<i>-0.31</i>	-0.29	<i>-0.13</i>	<i>-0.16</i>
Other Stock Draws and Balance	-1.02	0.04	-0.38	-1.32	-0.82	<i>-0.08</i>	<i>0.08</i>	<i>-0.31</i>	<i>-0.16</i>	<i>-0.17</i>	<i>-0.37</i>	<i>-0.67</i>	-0.67	<i>-0.28</i>	<i>-0.34</i>
Total Stock Draw	-0.31	0.27	-0.41	-1.20	-1.07	<i>-0.42</i>	<i>-0.14</i>	<i>-0.11</i>	<i>-0.29</i>	<i>-0.68</i>	<i>-0.56</i>	<i>-0.60</i>	-0.42	<i>-0.43</i>	<i>-0.53</i>
End-of-period Commercial Crude Oil and Other Liquids Inventories (million barrels)															
U.S. Commercial Inventory	1,154	1,180	1,215	1,222	1,210	<i>1,264</i>	<i>1,287</i>	<i>1,255</i>	<i>1,260</i>	<i>1,300</i>	<i>1,302</i>	<i>1,268</i>	1,222	<i>1,255</i>	<i>1,268</i>
OECD Commercial Inventory	2,604	2,656	2,735	2,769	2,792	<i>2,849</i>	<i>2,869</i>	<i>2,850</i>	<i>2,862</i>	<i>2,909</i>	<i>2,926</i>	<i>2,920</i>	2,769	<i>2,850</i>	<i>2,920</i>

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

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

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

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

- = no data available

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

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

Notes: EIA completed modeling and analysis for this report on April 6, 2022.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

U.S. Energy Information Administration | Short-Term Energy Outlook - April 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	28.39	28.76	<i>28.85</i>	<i>29.07</i>	<i>29.42</i>	<i>29.57</i>	<i>29.50</i>	<i>29.75</i>	<i>30.01</i>	27.79	<i>29.03</i>	<i>29.71</i>
Canada	5.66	5.51	5.72	5.83	5.89	<i>5.70</i>	<i>5.93</i>	<i>6.14</i>	<i>6.22</i>	<i>5.93</i>	<i>6.13</i>	<i>6.35</i>	5.68	<i>5.92</i>	<i>6.16</i>
Mexico	1.91	1.89	1.90	1.90	1.97	<i>1.97</i>	<i>1.97</i>	<i>1.95</i>	<i>1.97</i>	<i>1.96</i>	<i>1.93</i>	<i>1.89</i>	1.90	<i>1.96</i>	<i>1.94</i>
United States	19.44	20.12	20.60	20.66	20.90	<i>21.19</i>	<i>21.17</i>	<i>21.32</i>	<i>21.38</i>	<i>21.62</i>	<i>21.69</i>	<i>21.78</i>	20.21	<i>21.15</i>	<i>21.62</i>
Central and South America	5.83	6.41	6.86	6.59	6.29	<i>6.91</i>	<i>7.22</i>	<i>6.85</i>	<i>6.49</i>	<i>7.16</i>	<i>7.56</i>	<i>7.25</i>	6.43	<i>6.82</i>	<i>7.12</i>
Argentina	0.77	0.78	0.79	0.81	0.83	<i>0.85</i>	<i>0.85</i>	<i>0.89</i>	<i>0.87</i>	<i>0.90</i>	<i>0.90</i>	<i>0.94</i>	0.79	<i>0.85</i>	<i>0.90</i>
Brazil	3.33	3.79	4.15	3.78	3.48	<i>4.08</i>	<i>4.40</i>	<i>3.92</i>	<i>3.60</i>	<i>4.22</i>	<i>4.55</i>	<i>4.06</i>	3.76	<i>3.97</i>	<i>4.11</i>
Colombia	0.77	0.77	0.78	0.79	0.78	<i>0.78</i>	<i>0.78</i>	<i>0.81</i>	<i>0.77</i>	<i>0.77</i>	<i>0.78</i>	<i>0.80</i>	0.78	<i>0.79</i>	<i>0.78</i>
Ecuador	0.48	0.47	0.49	0.49	0.49	<i>0.48</i>	<i>0.48</i>	<i>0.49</i>	<i>0.48</i>	<i>0.51</i>	<i>0.51</i>	<i>0.52</i>	0.48	<i>0.49</i>	<i>0.51</i>
Guyana	0.12	0.24	0.32	0.35	0.35	<i>0.36</i>	<i>0.36</i>	<i>0.39</i>	<i>0.42</i>	<i>0.42</i>	<i>0.49</i>	<i>0.60</i>	0.26	<i>0.36</i>	<i>0.48</i>
Europe	4.04	3.76	3.81	3.94	4.08	<i>4.35</i>	<i>4.29</i>	<i>4.48</i>	<i>4.50</i>	<i>4.41</i>	<i>4.32</i>	<i>4.59</i>	3.89	<i>4.30</i>	<i>4.46</i>
Norway	1.97	1.74	1.91	1.99	2.09	<i>2.31</i>	<i>2.31</i>	<i>2.40</i>	<i>2.43</i>	<i>2.37</i>	<i>2.37</i>	<i>2.54</i>	1.90	<i>2.28</i>	<i>2.43</i>
United Kingdom	0.97	0.91	0.80	0.84	0.87	<i>0.91</i>	<i>0.83</i>	<i>0.92</i>	<i>0.92</i>	<i>0.91</i>	<i>0.81</i>	<i>0.90</i>	0.88	<i>0.88</i>	<i>0.89</i>
Eurasia	14.39	13.39	13.56	13.91	14.05	<i>13.44</i>	<i>13.39</i>	<i>13.45</i>	<i>13.51</i>	<i>13.50</i>	<i>13.48</i>	<i>13.56</i>	13.81	<i>13.58</i>	<i>13.51</i>
Azerbaijan	0.70	0.67	0.65	0.67	0.65	<i>0.64</i>	<i>0.64</i>	<i>0.65</i>	<i>0.65</i>	<i>0.65</i>	<i>0.65</i>	<i>0.66</i>	0.67	<i>0.65</i>	<i>0.65</i>
Kazakhstan	2.01	1.77	1.62	1.92	2.02	<i>1.95</i>	<i>1.94</i>	<i>1.98</i>	<i>2.05</i>	<i>2.04</i>	<i>2.02</i>	<i>2.09</i>	1.83	<i>1.97</i>	<i>2.05</i>
Russia	11.30	10.59	10.92	10.95	10.96	<i>10.44</i>	<i>10.41</i>	<i>10.41</i>	<i>10.41</i>	<i>10.41</i>	<i>10.41</i>	<i>10.41</i>	10.94	<i>10.55</i>	<i>10.41</i>
Turkmenistan	0.26	0.26	0.26	0.26	0.27	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	0.26	<i>0.27</i>	<i>0.27</i>
Middle East	3.23	3.29	3.34	3.25	3.19	<i>3.20</i>	<i>3.19</i>	<i>3.19</i>	<i>3.23</i>	<i>3.23</i>	<i>3.22</i>	<i>3.22</i>	3.28	<i>3.19</i>	<i>3.23</i>
Oman	1.05	1.07	1.10	1.08	1.06	<i>1.03</i>	<i>1.02</i>	<i>1.02</i>	<i>1.04</i>	<i>1.04</i>	<i>1.04</i>	<i>1.04</i>	1.07	<i>1.03</i>	<i>1.04</i>
Qatar	1.85	1.86	1.86	1.86	1.86	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	1.86	<i>1.86</i>	<i>1.86</i>
Asia and Oceania	9.16	9.17	8.87	9.00	9.32	<i>9.27</i>	<i>9.24</i>	<i>9.26</i>	<i>9.20</i>	<i>9.21</i>	<i>9.19</i>	<i>9.21</i>	9.05	<i>9.27</i>	<i>9.20</i>
Australia	0.44	0.47	0.39	0.43	0.45	<i>0.45</i>	<i>0.45</i>	<i>0.44</i>	<i>0.43</i>	<i>0.42</i>	<i>0.42</i>	<i>0.41</i>	0.43	<i>0.45</i>	<i>0.42</i>
China	5.18	5.18	5.05	5.07	5.28	<i>5.24</i>	<i>5.23</i>	<i>5.28</i>	<i>5.21</i>	<i>5.24</i>	<i>5.23</i>	<i>5.27</i>	5.12	<i>5.26</i>	<i>5.24</i>
India	0.88	0.89	0.87	0.87	0.92	<i>0.92</i>	<i>0.91</i>	<i>0.90</i>	<i>0.93</i>	<i>0.93</i>	<i>0.92</i>	<i>0.92</i>	0.88	<i>0.91</i>	<i>0.92</i>
Indonesia	0.84	0.83	0.81	0.83	0.84	<i>0.83</i>	<i>0.82</i>	<i>0.81</i>	<i>0.80</i>	<i>0.80</i>	<i>0.79</i>	<i>0.79</i>	0.83	<i>0.82</i>	<i>0.80</i>
Malaysia	0.61	0.60	0.58	0.61	0.60	<i>0.59</i>	<i>0.59</i>	<i>0.58</i>	<i>0.58</i>	<i>0.57</i>	<i>0.57</i>	<i>0.56</i>	0.60	<i>0.59</i>	<i>0.57</i>
Africa	1.41	1.44	1.45	1.44	1.41	<i>1.44</i>	<i>1.43</i>	<i>1.42</i>	<i>1.39</i>	<i>1.38</i>	<i>1.38</i>	<i>1.37</i>	1.43	<i>1.43</i>	<i>1.38</i>
Egypt	0.66	0.68	0.67	0.67	0.68	<i>0.69</i>	<i>0.69</i>	<i>0.69</i>	<i>0.66</i>	<i>0.66</i>	<i>0.66</i>	<i>0.66</i>	0.67	<i>0.69</i>	<i>0.66</i>
South Sudan	0.15	0.15	0.16	0.15	0.13	<i>0.16</i>	<i>0.16</i>	<i>0.16</i>	<i>0.17</i>	<i>0.17</i>	<i>0.17</i>	<i>0.17</i>	0.16	<i>0.15</i>	<i>0.17</i>
Total non-OPEC liquids	65.09	64.99	66.10	66.51	67.10	<i>67.46</i>	<i>67.83</i>	<i>68.06</i>	<i>67.89</i>	<i>68.38</i>	<i>68.90</i>	<i>69.22</i>	65.68	<i>67.61</i>	<i>68.60</i>
OPEC non-crude liquids	5.56	5.43	5.48	5.52	5.49	<i>5.36</i>	<i>5.40</i>	<i>5.44</i>	<i>5.53</i>	<i>5.40</i>	<i>5.44</i>	<i>5.48</i>	5.50	<i>5.42</i>	<i>5.46</i>
Non-OPEC + OPEC non-crude	70.64	70.42	71.58	72.03	72.58	<i>72.82</i>	<i>73.22</i>	<i>73.49</i>	<i>73.42</i>	<i>73.79</i>	<i>74.34</i>	<i>74.69</i>	71.17	<i>73.03</i>	<i>74.06</i>
Unplanned non-OPEC Production Outages	0.76	1.31	0.78	0.56	0.53	-	-	-	-	-	-	-	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 April 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 - April 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Crude Oil															
Algeria	0.97	1.00	1.02	1.02	1.01	-	-	-	-	-	-	-	1.00	-	-
Angola	1.15	1.19	1.16	1.10	1.08	-	-	-	-	-	-	-	1.15	-	-
Congo (Brazzaville)	0.27	0.29	0.28	0.26	0.26	-	-	-	-	-	-	-	0.27	-	-
Equatorial Guinea	0.09	0.09	0.09	0.07	0.06	-	-	-	-	-	-	-	0.09	-	-
Gabon	0.19	0.19	0.20	0.21	0.20	-	-	-	-	-	-	-	0.20	-	-
Iran	2.55	2.53	2.53	2.56	2.58	-	-	-	-	-	-	-	2.54	-	-
Iraq	4.30	4.42	4.55	4.51	4.43	-	-	-	-	-	-	-	4.45	-	-
Kuwait	2.61	2.69	2.80	2.72	2.68	-	-	-	-	-	-	-	2.71	-	-
Libya	1.06	0.76	0.95	1.14	1.15	-	-	-	-	-	-	-	0.98	-	-
Nigeria	1.27	1.11	0.97	1.07	1.24	-	-	-	-	-	-	-	1.10	-	-
Saudi Arabia	10.08	10.30	10.85	10.50	10.02	-	-	-	-	-	-	-	10.43	-	-
United Arab Emirates	2.94	3.04	3.17	3.09	3.05	-	-	-	-	-	-	-	3.06	-	-
Venezuela	0.70	0.72	0.66	0.69	0.70	-	-	-	-	-	-	-	0.69	-	-
OPEC Total	28.19	28.33	29.23	28.92	28.45	<i>28.30</i>	<i>28.27</i>	<i>28.04</i>	<i>29.12</i>	<i>29.27</i>	<i>29.32</i>	<i>29.02</i>	28.67	<i>28.26</i>	<i>29.19</i>
Other Liquids (a)	5.56	5.43	5.48	5.52	5.49	<i>5.36</i>	<i>5.40</i>	<i>5.44</i>	<i>5.53</i>	<i>5.40</i>	<i>5.44</i>	<i>5.48</i>	5.50	<i>5.42</i>	<i>5.46</i>
Total OPEC Production	33.75	33.76	34.71	34.43	33.94	<i>33.66</i>	<i>33.67</i>	<i>33.48</i>	<i>34.65</i>	<i>34.68</i>	<i>34.76</i>	<i>34.50</i>	34.17	<i>33.69</i>	<i>34.65</i>
Crude Oil Production Capacity															
Middle East	25.48	25.46	25.55	25.66	25.88	<i>25.98</i>	<i>25.98</i>	<i>25.98</i>	<i>26.48</i>	<i>26.58</i>	<i>26.63</i>	<i>26.63</i>	25.54	<i>25.96</i>	<i>26.58</i>
Other	5.83	5.45	5.35	5.55	5.71	<i>5.90</i>	<i>5.89</i>	<i>5.88</i>	<i>5.91</i>	<i>5.86</i>	<i>5.82</i>	<i>5.79</i>	5.54	<i>5.85</i>	<i>5.84</i>
OPEC Total	31.31	30.91	30.89	31.21	31.59	<i>31.88</i>	<i>31.87</i>	<i>31.86</i>	<i>32.39</i>	<i>32.44</i>	<i>32.45</i>	<i>32.42</i>	31.08	<i>31.80</i>	<i>32.42</i>
Surplus Crude Oil Production Capacity															
Middle East	3.00	2.47	1.65	2.28	3.12	<i>3.52</i>	<i>3.53</i>	<i>3.75</i>	<i>3.23</i>	<i>3.14</i>	<i>3.11</i>	<i>3.38</i>	2.35	<i>3.48</i>	<i>3.21</i>
Other	0.12	0.11	0.01	0.01	0.02	<i>0.06</i>	<i>0.07</i>	<i>0.07</i>	<i>0.04</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	0.06	<i>0.06</i>	<i>0.02</i>
OPEC Total	3.12	2.58	1.67	2.29	3.14	<i>3.58</i>	<i>3.60</i>	<i>3.82</i>	<i>3.26</i>	<i>3.16</i>	<i>3.13</i>	<i>3.40</i>	2.41	<i>3.54</i>	<i>3.24</i>
Unplanned OPEC Production Outages	1.98	2.42	2.50	2.14	1.95	-	-	-	-	-	-	-	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 April 6, 2022.

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

Forecasts are not published for individual OPEC countries.

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2022				2023				2024				2022	2023	2024
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
North America	24.22	24.47	24.82	24.47	24.04	<i>24.65</i>	<i>24.82</i>	<i>24.71</i>	<i>24.63</i>	<i>24.88</i>	<i>25.13</i>	<i>24.95</i>	24.50	<i>24.56</i>	<i>24.90</i>
Canada	2.24	2.21	2.38	2.35	2.28	<i>2.23</i>	<i>2.33</i>	<i>2.31</i>	<i>2.30</i>	<i>2.25</i>	<i>2.35</i>	<i>2.33</i>	2.29	<i>2.29</i>	<i>2.31</i>
Mexico	1.76	1.99	1.96	1.95	1.87	<i>1.90</i>	<i>1.90</i>	<i>1.92</i>	<i>1.86</i>	<i>1.89</i>	<i>1.89</i>	<i>1.91</i>	1.92	<i>1.90</i>	<i>1.89</i>
United States	20.22	20.27	20.47	20.16	19.87	<i>20.51</i>	<i>20.58</i>	<i>20.48</i>	<i>20.45</i>	<i>20.72</i>	<i>20.88</i>	<i>20.71</i>	20.28	<i>20.36</i>	<i>20.69</i>
Central and South America	6.27	6.43	6.57	6.53	6.33	<i>6.47</i>	<i>6.57</i>	<i>6.50</i>	<i>6.45</i>	<i>6.60</i>	<i>6.70</i>	<i>6.63</i>	6.45	<i>6.47</i>	<i>6.60</i>
Brazil	2.85	2.93	3.02	3.02	2.90	<i>2.96</i>	<i>3.03</i>	<i>3.02</i>	<i>2.98</i>	<i>3.03</i>	<i>3.11</i>	<i>3.09</i>	2.96	<i>2.98</i>	<i>3.05</i>
Europe	13.93	14.18	14.85	14.11	14.01	<i>14.19</i>	<i>14.60</i>	<i>14.37</i>	<i>14.01</i>	<i>14.19</i>	<i>14.60</i>	<i>14.36</i>	14.27	<i>14.29</i>	<i>14.29</i>
Eurasia	4.28	4.43	4.73	4.65	4.27	<i>4.42</i>	<i>4.73</i>	<i>4.64</i>	<i>4.42</i>	<i>4.57</i>	<i>4.89</i>	<i>4.80</i>	4.53	<i>4.52</i>	<i>4.67</i>
Russia	3.27	3.36	3.64	3.50	3.26	<i>3.35</i>	<i>3.63</i>	<i>3.49</i>	<i>3.36</i>	<i>3.44</i>	<i>3.73</i>	<i>3.59</i>	3.44	<i>3.44</i>	<i>3.53</i>
Middle East	8.86	9.23	9.67	9.00	9.16	<i>9.34</i>	<i>9.87</i>	<i>9.28</i>	<i>9.47</i>	<i>9.48</i>	<i>10.02</i>	<i>9.42</i>	9.19	<i>9.41</i>	<i>9.60</i>
Asia and Oceania	36.51	35.82	35.40	36.50	37.64	<i>37.09</i>	<i>36.31</i>	<i>37.30</i>	<i>38.65</i>	<i>38.02</i>	<i>37.21</i>	<i>38.22</i>	36.06	<i>37.08</i>	<i>38.03</i>
China	15.11	15.30	14.99	15.19	15.83	<i>16.02</i>	<i>15.70</i>	<i>15.91</i>	<i>16.21</i>	<i>16.41</i>	<i>16.08</i>	<i>16.30</i>	15.15	<i>15.86</i>	<i>16.25</i>
Japan	3.70	3.03	3.19	3.56	3.62	<i>3.00</i>	<i>3.10</i>	<i>3.44</i>	<i>3.56</i>	<i>2.95</i>	<i>3.05</i>	<i>3.38</i>	3.37	<i>3.29</i>	<i>3.24</i>
India	5.08	5.07	4.84	5.18	5.26	<i>5.41</i>	<i>5.05</i>	<i>5.37</i>	<i>5.64</i>	<i>5.71</i>	<i>5.33</i>	<i>5.67</i>	5.04	<i>5.27</i>	<i>5.59</i>
Africa	4.45	4.45	4.34	4.48	4.52	<i>4.54</i>	<i>4.46</i>	<i>4.62</i>	<i>4.63</i>	<i>4.64</i>	<i>4.56</i>	<i>4.72</i>	4.43	<i>4.54</i>	<i>4.64</i>
Total OECD Liquid Fuels Consumption	45.76	45.37	46.63	45.98	45.59	<i>45.55</i>	<i>46.26</i>	<i>46.38</i>	<i>46.15</i>	<i>45.75</i>	<i>46.56</i>	<i>46.59</i>	45.94	<i>45.95</i>	<i>46.26</i>
Total non-OECD Liquid Fuels Consumption	52.77	53.65	53.77	53.76	54.38	<i>55.15</i>	<i>55.10</i>	<i>55.05</i>	<i>56.11</i>	<i>56.62</i>	<i>56.55</i>	<i>56.53</i>	53.49	<i>54.92</i>	<i>56.45</i>
Total World Liquid Fuels Consumption	98.53	99.01	100.40	99.74	99.97	<i>100.70</i>	<i>101.36</i>	<i>101.43</i>	<i>102.26</i>	<i>102.38</i>	<i>103.11</i>	<i>103.11</i>	99.43	<i>100.87</i>	<i>102.72</i>
Real Gross Domestic Product (a)															
World Index, 2015 Q1 = 100	122.0	122.2	123.3	123.7	124.3	<i>125.1</i>	<i>125.8</i>	<i>126.6</i>	<i>127.6</i>	<i>128.7</i>	<i>129.9</i>	<i>131.1</i>	122.8	<i>125.4</i>	<i>129.3</i>
Percent change from prior year	4.4	3.5	3.2	2.0	2.0	<i>2.3</i>	<i>2.0</i>	<i>2.3</i>	<i>2.6</i>	<i>2.9</i>	<i>3.3</i>	<i>3.6</i>	3.3	<i>2.2</i>	<i>3.1</i>
OECD Index, 2015 = 100													113.3	<i>114.0</i>	<i>115.5</i>
Percent change from prior year													3.0	<i>0.6</i>	<i>1.3</i>
Non-OECD Index, 2015 = 100													128.9	<i>133.2</i>	<i>139.2</i>
Percent change from prior year													3.6	<i>3.3</i>	<i>4.5</i>
Nominal U.S. Dollar Index (b)															
Index, 2015 Q1 = 100	109.5	112.8	117.1	118.4	115.2	<i>116.3</i>	<i>116.8</i>	<i>116.8</i>	<i>116.4</i>	<i>115.6</i>	<i>114.7</i>	<i>113.9</i>	114.5	<i>116.3</i>	<i>115.1</i>
Percent change from prior year	2.8	6.4	9.0	8.6	5.2	<i>3.1</i>	<i>-0.2</i>	<i>-1.3</i>	<i>1.0</i>	<i>-0.6</i>	<i>-1.8</i>	<i>-2.5</i>	6.7	<i>1.6</i>	<i>-1.0</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 April 6, 2022.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

U.S. Energy Information Administration | Short-Term Energy Outlook - April 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	2.44	2.62	2.57	2.61	2.60	2.66	2.61	2.64	2.39	2.56	2.63
Propane	1.77	1.85	1.92	1.88	1.89	1.91	1.92	1.93	1.95	1.98	2.00	2.00	1.86	1.91	1.98
Butanes	0.93	0.98	1.02	0.99	0.98	1.02	1.03	1.03	1.04	1.05	1.06	1.06	0.98	1.02	1.05
Natural Gasoline (Pentanes Plus)	0.59	0.67	0.74	0.66	0.62	0.65	0.68	0.65	0.64	0.67	0.70	0.67	0.66	0.65	0.67
Refinery and Blender Net Production															
Ethane/Ethylene	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Propane	0.27	0.29	0.29	0.27	0.27	0.28	0.29	0.28	0.28	0.29	0.30	0.29	0.28	0.28	0.29
Propylene (refinery-grade)	0.28	0.28	0.26	0.23	0.26	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.26	0.28	0.28
Butanes/Butylenes	-0.07	0.25	0.19	-0.15	-0.06	0.26	0.19	-0.19	-0.08	0.27	0.20	-0.19	0.06	0.05	0.05
Renewable Fuels and Oxygenate Plant Net Production															
Natural Gasoline (Pentanes Plus)	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
HGL Net Imports															
Ethane	-0.50	-0.40	-0.43	-0.46	-0.48	-0.47	-0.47	-0.47	-0.49	-0.50	-0.49	-0.52	-0.45	-0.47	-0.50
Propane/Propylene	-1.18	-1.33	-1.21	-1.29	-1.41	-1.38	-1.34	-1.41	-1.36	-1.44	-1.41	-1.50	-1.25	-1.38	-1.43
Butanes/Butylenes	-0.28	-0.41	-0.34	-0.36	-0.42	-0.46	-0.46	-0.44	-0.41	-0.47	-0.47	-0.41	-0.35	-0.44	-0.44
Natural Gasoline (Pentanes Plus)	-0.17	-0.17	-0.19	-0.15	-0.22	-0.24	-0.25	-0.23	-0.25	-0.24	-0.22	-0.20	-0.17	-0.23	-0.23
HGL Refinery and Blender Net Inputs															
Butanes/Butylenes	0.44	0.31	0.35	0.56	0.47	0.29	0.32	0.51	0.43	0.29	0.33	0.55	0.42	0.40	0.40
Natural Gasoline (Pentanes Plus)	0.20	0.20	0.22	0.20	0.20	0.19	0.19	0.18	0.17	0.18	0.19	0.18	0.20	0.19	0.18
HGL Consumption															
Ethane/Ethylene	1.98	2.03	1.97	1.91	2.02	2.09	2.10	2.12	2.12	2.13	2.13	2.13	1.97	2.08	2.13
Propane	1.16	0.60	0.69	0.91	1.01	0.60	0.63	0.95	1.14	0.61	0.67	0.92	0.84	0.80	0.84
Propylene (refinery-grade)	0.30	0.29	0.28	0.24	0.28	0.30	0.30	0.29	0.30	0.29	0.29	0.29	0.28	0.29	0.30
Butanes/Butylenes	0.23	0.26	0.29	0.20	0.19	0.25	0.25	0.21	0.22	0.25	0.27	0.22	0.24	0.23	0.24
Natural Gasoline (Pentanes Plus)	0.21	0.24	0.26	0.31	0.23	0.20	0.22	0.23	0.22	0.22	0.26	0.27	0.26	0.22	0.24
HGL Inventories (million barrels)															
Ethane	51.1	51.7	49.9	54.3	49.8	52.3	53.0	56.2	54.9	59.2	59.0	60.7	51.8	52.8	58.5
Propane	36.3	54.1	81.9	76.6	51.0	68.8	89.2	74.6	48.8	66.9	84.8	71.1	76.6	74.6	71.1
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	40.6	66.5	84.4	55.3	46.2	73.7	91.7	62.6	54.5	55.3	62.6
Natural Gasoline (Pentanes Plus)	19.4	22.7	27.2	25.2	20.5	21.5	22.1	21.2	18.6	19.7	20.4	19.6	25.2	21.2	19.6
Refinery and Blender Net Inputs															
Crude Oil	15.56	16.09	16.26	15.80	15.20	16.53	16.54	15.68	15.50	16.30	16.31	15.56	15.93	15.99	15.92
Hydrocarbon Gas Liquids	0.64	0.50	0.57	0.76	0.67	0.48	0.51	0.69	0.60	0.47	0.52	0.73	0.62	0.58	0.58
Other Hydrocarbons/Oxygenates	1.12	1.20	1.19	1.17	1.13	1.21	1.20	1.19	1.16	1.23	1.22	1.21	1.17	1.18	1.21
Unfinished Oils	-0.12	0.21	0.24	0.15	0.12	0.28	0.38	0.28	0.08	0.28	0.31	0.27	0.12	0.27	0.24
Motor Gasoline Blend Components	0.33	0.84	0.66	0.29	0.37	0.73	0.59	0.53	0.55	0.72	0.59	0.53	0.53	0.55	0.59
Aviation Gasoline Blend Components	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Refinery and Blender Net Inputs	17.53	18.84	18.92	18.17	17.49	19.23	19.22	18.37	17.89	19.00	18.94	18.30	18.37	18.58	18.53
Refinery Processing Gain	0.95	1.07	1.05	1.01	0.97	1.03	1.03	1.01	0.98	1.01	1.01	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	0.77	0.37	0.48	0.85	0.78	0.38	0.61	0.61	0.62
Finished Motor Gasoline	9.22	9.74	9.73	9.58	9.25	9.87	9.90	9.85	9.52	9.76	9.74	9.84	9.57	9.72	9.71
Jet Fuel	1.48	1.71	1.67	1.60	1.61	1.70	1.70	1.59	1.51	1.62	1.66	1.58	1.62	1.65	1.60
Distillate Fuel	4.77	5.00	5.15	5.09	4.64	5.16	5.22	5.13	4.90	5.19	5.16	5.08	5.01	5.04	5.08
Residual Fuel	0.26	0.22	0.26	0.25	0.26	0.25	0.28	0.29	0.26	0.23	0.26	0.22	0.25	0.27	0.24
Other Oils (a)	2.26	2.39	2.40	2.30	2.23	2.44	2.37	2.15	2.20	2.35	2.34	2.20	2.34	2.30	2.27
Total Refinery and Blender Net Production	18.49	19.90	19.97	19.18	18.46	20.25	20.24	19.38	18.86	20.00	19.95	19.30	19.39	19.59	19.53
Refinery Distillation Inputs	16.07	16.61	16.82	16.34	15.72	16.73	16.82	16.01	15.81	16.53	16.61	15.90	16.46	16.32	16.21
Refinery Operable Distillation Capacity	17.94	17.94	17.98	18.01	18.02	18.20	18.24	18.24	18.02	17.98	17.98	17.99	17.97	18.18	17.99
Refinery Distillation Utilization Factor	0.90	0.93	0.94	0.91	0.87	0.92	0.92	0.88	0.88	0.92	0.92	0.88	0.92	0.90	0.90

(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 April 6, 2022.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 4c. U.S. Regional Motor Gasoline Prices and Inventories
 U.S. Energy Information Administration | Short-Term Energy Outlook - April 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	261	280	266	241	236	247	240	218	309	262	235
Gasoline Regular Grade Retail Prices Including Taxes															
PADD 1	364	438	393	341	331	340	331	321	312	320	314	295	385	331	310
PADD 2	352	436	397	345	324	339	332	313	302	316	311	287	383	327	304
PADD 3	340	414	357	300	302	319	311	291	281	293	286	263	353	306	281
PADD 4	360	446	434	358	357	353	356	335	316	335	334	311	401	351	324
PADD 5	452	543	511	478	418	437	427	402	388	403	392	370	497	422	388
U.S. Average	371	450	408	357	338	354	345	328	317	329	323	301	397	342	318
Gasoline All Grades Including Taxes	380	460	419	369	349	365	357	340	329	340	334	313	408	353	329
End-of-period Inventories (million barrels)															
Total Gasoline Inventories															
PADD 1	56.9	53.6	54.4	56.4	53.2	59.5	61.9	64.1	63.2	64.8	60.1	63.4	56.4	64.1	63.4
PADD 2	56.5	46.7	44.1	46.6	49.5	48.8	49.1	54.9	55.5	51.8	48.5	52.4	46.6	54.9	52.4
PADD 3	87.1	83.9	80.2	81.4	81.5	87.9	87.5	87.4	86.9	87.5	83.5	83.5	81.4	87.4	83.5
PADD 4	8.1	6.4	6.4	7.4	8.2	6.9	7.5	8.1	8.4	6.9	7.0	7.8	7.4	8.1	7.8
PADD 5	29.9	30.3	24.5	32.6	30.0	29.9	30.2	31.1	29.8	29.8	30.2	31.2	32.6	31.1	31.2
U.S. Total	238.5	221.0	209.6	224.3	222.3	233.0	236.3	245.6	243.9	240.8	229.3	238.3	224.3	245.6	238.3
Finished Gasoline Inventories															
U.S. Total	17.3	17.1	17.6	17.4	13.8	15.7	18.6	21.1	18.4	19.0	20.3	22.5	17.4	21.1	22.5
Gasoline Blending Components Inventories															
U.S. Total	221.2	203.8	192.0	206.9	208.5	217.2	217.7	224.5	225.5	221.9	209.0	215.8	206.9	224.5	215.8

- = no data available

Notes: EIA completed modeling and analysis for this report on April 6, 2022.

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

Prices are not adjusted for inflation.

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

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

Historical data: Latest data available from Energy Information Administration databases supporting the following reports: *Petroleum Marketing Monthly*, DOE/EIA-0380; *Petroleum Supply Monthly*, DOE/EIA-0109; *Petroleum Supply Annual*, DOE/EIA-0340/2; and *Weekly Petroleum Status Report*, DOE/EIA-0208.

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

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 5a. U.S. Natural Gas Supply, Consumption, and Inventories
 U.S. Energy Information Administration | Short-Term Energy Outlook - April 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	108.84	110.20	<i>109.06</i>	<i>108.99</i>	<i>109.42</i>	<i>109.80</i>	<i>110.08</i>	<i>110.40</i>	<i>110.46</i>	106.66	<i>109.42</i>	<i>110.19</i>
Alaska	1.06	1.00	0.96	1.07	1.05	<i>0.94</i>	<i>0.85</i>	<i>0.98</i>	<i>1.00</i>	<i>0.92</i>	<i>0.84</i>	<i>0.97</i>	1.02	<i>0.95</i>	<i>0.93</i>
Federal GOM (a)	2.05	2.11	2.19	2.12	2.28	<i>2.30</i>	<i>2.17</i>	<i>2.13</i>	<i>2.18</i>	<i>2.13</i>	<i>2.03</i>	<i>2.02</i>	2.12	<i>2.22</i>	<i>2.09</i>
Lower 48 States (excl GOM)	100.16	103.07	105.12	105.65	106.87	<i>105.82</i>	<i>105.97</i>	<i>106.32</i>	<i>106.63</i>	<i>107.04</i>	<i>107.53</i>	<i>107.46</i>	103.52	<i>106.24</i>	<i>107.16</i>
Total Dry Gas Production	95.09	97.59	99.46	100.22	101.60	<i>100.54</i>	<i>100.47</i>	<i>100.88</i>	<i>101.23</i>	<i>101.49</i>	<i>101.77</i>	<i>101.83</i>	98.11	<i>100.87</i>	<i>101.58</i>
LNG Gross Imports	0.15	0.01	0.06	0.04	0.07	<i>0.04</i>	<i>0.04</i>	<i>0.06</i>	<i>0.10</i>	<i>0.04</i>	<i>0.04</i>	<i>0.06</i>	0.06	<i>0.05</i>	<i>0.06</i>
LNG Gross Exports	11.50	10.80	9.74	10.35	11.62	<i>12.20</i>	<i>12.17</i>	<i>12.33</i>	<i>12.70</i>	<i>12.60</i>	<i>12.31</i>	<i>13.30</i>	10.59	<i>12.08</i>	<i>12.73</i>
Pipeline Gross Imports	8.89	7.73	7.84	8.41	8.20	<i>6.84</i>	<i>7.05</i>	<i>7.52</i>	<i>8.27</i>	<i>6.85</i>	<i>7.06</i>	<i>7.52</i>	8.22	<i>7.40</i>	<i>7.42</i>
Pipeline Gross Exports	8.46	8.50	8.10	8.19	8.83	<i>8.43</i>	<i>8.78</i>	<i>9.20</i>	<i>9.49</i>	<i>8.88</i>	<i>9.21</i>	<i>9.64</i>	8.31	<i>8.81</i>	<i>9.31</i>
Supplemental Gaseous Fuels	0.21	0.17	0.18	0.16	0.19	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	0.18	<i>0.18</i>	<i>0.18</i>
Net Inventory Withdrawals	20.14	-10.25	-8.94	2.35	11.83	<i>-11.15</i>	<i>-7.32</i>	<i>4.89</i>	<i>16.15</i>	<i>-13.03</i>	<i>-9.49</i>	<i>4.33</i>	0.75	<i>-0.48</i>	<i>-0.52</i>
Total Supply	104.52	75.95	80.75	92.66	101.44	<i>75.82</i>	<i>79.47</i>	<i>92.00</i>	<i>103.74</i>	<i>74.06</i>	<i>78.05</i>	<i>90.98</i>	88.42	<i>87.14</i>	<i>86.70</i>
Balancing Item (b)	0.31	0.18	0.02	-0.05	0.15	<i>-0.68</i>	<i>0.74</i>	<i>0.72</i>	<i>-0.72</i>	<i>-1.14</i>	<i>-0.57</i>	<i>0.11</i>	0.11	<i>0.24</i>	<i>-0.58</i>
Total Primary Supply	104.83	76.13	80.77	92.61	101.59	<i>75.14</i>	<i>80.21</i>	<i>92.72</i>	<i>103.02</i>	<i>72.92</i>	<i>77.47</i>	<i>91.09</i>	88.53	<i>87.37</i>	<i>86.12</i>
Consumption (billion cubic feet per day)															
Residential	26.09	7.86	3.57	17.37	23.62	<i>8.08</i>	<i>4.27</i>	<i>17.42</i>	<i>25.80</i>	<i>8.17</i>	<i>4.32</i>	<i>17.46</i>	13.67	<i>13.30</i>	<i>13.92</i>
Commercial	15.61	6.67	4.74	11.69	14.43	<i>7.18</i>	<i>5.39</i>	<i>11.57</i>	<i>15.21</i>	<i>7.13</i>	<i>5.35</i>	<i>11.49</i>	9.66	<i>9.62</i>	<i>9.79</i>
Industrial	25.46	22.25	21.47	23.51	23.91	<i>21.67</i>	<i>21.74</i>	<i>24.13</i>	<i>24.49</i>	<i>21.03</i>	<i>20.60</i>	<i>22.85</i>	23.16	<i>22.86</i>	<i>22.24</i>
Electric Power (c)	28.39	30.99	42.36	30.94	30.13	<i>29.78</i>	<i>40.19</i>	<i>30.49</i>	<i>27.98</i>	<i>28.18</i>	<i>38.62</i>	<i>30.17</i>	33.20	<i>32.67</i>	<i>31.26</i>
Lease and Plant Fuel	5.26	5.41	5.51	5.54	5.61	<i>5.55</i>	<i>5.55</i>	<i>5.57</i>	<i>5.59</i>	<i>5.61</i>	<i>5.62</i>	<i>5.63</i>	5.43	<i>5.57</i>	<i>5.61</i>
Pipeline and Distribution Use	3.86	2.80	2.98	3.41	3.74	<i>2.74</i>	<i>2.93</i>	<i>3.41</i>	<i>3.80</i>	<i>2.65</i>	<i>2.82</i>	<i>3.35</i>	3.26	<i>3.20</i>	<i>3.16</i>
Vehicle Use	0.15	0.15	0.15	0.15	0.15	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	0.15	<i>0.15</i>	<i>0.15</i>
Total Consumption	104.83	76.13	80.77	92.61	101.59	<i>75.14</i>	<i>80.21</i>	<i>92.72</i>	<i>103.02</i>	<i>72.92</i>	<i>77.47</i>	<i>91.09</i>	88.53	<i>87.37</i>	<i>86.12</i>
End-of-period Inventories (billion cubic feet)															
Working Gas Inventory	1,401	2,325	3,146	2,927	1,856	<i>2,871</i>	<i>3,545</i>	<i>3,095</i>	<i>1,625</i>	<i>2,810</i>	<i>3,684</i>	<i>3,285</i>	2,927	<i>3,095</i>	<i>3,285</i>
East Region (d)	242	482	759	698	335	<i>627</i>	<i>862</i>	<i>706</i>	<i>275</i>	<i>601</i>	<i>885</i>	<i>750</i>	698	<i>706</i>	<i>750</i>
Midwest Region (d)	296	557	917	831	421	<i>692</i>	<i>999</i>	<i>831</i>	<i>338</i>	<i>672</i>	<i>1,036</i>	<i>881</i>	831	<i>831</i>	<i>881</i>
South Central Region (d)	587	885	1,006	1,042	921	<i>1,209</i>	<i>1,209</i>	<i>1,132</i>	<i>724</i>	<i>1,085</i>	<i>1,195</i>	<i>1,146</i>	1,042	<i>1,132</i>	<i>1,146</i>
Mountain Region (d)	90	137	184	158	80	<i>121</i>	<i>190</i>	<i>164</i>	<i>105</i>	<i>152</i>	<i>217</i>	<i>187</i>	158	<i>164</i>	<i>187</i>
Pacific Region (d)	165	240	247	169	73	<i>196</i>	<i>258</i>	<i>236</i>	<i>157</i>	<i>274</i>	<i>324</i>	<i>294</i>	169	<i>236</i>	<i>294</i>
Alaska	21	25	32	30	26	<i>26</i>	<i>26</i>	<i>26</i>	<i>26</i>	<i>26</i>	<i>26</i>	<i>26</i>	30	<i>26</i>	<i>26</i>

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

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

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

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

- = no data available

LNG: liquefied natural gas.

Notes: EIA completed modeling and analysis for this report on April 6, 2022.

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Wholesale/Spot															
Henry Hub Spot Price	4.84	7.77	8.30	5.76	2.76	<i>2.75</i>	<i>3.15</i>	<i>3.58</i>	<i>4.01</i>	<i>3.57</i>	<i>3.78</i>	<i>4.04</i>	6.67	<i>3.06</i>	<i>3.85</i>
Residential Retail															
New England	17.69	20.93	26.83	21.72	20.61	<i>20.03</i>	<i>23.14</i>	<i>17.84</i>	<i>17.71</i>	<i>19.20</i>	<i>23.52</i>	<i>18.57</i>	19.87	<i>19.80</i>	<i>18.59</i>
Middle Atlantic	12.79	15.55	23.86	16.89	14.42	<i>14.53</i>	<i>20.84</i>	<i>14.00</i>	<i>12.91</i>	<i>15.18</i>	<i>21.97</i>	<i>14.68</i>	15.17	<i>14.76</i>	<i>14.40</i>
E. N. Central	9.81	14.81	25.79	13.17	11.07	<i>13.67</i>	<i>21.72</i>	<i>9.53</i>	<i>8.50</i>	<i>12.36</i>	<i>21.38</i>	<i>9.69</i>	12.45	<i>11.54</i>	<i>10.19</i>
W. N. Central	11.40	15.25	25.08	13.42	12.54	<i>13.93</i>	<i>20.93</i>	<i>10.13</i>	<i>8.96</i>	<i>12.14</i>	<i>20.11</i>	<i>10.21</i>	13.23	<i>12.39</i>	<i>10.40</i>
S. Atlantic	13.91	22.11	32.99	17.69	16.61	<i>18.09</i>	<i>25.44</i>	<i>14.21</i>	<i>12.92</i>	<i>18.22</i>	<i>26.52</i>	<i>14.69</i>	17.48	<i>16.64</i>	<i>15.17</i>
E. S. Central	11.80	17.16	26.38	15.45	12.38	<i>14.77</i>	<i>22.27</i>	<i>11.86</i>	<i>10.45</i>	<i>15.00</i>	<i>22.85</i>	<i>12.07</i>	14.32	<i>13.15</i>	<i>12.20</i>
W. S. Central	12.61	20.91	30.98	17.56	12.42	<i>15.09</i>	<i>21.39</i>	<i>12.36</i>	<i>9.79</i>	<i>15.48</i>	<i>22.63</i>	<i>12.97</i>	16.35	<i>13.50</i>	<i>12.39</i>
Mountain	10.31	12.85	19.38	13.44	9.48	<i>9.75</i>	<i>13.86</i>	<i>9.12</i>	<i>8.68</i>	<i>10.43</i>	<i>14.47</i>	<i>9.39</i>	12.39	<i>9.72</i>	<i>9.60</i>
Pacific	17.07	17.80	20.54	18.95	19.86	<i>17.20</i>	<i>16.66</i>	<i>15.09</i>	<i>15.88</i>	<i>16.02</i>	<i>16.58</i>	<i>15.41</i>	18.20	<i>17.60</i>	<i>15.84</i>
U.S. Average	12.32	16.57	24.95	15.63	13.79	<i>14.92</i>	<i>20.18</i>	<i>12.17</i>	<i>11.27</i>	<i>14.52</i>	<i>20.54</i>	<i>12.54</i>	14.82	<i>13.94</i>	<i>12.87</i>
Commercial Retail															
New England	12.62	14.46	16.23	15.81	14.78	<i>12.99</i>	<i>12.26</i>	<i>11.01</i>	<i>11.33</i>	<i>11.93</i>	<i>12.23</i>	<i>11.34</i>	14.21	<i>13.02</i>	<i>11.52</i>
Middle Atlantic	10.36	10.78	12.01	11.99	11.20	<i>8.46</i>	<i>7.65</i>	<i>8.09</i>	<i>8.86</i>	<i>8.37</i>	<i>8.05</i>	<i>8.57</i>	11.11	<i>9.32</i>	<i>8.60</i>
E. N. Central	8.12	10.46	14.23	10.32	8.95	<i>8.74</i>	<i>9.85</i>	<i>6.93</i>	<i>6.93</i>	<i>8.23</i>	<i>9.97</i>	<i>7.25</i>	9.59	<i>8.31</i>	<i>7.45</i>
W. N. Central	10.22	11.73	15.07	11.32	11.08	<i>9.79</i>	<i>10.44</i>	<i>8.16</i>	<i>8.22</i>	<i>8.98</i>	<i>10.55</i>	<i>8.67</i>	11.12	<i>9.93</i>	<i>8.64</i>
S. Atlantic	10.52	12.22	14.21	13.08	13.37	<i>11.70</i>	<i>11.09</i>	<i>9.82</i>	<i>9.58</i>	<i>10.50</i>	<i>10.83</i>	<i>9.97</i>	12.06	<i>11.62</i>	<i>10.01</i>
E. S. Central	10.41	12.80	15.56	13.49	11.95	<i>10.74</i>	<i>11.05</i>	<i>9.35</i>	<i>8.82</i>	<i>10.15</i>	<i>11.35</i>	<i>9.83</i>	12.26	<i>10.76</i>	<i>9.61</i>
W. S. Central	10.09	12.86	15.00	12.73	11.45	<i>10.90</i>	<i>10.83</i>	<i>9.36</i>	<i>8.37</i>	<i>9.29</i>	<i>10.18</i>	<i>9.30</i>	12.01	<i>10.66</i>	<i>9.03</i>
Mountain	8.78	9.98	12.60	11.31	10.43	<i>9.47</i>	<i>9.56</i>	<i>7.94</i>	<i>7.76</i>	<i>8.27</i>	<i>9.01</i>	<i>7.78</i>	10.19	<i>9.44</i>	<i>7.98</i>
Pacific	13.08	13.67	15.58	14.47	17.31	<i>15.81</i>	<i>15.18</i>	<i>14.11</i>	<i>14.21</i>	<i>13.64</i>	<i>13.90</i>	<i>13.44</i>	14.00	<i>15.73</i>	<i>13.81</i>
U.S. Average	10.00	11.71	14.12	12.14	11.64	<i>10.57</i>	<i>10.67</i>	<i>8.99</i>	<i>8.87</i>	<i>9.64</i>	<i>10.47</i>	<i>9.17</i>	11.37	<i>10.52</i>	<i>9.27</i>
Industrial Retail															
New England	11.11	12.09	12.17	13.47	12.52	<i>9.53</i>	<i>7.63</i>	<i>8.48</i>	<i>9.44</i>	<i>8.79</i>	<i>7.78</i>	<i>8.90</i>	12.11	<i>9.90</i>	<i>8.88</i>
Middle Atlantic	10.80	10.15	11.91	12.72	12.07	<i>9.11</i>	<i>7.90</i>	<i>8.05</i>	<i>8.56</i>	<i>8.04</i>	<i>7.84</i>	<i>8.34</i>	11.26	<i>9.97</i>	<i>8.33</i>
E. N. Central	7.66	8.72	10.75	10.31	8.81	<i>6.90</i>	<i>6.14</i>	<i>6.07</i>	<i>6.61</i>	<i>6.69</i>	<i>6.51</i>	<i>6.55</i>	8.88	<i>7.32</i>	<i>6.60</i>
W. N. Central	7.96	8.58	9.59	8.62	8.22	<i>4.92</i>	<i>4.49</i>	<i>5.17</i>	<i>5.97</i>	<i>5.15</i>	<i>5.08</i>	<i>5.76</i>	8.64	<i>5.81</i>	<i>5.53</i>
S. Atlantic	7.46	8.84	11.14	9.09	7.34	<i>4.87</i>	<i>4.84</i>	<i>5.35</i>	<i>6.08</i>	<i>5.46</i>	<i>5.52</i>	<i>5.95</i>	9.05	<i>5.68</i>	<i>5.77</i>
E. S. Central	6.53	8.70	10.63	8.03	5.84	<i>4.25</i>	<i>4.34</i>	<i>4.97</i>	<i>5.66</i>	<i>5.11</i>	<i>5.08</i>	<i>5.57</i>	8.34	<i>4.90</i>	<i>5.38</i>
W. S. Central	5.58	7.69	8.45	5.87	3.42	<i>2.83</i>	<i>3.30</i>	<i>3.78</i>	<i>4.21</i>	<i>3.70</i>	<i>3.95</i>	<i>4.27</i>	6.92	<i>3.33</i>	<i>4.03</i>
Mountain	7.11	8.39	10.45	9.79	9.68	<i>7.34</i>	<i>6.60</i>	<i>6.15</i>	<i>6.26</i>	<i>6.09</i>	<i>6.29</i>	<i>6.25</i>	8.83	<i>7.62</i>	<i>6.22</i>
Pacific	8.82	9.02	9.60	9.42	9.78	<i>7.57</i>	<i>7.05</i>	<i>7.12</i>	<i>7.60</i>	<i>7.00</i>	<i>7.05</i>	<i>7.33</i>	9.19	<i>7.95</i>	<i>7.28</i>
U.S. Average	6.82	8.24	9.27	7.53	6.09	<i>4.08</i>	<i>4.11</i>	<i>4.78</i>	<i>5.48</i>	<i>4.64</i>	<i>4.68</i>	<i>5.28</i>	7.90	<i>4.81</i>	<i>5.05</i>

- = no data available

Notes: EIA completed modeling and analysis for this report on April 6, 2022.

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

Prices are not adjusted for inflation.

Regions refer to U.S. Census divisions.

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

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

U.S. Energy Information Administration | Short-Term Energy Outlook - April 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	149.1	<i>136.4</i>	<i>142.3</i>	<i>130.7</i>	<i>126.4</i>	<i>119.7</i>	<i>132.6</i>	<i>126.9</i>	597.2	<i>558.4</i>	<i>505.6</i>
Appalachia	40.2	40.2	40.0	38.4	40.5	<i>38.1</i>	<i>33.0</i>	<i>31.1</i>	<i>32.1</i>	<i>31.8</i>	<i>29.0</i>	<i>29.3</i>	158.8	<i>142.6</i>	<i>122.2</i>
Interior	23.8	26.0	24.7	22.9	25.0	<i>24.2</i>	<i>25.2</i>	<i>23.3</i>	<i>24.0</i>	<i>22.5</i>	<i>23.7</i>	<i>22.3</i>	97.4	<i>97.7</i>	<i>92.5</i>
Western	85.0	79.5	89.5	86.9	83.6	<i>74.0</i>	<i>84.1</i>	<i>76.4</i>	<i>70.2</i>	<i>65.5</i>	<i>79.9</i>	<i>75.2</i>	340.9	<i>318.1</i>	<i>290.8</i>
Primary Inventory Withdrawals	-1.9	0.0	3.4	-0.3	-2.0	<i>0.1</i>	<i>3.5</i>	<i>0.0</i>	<i>-1.7</i>	<i>0.2</i>	<i>3.5</i>	<i>0.0</i>	1.2	<i>1.6</i>	<i>2.0</i>
Imports	1.3	1.6	2.0	1.4	1.3	<i>1.3</i>	<i>1.5</i>	<i>1.1</i>	<i>0.7</i>	<i>0.9</i>	<i>1.2</i>	<i>0.9</i>	6.3	<i>5.2</i>	<i>3.8</i>
Exports	20.2	23.0	20.7	20.8	22.4	<i>24.2</i>	<i>22.5</i>	<i>23.3</i>	<i>24.0</i>	<i>25.8</i>	<i>25.0</i>	<i>26.7</i>	84.8	<i>92.4</i>	<i>101.5</i>
Metallurgical Coal	10.5	13.1	11.6	11.3	12.4	<i>13.0</i>	<i>11.6</i>	<i>11.8</i>	<i>12.5</i>	<i>13.7</i>	<i>13.1</i>	<i>13.7</i>	46.4	<i>48.8</i>	<i>53.0</i>
Steam Coal	9.7	9.9	9.2	9.6	10.0	<i>11.2</i>	<i>10.8</i>	<i>11.4</i>	<i>11.6</i>	<i>12.1</i>	<i>11.9</i>	<i>13.0</i>	38.4	<i>43.5</i>	<i>48.5</i>
Total Primary Supply	128.2	124.3	138.9	128.5	126.0	<i>113.5</i>	<i>124.8</i>	<i>108.5</i>	<i>101.3</i>	<i>95.0</i>	<i>112.4</i>	<i>101.1</i>	520.0	<i>472.9</i>	<i>409.8</i>
Secondary Inventory Withdrawals	5.9	-1.0	7.0	-11.0	-19.4	<i>-11.7</i>	<i>8.0</i>	<i>-11.1</i>	<i>10.1</i>	<i>2.7</i>	<i>21.8</i>	<i>-5.1</i>	0.9	<i>-34.3</i>	<i>29.6</i>
Waste Coal (a)	1.9	1.9	1.9	1.9	1.8	<i>1.8</i>	<i>1.8</i>	<i>1.8</i>	<i>1.8</i>	<i>1.8</i>	<i>1.8</i>	<i>1.8</i>	7.5	<i>7.2</i>	<i>7.2</i>
Total Supply	136.0	125.2	147.8	119.4	108.4	<i>103.6</i>	<i>134.5</i>	<i>99.2</i>	<i>113.3</i>	<i>99.5</i>	<i>136.0</i>	<i>97.8</i>	528.4	<i>445.7</i>	<i>446.6</i>
Consumption (million short tons)															
Coke Plants	4.2	3.9	3.9	3.9	3.8	<i>3.8</i>	<i>3.9</i>	<i>4.0</i>	<i>3.9</i>	<i>4.0</i>	<i>4.0</i>	<i>4.1</i>	15.9	<i>15.5</i>	<i>16.0</i>
Electric Power Sector (b)	122.7	107.3	134.8	105.3	93.0	<i>94.6</i>	<i>125.5</i>	<i>89.3</i>	<i>103.4</i>	<i>90.5</i>	<i>127.0</i>	<i>87.9</i>	469.9	<i>402.4</i>	<i>408.8</i>
Retail and Other Industry	6.9	6.7	6.5	6.7	6.2	<i>5.1</i>	<i>5.1</i>	<i>5.9</i>	<i>6.0</i>	<i>5.0</i>	<i>5.0</i>	<i>5.8</i>	26.9	<i>22.4</i>	<i>21.8</i>
Residential and Commercial	0.2	0.1	0.2	0.2	0.3	<i>0.1</i>	<i>0.1</i>	<i>0.2</i>	<i>0.3</i>	<i>0.1</i>	<i>0.1</i>	<i>0.2</i>	0.8	<i>0.7</i>	<i>0.8</i>
Other Industrial	6.7	6.6	6.3	6.5	6.0	<i>5.0</i>	<i>5.0</i>	<i>5.7</i>	<i>5.7</i>	<i>4.8</i>	<i>4.9</i>	<i>5.6</i>	26.0	<i>21.7</i>	<i>21.0</i>
Total Consumption	133.7	117.9	145.2	115.9	103.0	<i>103.6</i>	<i>134.5</i>	<i>99.2</i>	<i>113.3</i>	<i>99.5</i>	<i>136.0</i>	<i>97.8</i>	512.7	<i>440.3</i>	<i>446.6</i>
Discrepancy (c)	2.2	7.3	2.6	3.5	5.4	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	15.6	<i>5.4</i>	<i>0.0</i>
End-of-period Inventories (million short tons)															
Primary Inventories (d)	21.0	20.9	17.5	17.8	19.7	<i>19.7</i>	<i>16.2</i>	<i>16.2</i>	<i>17.8</i>	<i>17.7</i>	<i>14.1</i>	<i>14.1</i>	17.8	<i>16.2</i>	<i>14.1</i>
Secondary Inventories	90.5	91.5	84.5	95.5	114.9	<i>126.6</i>	<i>118.7</i>	<i>129.8</i>	<i>119.7</i>	<i>116.9</i>	<i>95.1</i>	<i>100.2</i>	95.5	<i>129.8</i>	<i>100.2</i>
Electric Power Sector	86.3	87.3	80.1	90.0	110.2	<i>121.8</i>	<i>113.6</i>	<i>124.8</i>	<i>115.5</i>	<i>112.5</i>	<i>90.5</i>	<i>95.6</i>	90.0	<i>124.8</i>	<i>95.6</i>
Retail and General Industry	2.4	2.4	2.5	3.5	3.0	<i>3.0</i>	<i>3.2</i>	<i>3.2</i>	<i>2.7</i>	<i>2.8</i>	<i>3.0</i>	<i>3.0</i>	3.5	<i>3.2</i>	<i>3.0</i>
Coke Plants	1.6	1.6	1.6	1.8	1.6	<i>1.7</i>	<i>1.6</i>	<i>1.6</i>	<i>1.4</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>	1.8	<i>1.6</i>	<i>1.5</i>
Commercial & Institutional	0.2	0.2	0.2	0.2	0.1	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	0.2	<i>0.2</i>	<i>0.1</i>
Coal Market Indicators															
Coal Miner Productivity															
(Tons per hour)	6.05	6.05	6.05	6.05	5.98	<i>5.98</i>	<i>5.98</i>	<i>5.98</i>	<i>5.80</i>	<i>5.80</i>	<i>5.80</i>	<i>5.80</i>	6.05	<i>5.98</i>	<i>5.80</i>
Total Raw Steel Production															
(Million short tons per day)	0.253	0.253	0.247	0.235	0.238	<i>0.230</i>	<i>0.233</i>	<i>0.235</i>	<i>0.240</i>	<i>0.236</i>	<i>0.240</i>	<i>0.242</i>	0.247	<i>0.234</i>	<i>0.239</i>
Cost of Coal to Electric Utilities															
(Dollars per million Btu)	2.18	2.26	2.50	2.55	2.58	<i>2.56</i>	<i>2.55</i>	<i>2.50</i>	<i>2.51</i>	<i>2.52</i>	<i>2.52</i>	<i>2.48</i>	2.37	<i>2.55</i>	<i>2.51</i>

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

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

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

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

- = no data available

Notes: EIA completed modeling and analysis for this report on April 6, 2022.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 7a. U.S. Electricity Industry Overview

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

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Electricity Supply (billion kilowatthours)															
Electricity Generation	1,029	1,026	1,187	1,001	995	<i>1,016</i>	<i>1,169</i>	<i>992</i>	<i>1,029</i>	<i>1,020</i>	<i>1,179</i>	<i>1,000</i>	4,243	<i>4,172</i>	<i>4,228</i>
Electric Power Sector (a)	990	989	1,148	963	957	<i>979</i>	<i>1,129</i>	<i>954</i>	<i>990</i>	<i>982</i>	<i>1,138</i>	<i>962</i>	4,090	<i>4,018</i>	<i>4,073</i>
Industrial Sector (b)	36	34	36	35	34	<i>34</i>	<i>37</i>	<i>35</i>	<i>35</i>	<i>34</i>	<i>37</i>	<i>35</i>	140	<i>141</i>	<i>142</i>
Commercial Sector (b)	3	3	3	3	3	<i>3</i>	<i>4</i>	<i>3</i>	<i>3</i>	<i>3</i>	<i>4</i>	<i>3</i>	13	<i>13</i>	<i>14</i>
Net Imports	7	10	15	10	11	<i>12</i>	<i>14</i>	<i>11</i>	<i>12</i>	<i>12</i>	<i>14</i>	<i>11</i>	41	<i>48</i>	<i>49</i>
Total Supply	1,036	1,036	1,203	1,010	1,006	<i>1,028</i>	<i>1,183</i>	<i>1,003</i>	<i>1,041</i>	<i>1,032</i>	<i>1,193</i>	<i>1,011</i>	4,284	<i>4,220</i>	<i>4,277</i>
Losses and Unaccounted for (c)	55	64	53	64	51	<i>65</i>	<i>53</i>	<i>52</i>	<i>43</i>	<i>65</i>	<i>54</i>	<i>52</i>	236	<i>221</i>	<i>215</i>
Electricity Consumption (billion kilowatthours unless noted)															
Sales to Ultimate Customers	945	938	1,114	911	921	<i>930</i>	<i>1,093</i>	<i>916</i>	<i>962</i>	<i>933</i>	<i>1,102</i>	<i>924</i>	3,909	<i>3,859</i>	<i>3,921</i>
Residential Sector	380	347	458	338	358	<i>340</i>	<i>444</i>	<i>342</i>	<i>389</i>	<i>341</i>	<i>448</i>	<i>345</i>	1,522	<i>1,484</i>	<i>1,522</i>
Commercial Sector	322	335	389	327	324	<i>339</i>	<i>388</i>	<i>329</i>	<i>331</i>	<i>337</i>	<i>387</i>	<i>329</i>	1,373	<i>1,380</i>	<i>1,385</i>
Industrial Sector	242	255	266	245	236	<i>249</i>	<i>260</i>	<i>244</i>	<i>240</i>	<i>253</i>	<i>265</i>	<i>249</i>	1,008	<i>989</i>	<i>1,007</i>
Transportation Sector	2	2	2	2	2	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	7	<i>6</i>	<i>6</i>
Direct Use (d)	35	34	36	35	34	<i>34</i>	<i>37</i>	<i>35</i>	<i>35</i>	<i>34</i>	<i>37</i>	<i>35</i>	139	<i>140</i>	<i>141</i>
Total Consumption	981	972	1,150	946	955	<i>964</i>	<i>1,130</i>	<i>951</i>	<i>997</i>	<i>967</i>	<i>1,139</i>	<i>959</i>	4,048	<i>4,000</i>	<i>4,062</i>
Average residential electricity usage per customer (kWh)	2,711	2,476	3,268	2,411	2,533	<i>2,407</i>	<i>3,136</i>	<i>2,416</i>	<i>2,725</i>	<i>2,387</i>	<i>3,135</i>	<i>2,416</i>	10,866	<i>10,492</i>	<i>10,662</i>
End-of-period Fuel Inventories Held by Electric Power Sector															
Coal (mmst)	86.3	87.3	80.1	90.0	110.2	<i>121.8</i>	<i>113.6</i>	<i>124.8</i>	<i>115.5</i>	<i>112.5</i>	<i>90.5</i>	<i>95.6</i>	90.0	<i>124.8</i>	<i>95.6</i>
Residual Fuel (mmb)	5.6	5.9	5.7	5.4	4.9	<i>4.7</i>	<i>2.7</i>	<i>3.1</i>	<i>1.7</i>	<i>2.0</i>	<i>0.5</i>	<i>1.1</i>	5.4	<i>3.1</i>	<i>1.1</i>
Distillate Fuel (mmb)	17.6	17.7	16.7	15.9	16.8	<i>16.6</i>	<i>16.5</i>	<i>16.7</i>	<i>16.5</i>	<i>16.3</i>	<i>16.2</i>	<i>16.5</i>	15.9	<i>16.7</i>	<i>16.5</i>
Prices															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	2.18	2.26	2.50	2.55	2.58	<i>2.56</i>	<i>2.55</i>	<i>2.50</i>	<i>2.51</i>	<i>2.52</i>	<i>2.52</i>	<i>2.48</i>	2.37	<i>2.55</i>	<i>2.51</i>
Natural Gas	5.95	7.39	8.23	6.90	4.88	<i>3.01</i>	<i>3.21</i>	<i>3.81</i>	<i>4.45</i>	<i>3.70</i>	<i>3.84</i>	<i>4.26</i>	7.24	<i>3.68</i>	<i>4.05</i>
Residual Fuel Oil	16.81	26.17	26.53	21.27	18.10	<i>16.68</i>	<i>16.21</i>	<i>16.31</i>	<i>16.43</i>	<i>16.51</i>	<i>15.33</i>	<i>14.83</i>	21.80	<i>16.82</i>	<i>15.74</i>
Distillate Fuel Oil	21.23	30.71	26.79	24.48	23.60	<i>20.72</i>	<i>20.71</i>	<i>21.75</i>	<i>21.27</i>	<i>20.08</i>	<i>19.48</i>	<i>19.14</i>	24.89	<i>21.82</i>	<i>20.02</i>
Prices to Ultimate Customers (cents per kilowatthour)															
Residential Sector	13.98	15.07	15.85	15.48	15.51	<i>15.77</i>	<i>15.94</i>	<i>15.25</i>	<i>15.17</i>	<i>15.82</i>	<i>16.00</i>	<i>15.33</i>	15.12	<i>15.64</i>	<i>15.60</i>
Commercial Sector	11.63	12.35	13.38	12.66	12.57	<i>12.59</i>	<i>13.34</i>	<i>12.41</i>	<i>12.36</i>	<i>12.57</i>	<i>13.40</i>	<i>12.39</i>	12.55	<i>12.75</i>	<i>12.71</i>
Industrial Sector	7.42	8.41	9.38	8.52	7.93	<i>8.23</i>	<i>9.02</i>	<i>8.31</i>	<i>8.03</i>	<i>8.19</i>	<i>8.97</i>	<i>8.31</i>	8.45	<i>8.38</i>	<i>8.39</i>
Wholesale Electricity Prices (dollars per megawatthour)															
ERCOT North hub	42.73	83.19	130.71	53.01	28.05	<i>30.16</i>	<i>48.02</i>	<i>31.30</i>	<i>34.27</i>	<i>30.10</i>	<i>40.89</i>	<i>32.48</i>	77.41	<i>34.38</i>	<i>34.43</i>
CAISO SP15 zone	45.20	60.34	110.03	135.13	92.54	<i>61.28</i>	<i>103.16</i>	<i>50.18</i>	<i>44.82</i>	<i>32.76</i>	<i>48.21</i>	<i>43.84</i>	87.67	<i>76.79</i>	<i>42.41</i>
ISO-NE Internal hub	116.48	73.28	99.14	80.77	52.63	<i>42.28</i>	<i>51.48</i>	<i>64.33</i>	<i>99.18</i>	<i>46.41</i>	<i>50.81</i>	<i>64.26</i>	92.42	<i>52.68</i>	<i>65.16</i>
NYISO Hudson Valley zone	100.10	79.72	104.71	77.17	44.65	<i>45.83</i>	<i>42.79</i>	<i>55.64</i>	<i>82.60</i>	<i>40.86</i>	<i>43.16</i>	<i>53.76</i>	90.42	<i>47.23</i>	<i>55.10</i>
PJM Western hub	58.33	93.00	110.99	71.60	36.49	<i>50.06</i>	<i>48.12</i>	<i>50.08</i>	<i>60.05</i>	<i>48.38</i>	<i>52.20</i>	<i>52.65</i>	83.48	<i>46.19</i>	<i>53.32</i>
Midcontinent ISO Illinois hub	47.88	89.21	101.80	57.87	31.39	<i>37.83</i>	<i>39.35</i>	<i>38.83</i>	<i>43.06</i>	<i>38.67</i>	<i>41.43</i>	<i>41.36</i>	74.19	<i>36.85</i>	<i>41.13</i>
SPP ISO South hub	37.25	72.85	109.97	55.87	28.96	<i>32.90</i>	<i>37.20</i>	<i>34.60</i>	<i>36.40</i>	<i>33.05</i>	<i>38.38</i>	<i>36.28</i>	68.98	<i>33.41</i>	<i>36.03</i>
SERC index, Into Southern	42.45	84.96	94.82	59.33	30.53	<i>38.88</i>	<i>39.83</i>	<i>38.07</i>	<i>42.14</i>	<i>38.06</i>	<i>41.59</i>	<i>40.99</i>	70.39	<i>36.83</i>	<i>40.69</i>
FRCC index, Florida Reliability	41.11	78.70	92.71	58.54	30.31	<i>42.45</i>	<i>43.55</i>	<i>40.18</i>	<i>41.75</i>	<i>40.22</i>	<i>42.15</i>	<i>40.24</i>	67.77	<i>39.12</i>	<i>41.09</i>
Northwest index, Mid-Columbia	39.85	59.39	137.82	151.39	105.99	<i>82.50</i>	<i>124.40</i>	<i>68.37</i>	<i>64.63</i>	<i>44.90</i>	<i>66.53</i>	<i>60.92</i>	97.11	<i>95.32</i>	<i>59.25</i>
Southwest index, Palo Verde	39.02	60.50	128.25	130.12	84.19	<i>57.22</i>	<i>90.87</i>	<i>47.82</i>	<i>43.54</i>	<i>37.40</i>	<i>48.14</i>	<i>42.15</i>	89.47	<i>70.03</i>	<i>42.81</i>

Notes: EIA completed modeling and analysis for this report on April 6, 2022.

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

kWh = kilowatthours. Btu = British thermal units.

Prices are not adjusted for inflation.

(a) Generation supplied by power plants with capacity of at least 1 megawatt operated by electric utilities and independent power producers.

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

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

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

Historical data sources:

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

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

U.S. Energy Information Administration | Short-Term Energy Outlook - April 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	12.1	10.5	12.7	11.1	13.0	10.6	12.9	11.2	48.4	46.3	47.7
Middle Atlantic	36.1	30.0	42.6	30.3	32.9	30.0	39.6	30.4	35.4	30.2	39.7	30.5	138.9	132.9	135.7
E. N. Central	50.8	43.8	54.8	43.1	46.8	42.5	54.6	44.5	51.5	43.4	55.3	44.8	192.5	188.4	195.0
W. N. Central	30.6	24.7	31.3	25.7	29.9	24.8	31.2	26.3	31.6	24.9	31.9	26.9	112.3	112.2	115.3
S. Atlantic	96.0	91.5	116.3	87.7	87.8	91.0	116.5	89.2	98.8	91.2	117.9	90.3	391.4	384.5	398.2
E. S. Central	32.6	27.7	37.0	26.5	29.7	27.3	37.0	27.2	34.8	27.5	37.3	27.5	123.8	121.3	127.1
W. S. Central	56.9	58.8	81.3	51.3	53.4	55.5	77.2	52.8	59.7	54.6	77.5	53.3	248.3	239.0	245.0
Mountain	24.1	26.2	36.1	24.3	25.0	25.5	34.4	23.9	24.6	25.7	34.9	24.2	110.7	108.8	109.4
Pacific contiguous	38.4	32.4	43.2	36.8	39.6	32.1	39.1	34.9	38.4	31.7	39.1	35.0	150.7	145.7	144.3
AK and HI	1.3	1.1	1.2	1.3	1.2	1.1	1.2	1.3	1.3	1.1	1.2	1.3	4.8	4.8	4.8
Total	379.8	346.7	457.7	337.7	358.2	340.4	443.5	341.7	389.0	340.9	447.6	344.9	1,521.9	1,483.9	1,522.5
Commercial Sector															
New England	12.1	11.8	13.9	11.7	11.9	11.9	13.3	11.7	12.1	11.7	13.1	11.5	49.4	48.8	48.4
Middle Atlantic	36.0	34.3	40.5	34.6	35.3	34.3	39.0	34.1	35.7	33.9	38.7	33.8	145.3	142.7	142.1
E. N. Central	43.3	42.9	48.8	42.2	43.0	42.6	48.3	41.9	43.6	42.1	48.0	41.7	177.1	175.8	175.4
W. N. Central	25.1	24.5	28.0	24.7	25.4	24.9	28.1	24.9	25.7	24.5	27.8	24.8	102.4	103.2	102.9
S. Atlantic	75.1	82.5	93.5	78.9	74.9	85.2	95.9	81.1	78.5	86.4	98.1	83.0	330.0	337.2	346.0
E. S. Central	21.0	22.4	26.8	21.0	20.8	22.4	26.8	21.4	21.6	22.1	26.5	21.1	91.3	91.4	91.2
W. S. Central	47.0	52.1	61.2	48.6	49.4	52.8	61.1	49.1	50.6	52.1	61.0	49.1	208.9	212.4	212.8
Mountain	23.2	25.4	29.6	24.3	23.7	25.3	29.2	24.3	23.7	25.2	29.1	24.2	102.6	102.5	102.1
Pacific contiguous	37.7	37.9	45.4	39.7	38.6	38.2	44.7	39.1	38.4	37.6	43.9	38.4	160.7	160.6	158.2
AK and HI	1.3	1.3	1.4	1.4	1.3	1.3	1.4	1.4	1.4	1.3	1.4	1.4	5.4	5.4	5.4
Total	321.8	335.2	389.0	327.0	324.4	338.8	387.8	328.9	331.2	337.0	387.5	328.9	1,373.0	1,379.9	1,384.6
Industrial Sector															
New England	3.9	3.9	4.1	3.8	3.7	3.8	4.0	3.8	3.7	3.7	3.9	3.7	15.7	15.2	15.1
Middle Atlantic	17.5	18.2	19.4	18.2	17.0	18.0	19.1	18.0	17.2	18.1	19.3	18.3	73.3	72.1	72.9
E. N. Central	45.9	47.0	48.8	45.3	44.8	45.2	47.2	44.8	45.1	45.6	47.7	45.4	187.1	182.0	183.8
W. N. Central	24.0	24.8	26.9	25.0	24.0	24.0	25.9	24.8	24.4	24.6	26.8	25.6	100.7	98.7	101.4
S. Atlantic	36.3	37.5	38.7	36.4	34.3	36.1	37.2	35.9	34.7	36.9	38.0	36.7	148.9	143.5	146.3
E. S. Central	24.7	25.8	25.6	23.4	23.7	24.9	24.8	23.0	23.8	25.0	24.8	23.1	99.5	96.4	96.7
W. S. Central	49.8	53.3	53.8	50.6	49.3	53.8	54.2	51.8	51.8	56.3	56.7	54.1	207.6	209.1	218.9
Mountain	19.9	21.7	24.0	20.9	19.8	21.8	24.3	21.2	20.3	22.1	24.5	21.5	86.5	87.1	88.4
Pacific contiguous	19.0	21.0	23.4	20.0	18.6	20.2	22.4	19.3	18.2	19.8	22.1	19.1	83.4	80.4	79.2
AK and HI	1.1	1.2	1.3	1.2	1.2	1.2	1.2	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	236.3	248.9	260.2	243.8	240.4	253.2	265.2	248.6	1,007.5	989.3	1,007.5
Total All Sectors (a)															
New England	29.2	26.3	32.0	26.5	27.8	26.2	30.1	26.7	29.0	26.2	30.1	26.6	114.0	110.8	111.8
Middle Atlantic	90.4	83.3	103.3	84.0	86.0	83.1	98.4	83.2	89.1	83.0	98.4	83.4	360.9	350.7	353.9
E. N. Central	140.2	133.8	152.5	130.7	134.7	130.4	150.2	131.4	140.3	131.2	151.2	132.0	557.2	546.7	554.7
W. N. Central	79.7	74.1	86.3	75.4	79.3	73.6	85.2	76.0	81.7	74.0	86.5	77.3	315.4	314.2	319.6
S. Atlantic	207.7	211.8	248.7	203.2	197.3	212.6	249.8	206.5	212.3	214.7	254.3	210.2	871.3	866.2	891.5
E. S. Central	78.4	76.0	89.4	70.9	74.2	74.7	88.6	71.6	80.2	74.6	88.6	71.6	314.6	309.2	315.0
W. S. Central	153.7	164.2	196.4	150.5	152.1	162.1	192.6	153.8	162.2	163.0	195.2	156.5	664.9	660.6	676.9
Mountain	67.2	73.4	89.8	69.5	68.5	72.6	88.0	69.5	68.7	73.0	88.5	69.9	299.9	298.6	300.1
Pacific contiguous	95.3	91.6	112.2	96.6	97.0	90.7	106.4	93.5	95.2	89.4	105.3	92.7	395.7	387.6	382.5
AK and HI	3.7	3.6	3.8	3.9	3.7	3.6	3.8	3.9	3.8	3.6	3.8	3.9	15.0	14.9	15.0
Total	945.5	938.0	1,114.3	911.2	920.6	929.6	1,093.2	916.1	962.4	932.6	1,101.9	924.0	3,909.1	3,859.4	3,920.9

(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 April 6, 2022.

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

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

Regions refer to U.S. Census divisions.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

U.S. Energy Information Administration | Short-Term Energy Outlook - April 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	29.83	<i>27.77</i>	<i>27.14</i>	<i>27.58</i>	<i>30.23</i>	<i>27.78</i>	<i>27.20</i>	<i>28.04</i>	24.81	<i>28.09</i>	<i>28.35</i>
Middle Atlantic	17.20	18.29	18.95	19.50	19.24	<i>18.47</i>	<i>18.38</i>	<i>18.74</i>	<i>19.18</i>	<i>18.91</i>	<i>18.80</i>	<i>18.99</i>	18.47	<i>18.70</i>	<i>18.96</i>
E. N. Central	14.21	15.50	16.18	16.13	15.80	<i>16.30</i>	<i>16.39</i>	<i>15.74</i>	<i>15.22</i>	<i>16.03</i>	<i>16.42</i>	<i>16.03</i>	15.49	<i>16.07</i>	<i>15.93</i>
W. N. Central	11.28	13.26	14.36	12.39	11.56	<i>13.11</i>	<i>13.94</i>	<i>12.03</i>	<i>11.38</i>	<i>13.19</i>	<i>13.88</i>	<i>11.95</i>	12.83	<i>12.67</i>	<i>12.60</i>
S. Atlantic	12.68	13.61	14.27	13.85	14.16	<i>14.19</i>	<i>14.30</i>	<i>13.45</i>	<i>13.53</i>	<i>13.95</i>	<i>14.14</i>	<i>13.35</i>	13.63	<i>14.05</i>	<i>13.77</i>
E. S. Central	11.97	13.08	13.78	13.39	12.76	<i>12.88</i>	<i>13.13</i>	<i>12.87</i>	<i>12.63</i>	<i>13.28</i>	<i>13.39</i>	<i>13.16</i>	13.06	<i>12.93</i>	<i>13.11</i>
W. S. Central	11.86	12.97	13.84	13.97	13.26	<i>13.70</i>	<i>14.13</i>	<i>13.83</i>	<i>13.09</i>	<i>14.05</i>	<i>14.52</i>	<i>14.14</i>	13.21	<i>13.77</i>	<i>13.98</i>
Mountain	12.14	12.85	13.23	12.98	12.89	<i>13.69</i>	<i>13.99</i>	<i>13.56</i>	<i>13.16</i>	<i>13.58</i>	<i>13.61</i>	<i>13.20</i>	12.85	<i>13.57</i>	<i>13.41</i>
Pacific	18.12	20.60	22.03	18.82	19.86	<i>22.15</i>	<i>23.00</i>	<i>19.21</i>	<i>19.91</i>	<i>22.45</i>	<i>23.15</i>	<i>19.24</i>	19.95	<i>21.05</i>	<i>21.18</i>
U.S. Average	13.98	15.07	15.85	15.48	15.51	<i>15.77</i>	<i>15.94</i>	<i>15.25</i>	<i>15.17</i>	<i>15.82</i>	<i>16.00</i>	<i>15.33</i>	15.12	<i>15.64</i>	<i>15.60</i>
Commercial Sector															
New England	18.47	17.46	18.32	18.55	20.51	<i>18.62</i>	<i>18.93</i>	<i>18.52</i>	<i>20.24</i>	<i>18.54</i>	<i>19.15</i>	<i>19.01</i>	18.21	<i>19.14</i>	<i>19.24</i>
Middle Atlantic	14.05	14.96	16.60	15.26	15.05	<i>14.67</i>	<i>15.74</i>	<i>14.29</i>	<i>14.40</i>	<i>14.53</i>	<i>15.91</i>	<i>14.22</i>	15.26	<i>14.97</i>	<i>14.80</i>
E. N. Central	11.06	11.84	12.12	11.87	11.89	<i>11.84</i>	<i>11.65</i>	<i>11.18</i>	<i>11.34</i>	<i>11.70</i>	<i>11.84</i>	<i>11.38</i>	11.73	<i>11.64</i>	<i>11.57</i>
W. N. Central	9.65	10.71	11.70	10.15	9.44	<i>9.72</i>	<i>11.09</i>	<i>10.03</i>	<i>10.00</i>	<i>10.88</i>	<i>12.13</i>	<i>10.18</i>	10.59	<i>10.10</i>	<i>10.83</i>
S. Atlantic	10.30	10.87	11.52	11.23	11.19	<i>10.90</i>	<i>11.16</i>	<i>10.49</i>	<i>10.51</i>	<i>10.57</i>	<i>11.08</i>	<i>10.53</i>	11.01	<i>10.94</i>	<i>10.69</i>
E. S. Central	11.69	12.20	13.02	12.59	12.41	<i>12.40</i>	<i>12.88</i>	<i>12.24</i>	<i>12.14</i>	<i>12.53</i>	<i>13.19</i>	<i>12.53</i>	12.41	<i>12.51</i>	<i>12.63</i>
W. S. Central	8.68	9.63	10.47	9.91	9.07	<i>9.51</i>	<i>10.43</i>	<i>9.98</i>	<i>9.29</i>	<i>9.80</i>	<i>10.66</i>	<i>10.11</i>	9.73	<i>9.78</i>	<i>10.00</i>
Mountain	9.57	10.32	10.97	10.42	10.22	<i>10.83</i>	<i>11.40</i>	<i>10.66</i>	<i>10.24</i>	<i>10.63</i>	<i>11.13</i>	<i>10.42</i>	10.36	<i>10.81</i>	<i>10.63</i>
Pacific	16.13	17.81	20.34	18.00	18.67	<i>20.15</i>	<i>22.49</i>	<i>19.40</i>	<i>19.34</i>	<i>20.05</i>	<i>22.01</i>	<i>18.76</i>	18.18	<i>20.26</i>	<i>20.11</i>
U.S. Average	11.63	12.35	13.38	12.66	12.57	<i>12.59</i>	<i>13.34</i>	<i>12.41</i>	<i>12.36</i>	<i>12.57</i>	<i>13.40</i>	<i>12.39</i>	12.55	<i>12.75</i>	<i>12.71</i>
Industrial Sector															
New England	15.12	15.17	15.93	15.36	16.02	<i>15.60</i>	<i>16.04</i>	<i>15.29</i>	<i>15.92</i>	<i>15.64</i>	<i>16.22</i>	<i>15.54</i>	15.40	<i>15.74</i>	<i>15.84</i>
Middle Atlantic	7.88	8.29	9.30	8.47	8.00	<i>7.72</i>	<i>8.43</i>	<i>8.02</i>	<i>8.20</i>	<i>7.51</i>	<i>8.28</i>	<i>7.85</i>	8.51	<i>8.05</i>	<i>7.96</i>
E. N. Central	7.72	8.55	8.99	8.50	8.13	<i>8.32</i>	<i>8.57</i>	<i>8.36</i>	<i>8.40</i>	<i>8.38</i>	<i>8.66</i>	<i>8.45</i>	8.45	<i>8.35</i>	<i>8.48</i>
W. N. Central	7.17	8.00	8.70	7.46	7.30	<i>7.92</i>	<i>8.56</i>	<i>7.48</i>	<i>7.52</i>	<i>8.05</i>	<i>8.70</i>	<i>7.60</i>	7.85	<i>7.83</i>	<i>7.98</i>
S. Atlantic	6.85	8.10	9.11	8.05	7.15	<i>7.63</i>	<i>8.49</i>	<i>7.77</i>	<i>7.34</i>	<i>7.60</i>	<i>8.48</i>	<i>7.79</i>	8.04	<i>7.77</i>	<i>7.81</i>
E. S. Central	6.35	7.36	8.41	7.53	6.54	<i>7.09</i>	<i>7.98</i>	<i>7.32</i>	<i>6.65</i>	<i>7.07</i>	<i>7.98</i>	<i>7.33</i>	7.42	<i>7.24</i>	<i>7.26</i>
W. S. Central	6.19	7.28	8.08	7.37	6.65	<i>6.94</i>	<i>7.47</i>	<i>6.96</i>	<i>6.57</i>	<i>6.72</i>	<i>7.18</i>	<i>6.75</i>	7.25	<i>7.02</i>	<i>6.81</i>
Mountain	6.58	7.27	8.41	7.88	7.72	<i>7.70</i>	<i>8.58</i>	<i>7.84</i>	<i>7.68</i>	<i>7.68</i>	<i>8.50</i>	<i>7.85</i>	7.57	<i>7.99</i>	<i>7.95</i>
Pacific	10.37	11.98	14.16	12.65	11.80	<i>12.53</i>	<i>14.54</i>	<i>12.77</i>	<i>11.95</i>	<i>12.75</i>	<i>14.72</i>	<i>13.12</i>	12.38	<i>12.98</i>	<i>13.21</i>
U.S. Average	7.42	8.41	9.38	8.52	7.93	<i>8.23</i>	<i>9.02</i>	<i>8.31</i>	<i>8.03</i>	<i>8.19</i>	<i>8.97</i>	<i>8.31</i>	8.45	<i>8.38</i>	<i>8.39</i>
All Sectors (a)															
New England	20.46	19.83	20.79	21.27	23.92	<i>21.80</i>	<i>21.98</i>	<i>21.80</i>	<i>24.15</i>	<i>21.84</i>	<i>22.17</i>	<i>22.29</i>	20.59	<i>22.38</i>	<i>22.63</i>
Middle Atlantic	14.09	14.68	16.17	15.29	15.25	<i>14.53</i>	<i>15.38</i>	<i>14.55</i>	<i>15.09</i>	<i>14.58</i>	<i>15.56</i>	<i>14.56</i>	15.10	<i>14.95</i>	<i>14.98</i>
E. N. Central	11.10	11.88	12.57	12.10	11.99	<i>12.07</i>	<i>12.40</i>	<i>11.76</i>	<i>11.82</i>	<i>11.98</i>	<i>12.51</i>	<i>11.95</i>	11.93	<i>12.07</i>	<i>12.07</i>
W. N. Central	9.53	10.65	11.73	10.02	9.59	<i>10.27</i>	<i>11.36</i>	<i>9.89</i>	<i>9.79</i>	<i>10.72</i>	<i>11.71</i>	<i>9.94</i>	10.51	<i>10.30</i>	<i>10.56</i>
S. Atlantic	10.79	11.56	12.43	11.79	11.81	<i>11.75</i>	<i>12.22</i>	<i>11.30</i>	<i>11.40</i>	<i>11.49</i>	<i>12.11</i>	<i>11.26</i>	11.68	<i>11.79</i>	<i>11.59</i>
E. S. Central	10.12	10.88	12.01	11.22	10.68	<i>10.80</i>	<i>11.61</i>	<i>10.90</i>	<i>10.73</i>	<i>10.98</i>	<i>11.81</i>	<i>11.10</i>	11.09	<i>11.03</i>	<i>11.17</i>
W. S. Central	9.05	10.06	11.21	10.44	9.76	<i>10.09</i>	<i>11.08</i>	<i>10.28</i>	<i>9.82</i>	<i>10.16</i>	<i>11.18</i>	<i>10.32</i>	10.25	<i>10.35</i>	<i>10.41</i>
Mountain	9.60	10.32	11.19	10.55	10.47	<i>10.90</i>	<i>11.64</i>	<i>10.79</i>	<i>10.53</i>	<i>10.78</i>	<i>11.38</i>	<i>10.59</i>	10.47	<i>10.99</i>	<i>10.86</i>
Pacific	15.77	17.45	19.69	17.19	17.83	<i>19.14</i>	<i>20.99</i>	<i>17.94</i>	<i>18.13</i>	<i>19.26</i>	<i>20.88</i>	<i>17.76</i>	17.62	<i>19.03</i>	<i>19.06</i>
U.S. Average	11.49	12.28	13.44	12.59	12.52	<i>12.58</i>	<i>13.36</i>	<i>12.38</i>	<i>12.41</i>	<i>12.57</i>	<i>13.39</i>	<i>12.39</i>	12.49	<i>12.74</i>	<i>12.72</i>

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

- = no data available

Notes: EIA completed modeling and analysis for this report on April 6, 2022.

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

Prices are not adjusted for inflation.

Regions refer to U.S. Census divisions.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 7d part 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 - April 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	359.5	352.2	485.2	371.4	339.7	335.7	468.8	369.7	1,586.2	1,568.4	1,513.8
Coal	217.6	189.1	234.6	182.1	160.4	162.2	213.1	151.5	181.6	155.7	216.8	149.5	823.4	687.1	703.6
Nuclear	195.6	184.4	201.5	190.1	194.7	188.1	206.7	195.6	201.4	193.1	208.5	191.8	771.5	785.0	794.8
Renewable Energy Sources:	233.0	245.1	197.8	207.2	237.4	271.4	219.1	229.2	261.5	293.5	239.8	244.7	883.1	957.2	1,039.4
Conventional Hydropower	74.2	69.2	62.4	55.0	65.3	77.6	65.4	60.5	71.7	80.2	64.6	59.6	260.8	268.7	276.0
Wind	119.0	121.0	80.6	113.9	128.2	129.9	87.8	122.5	135.4	131.9	90.3	127.8	434.5	468.3	485.4
Solar (a)	29.2	44.4	43.4	27.6	33.5	54.0	55.0	36.1	44.4	72.3	74.0	47.1	144.6	178.5	237.8
Biomass	6.6	6.5	7.1	6.5	6.5	6.3	6.9	6.4	6.6	6.3	6.9	6.4	26.7	26.0	26.3
Geothermal	4.1	3.9	4.2	4.2	3.9	3.6	4.1	3.9	3.3	2.8	4.0	3.8	16.5	15.6	14.0
Pumped Storage Hydropower	-1.2	-1.3	-2.0	-1.5	-1.1	-1.2	-1.8	-1.3	-1.1	-1.3	-1.9	-1.4	-6.0	-5.5	-5.8
Petroleum (b)	6.4	4.1	4.5	7.4	4.2	3.8	4.3	5.1	5.1	3.7	4.4	5.5	22.4	17.5	18.7
Other Gases	0.8	0.9	1.0	0.8	0.8	0.8	0.9	0.8	0.8	0.9	0.9	0.8	3.5	3.3	3.3
Other Nonrenewable Fuels (c)	1.6	1.6	1.6	1.5	1.4	1.4	1.2	1.3	1.3	1.2	1.0	1.1	6.2	5.3	4.5
Total Generation	990.0	989.3	1,148.2	962.7	957.2	978.7	1,128.7	953.6	990.2	982.4	1,138.3	961.7	4,090.3	4,018.2	4,072.5
New England (ISO-NE)															
Natural Gas	12.1	12.6	17.4	11.4	11.7	12.2	16.4	12.5	12.3	10.7	16.2	12.3	53.4	52.8	51.5
Coal	0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.0	0.1	0.1	0.3	0.3	0.4
Nuclear	7.1	5.6	7.3	7.4	7.2	5.7	7.3	6.2	7.2	7.2	7.3	5.7	27.4	26.3	27.4
Conventional hydropower	1.7	1.5	1.0	1.3	1.9	2.2	1.2	1.7	2.0	2.2	1.2	1.7	5.5	7.0	7.1
Nonhydro renewables (d)	3.2	3.2	3.0	3.0	2.8	3.2	3.1	3.0	2.9	4.1	3.6	3.8	12.4	12.1	14.4
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	1.3	1.7
Total generation	25.7	23.1	29.2	23.9	24.0	23.5	28.3	23.9	25.4	24.4	28.6	24.1	101.8	99.8	102.5
Net energy for load (f)	30.6	26.8	33.5	28.0	29.1	27.8	32.7	29.2	31.1	28.5	33.3	29.6	118.9	118.9	122.6
New York (NYISO)															
Natural Gas	14.1	15.5	21.2	14.3	13.2	13.7	18.6	13.6	14.1	13.8	19.0	14.1	65.0	59.1	61.1
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nuclear	6.4	7.0	6.4	7.0	6.7	6.5	7.0	7.0	6.3	7.0	6.9	6.4	26.8	27.2	26.6
Conventional hydropower	7.3	6.9	6.6	6.6	7.4	7.2	7.1	7.2	7.0	6.9	6.9	7.1	27.4	28.9	28.0
Nonhydro renewables (d)	2.2	2.1	1.8	2.2	2.5	2.6	2.4	2.8	2.9	2.9	2.7	3.1	8.2	10.3	11.7
Other energy sources (e)	1.1	0.1	0.1	0.8	0.2	0.1	0.2	0.4	0.6	0.1	0.2	0.4	2.2	0.9	1.3
Total generation	31.0	31.6	36.1	30.9	30.0	30.1	35.3	31.0	31.0	30.8	35.7	31.2	129.6	126.5	128.7
Net energy for load (f)	38.1	35.0	44.0	35.6	36.1	36.0	42.9	36.6	38.5	37.0	43.6	37.1	152.7	151.6	156.2
Mid-Atlantic (PJM)															
Natural Gas	76.8	74.3	103.8	79.9	83.3	70.5	94.7	78.8	80.5	71.6	93.7	80.3	334.8	327.2	326.1
Coal	48.6	35.3	42.2	30.7	27.5	29.1	35.0	25.3	35.7	31.7	36.4	24.2	156.8	117.0	128.1
Nuclear	69.0	65.1	69.7	66.8	67.4	67.6	71.9	68.6	69.0	64.8	71.9	68.5	270.6	275.5	274.2
Conventional hydropower	2.7	2.4	1.4	2.0	3.0	2.7	1.7	2.1	2.7	2.6	1.7	2.1	8.6	9.4	9.0
Nonhydro renewables (d)	13.2	13.0	9.7	12.5	13.2	13.5	10.6	13.7	15.8	16.4	13.4	15.7	48.4	50.9	61.3
Other energy sources (e)	0.7	0.4	0.2	1.3	0.5	0.4	0.3	0.9	0.6	0.4	0.4	1.0	2.6	2.1	2.3
Total generation	211.1	190.3	227.1	193.3	194.9	183.8	214.2	189.3	204.2	187.5	217.4	191.8	821.8	782.2	800.9
Net energy for load (f)	203.4	185.4	216.7	189.7	191.0	181.4	209.3	184.4	200.2	183.2	210.9	185.5	795.1	766.1	779.7
Southeast (SERC)															
Natural Gas	63.0	66.9	86.2	64.5	65.6	67.5	88.7	69.6	66.2	63.2	88.4	71.8	280.6	291.4	289.6
Coal	32.3	32.8	32.0	28.1	23.7	32.1	33.6	20.4	28.7	31.8	33.5	20.5	125.1	109.8	114.6
Nuclear	51.4	51.1	55.4	51.1	51.8	52.7	57.4	56.6	57.6	57.7	59.6	55.6	209.0	218.5	230.4
Conventional hydropower	10.3	8.3	6.1	8.0	10.9	8.9	8.0	9.1	11.5	9.0	8.1	9.1	32.7	36.9	37.8
Nonhydro renewables (d)	5.0	7.0	6.6	4.7	5.6	7.9	7.1	5.4	6.1	8.9	8.0	6.1	23.3	25.9	29.1
Other energy sources (e)	-0.2	-0.3	-0.6	-0.1	-0.2	-0.3	-0.7	-0.2	-0.1	-0.4	-0.8	-0.2	-1.2	-1.4	-1.5
Total generation	161.8	165.8	185.7	156.3	157.3	168.8	194.1	160.9	170.1	170.2	196.7	162.9	669.6	681.0	699.9
Net energy for load (f)	157.0	158.4	170.4	151.0	148.5	158.1	181.3	153.0	161.3	159.0	183.8	155.0	636.8	640.9	659.0
Florida (FRCC)															
Natural Gas	38.7	47.8	57.3	41.3	37.9	46.3	53.2	40.0	37.1	44.0	52.9	41.2	185.0	177.4	175.3
Coal	3.5	4.2	3.7	4.1	2.8	2.9	2.5	2.3	2.4	2.5	2.3	2.1	15.5	10.5	9.2
Nuclear	7.3	7.9	7.5	8.1	7.4	7.0	7.5	7.7	7.2	7.8	7.9	6.4	30.8	29.6	29.4
Conventional hydropower	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.2
Nonhydro renewables (d)	2.9	3.8	3.5	2.7	3.6	5.1	4.2	3.4	4.6	6.2	5.1	4.1	12.9	16.2	20.0
Other energy sources (e)	0.7	0.6	0.7	0.7	0.8	0.6	0.7	0.6	0.7	0.6	0.7	0.6	2.6	2.7	2.6
Total generation	53.2	64.2	72.7	56.8	52.4	61.9	68.2	54.0	52.1	61.2	68.9	54.5	247.0	236.6	236.6
Net energy for load (f)	52.1	63.7	73.9	57.9	52.9	62.7	69.5	54.1	51.5	61.8	70.2	54.7	247.5	239.2	238.1

(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 April 6, 2022.

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

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

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

Table 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 - April 2023

	2022				2023				2024				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2022	2023	2024
Midwest (MISO)															
Natural Gas	39.4	45.6	57.3	41.8	43.6	47.5	60.6	49.0	44.3	50.9	56.7	49.2	184.1	200.6	201.1
Coal	60.4	51.0	65.0	49.3	47.2	46.0	59.3	42.3	52.4	39.7	61.8	40.7	225.8	194.9	194.7
Nuclear	23.8	19.6	24.3	23.7	23.5	21.4	24.5	21.0	23.3	22.5	24.3	21.3	91.4	90.4	91.3
Conventional hydropower	2.8	2.7	2.5	2.3	2.6	2.9	2.4	2.2	2.5	2.9	2.4	2.2	10.3	10.1	10.0
Nonhydro renewables (d)	31.2	28.0	19.8	30.4	30.4	29.5	22.9	34.4	35.1	33.0	26.1	36.9	109.4	117.2	131.1
Other energy sources (e)	1.4	1.6	1.3	1.8	1.4	1.5	1.6	1.6	1.5	1.5	1.5	1.7	6.1	6.0	6.2
Total generation	159.0	148.5	170.2	149.3	148.6	148.8	171.3	150.4	159.2	150.4	172.9	152.0	627.0	619.1	634.4
Net energy for load (f)	167.1	163.4	182.5	158.8	158.3	159.9	182.1	159.2	166.9	161.3	183.8	160.7	671.8	659.4	672.7
Central (Southwest Power Pool)															
Natural Gas	12.5	15.3	24.8	16.4	14.7	15.9	21.9	13.0	10.9	13.1	19.8	12.9	69.0	65.4	56.6
Coal	26.2	23.5	33.8	22.8	19.4	17.2	29.6	19.5	21.2	18.0	29.7	18.8	106.3	85.8	87.8
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	3.6	4.2	3.7	3.1	3.6	4.2	3.7	3.1	14.6	14.6	14.5
Nonhydro renewables (d)	29.5	30.4	21.8	28.5	34.0	33.0	23.8	29.4	32.9	32.3	24.5	30.5	110.2	120.2	120.2
Other energy sources (e)	0.3	0.4	0.2	0.4	0.3	0.4	0.2	0.3	0.3	0.4	0.2	0.3	1.3	1.1	1.1
Total generation	77.0	77.7	87.7	73.5	76.3	74.9	83.4	69.6	73.3	70.9	82.2	69.1	316.0	304.2	295.4
Net energy for load (f)	67.4	67.8	81.6	66.1	65.6	66.0	76.9	62.7	65.8	64.6	76.9	63.0	282.9	271.2	270.2
Texas (ERCOT)															
Natural Gas	33.4	42.8	64.7	40.9	35.0	37.9	59.3	40.7	33.2	31.9	54.2	37.5	181.9	172.9	156.8
Coal	17.7	16.8	20.2	16.6	10.5	13.2	18.2	13.3	11.8	13.4	18.0	13.1	71.2	55.2	56.3
Nuclear	11.0	9.9	10.7	10.0	10.5	9.5	11.0	10.1	10.9	9.8	10.6	9.6	41.6	41.2	40.9
Conventional hydropower	0.2	0.1	0.0	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.5	0.7	0.6
Nonhydro renewables (d)	30.8	39.2	28.1	29.3	36.6	46.3	33.9	33.3	42.5	52.7	42.0	39.6	127.4	150.0	176.8
Other energy sources (e)	0.4	0.5	0.4	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.1	0.2	1.5	1.3	0.7
Total generation	93.5	109.3	124.1	97.2	93.2	107.5	122.8	97.9	98.7	108.2	125.1	100.1	424.1	421.3	432.2
Net energy for load (f)	95.1	111.3	126.4	97.1	93.4	107.5	122.8	97.9	98.7	108.2	125.1	100.1	429.9	421.6	432.2
Northwest															
Natural Gas	20.2	15.9	27.3	24.6	25.1	13.8	25.0	17.8	17.6	11.5	21.8	16.2	88.1	81.7	67.1
Coal	21.7	18.1	26.9	22.1	21.5	16.2	25.9	20.9	18.3	10.7	25.1	21.1	88.8	84.6	75.2
Nuclear	2.5	2.3	2.5	2.6	2.5	1.2	2.4	2.4	2.4	2.4	2.4	2.4	9.9	8.6	9.7
Conventional hydropower	38.7	35.7	34.0	26.9	27.0	36.6	29.8	28.0	34.5	41.1	30.7	28.2	135.2	121.4	134.6
Nonhydro renewables (d)	19.2	20.4	16.0	18.0	21.0	25.5	19.9	22.9	23.8	25.8	22.4	23.7	73.6	89.3	95.7
Other energy sources (e)	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.8	0.3	0.2
Total generation	102.5	92.6	106.9	94.4	97.2	93.5	103.1	92.1	96.6	91.6	102.5	91.7	396.3	386.0	382.5
Net energy for load (f)	85.1	79.5	90.2	86.7	87.6	77.4	84.8	81.5	84.1	76.9	84.6	81.2	341.5	331.3	326.8
Southwest															
Natural Gas	9.7	13.2	19.0	13.9	11.2	15.7	23.2	14.1	7.1	12.5	21.7	13.4	55.8	64.2	54.7
Coal	6.1	6.3	8.1	6.2	5.6	4.0	5.8	5.3	8.2	5.8	6.4	5.7	26.7	20.7	26.1
Nuclear	8.2	7.5	8.7	7.6	8.6	7.5	8.6	7.5	8.5	7.4	8.6	7.6	31.9	32.2	32.1
Conventional hydropower	2.0	2.1	1.8	1.4	1.5	2.4	2.2	1.4	1.7	2.0	1.8	1.4	7.4	7.5	7.0
Nonhydro renewables (d)	5.8	7.0	5.2	5.6	5.1	6.5	4.6	5.4	7.3	8.0	5.7	6.4	23.6	21.6	27.5
Other energy sources (e)	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.2	0.1
Total generation	31.8	36.0	43.0	34.7	32.1	36.1	44.5	33.7	32.8	35.9	44.3	34.5	145.5	146.5	147.5
Net energy for load (f)	27.4	34.2	41.9	28.8	28.5	34.2	43.8	29.2	28.3	34.4	43.9	29.2	132.3	135.8	135.9
California															
Natural Gas	15.7	15.2	29.4	25.5	17.5	10.6	23.1	21.6	15.8	11.9	23.6	20.0	85.9	72.9	71.2
Coal	0.5	0.7	2.4	1.9	1.7	1.0	2.6	1.6	2.2	1.6	3.2	2.8	5.5	7.0	9.8
Nuclear	4.6	4.2	5.0	3.8	4.7	4.7	4.6	4.1	4.7	3.6	4.7	4.7	17.6	18.0	17.7
Conventional hydropower	3.6	5.2	5.2	2.8	6.8	9.9	8.8	5.1	5.4	8.5	7.6	4.1	16.9	30.6	25.6
Nonhydro renewables (d)	15.4	21.5	19.4	14.8	17.0	20.3	20.8	14.6	15.3	22.5	21.0	14.6	71.2	72.7	73.3
Other energy sources (e)	0.0	-0.2	0.1	-0.2	-0.2	-0.2	0.0	-0.2	-0.1	-0.2	0.0	-0.2	-0.2	-0.6	-0.5
Total generation	39.8	46.6	61.6	48.7	47.5	46.3	59.8	46.8	43.2	47.8	60.2	45.9	196.7	200.5	197.3
Net energy for load (f)	59.1	64.5	81.3	63.5	60.9	64.3	78.8	62.0	60.2	64.1	78.6	61.7	268.4	266.0	264.6

(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 April 6, 2022.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.
 Data reflect generation supplied by power plants with a combined capacity of at least 1 megawatt operated by electric utilities and independent power producers.
Historical data: Latest data available from U.S. Energy Information Administration databases supporting the following reports: *Electric Power Monthly*, DOE/EIA-0226; and *Electric Power Annual*, DOE/EIA-0348.

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

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
Electric Power Sector															
Geothermal	0.036	0.035	0.037	0.037	0.035	0.032	0.036	0.034	0.030	0.024	0.036	0.034	0.146	0.138	0.123
Hydroelectric Power (a)	0.656	0.612	0.552	0.486	0.577	0.686	0.578	0.535	0.634	0.709	0.571	0.527	2.307	2.375	2.441
Solar (b)	0.258	0.393	0.384	0.244	0.296	0.478	0.486	0.319	0.393	0.639	0.654	0.417	1.279	1.579	2.103
Waste Biomass (c)	0.055	0.053	0.053	0.052	0.053	0.053	0.054	0.052	0.054	0.053	0.054	0.052	0.213	0.213	0.213
Wood Biomass	0.051	0.046	0.055	0.047	0.048	0.043	0.052	0.045	0.048	0.044	0.053	0.045	0.200	0.187	0.189
Wind	1.052	1.070	0.713	1.007	1.133	1.149	0.776	1.083	1.197	1.166	0.798	1.130	3.842	4.142	4.292
Subtotal	2.109	2.210	1.794	1.874	2.142	2.441	1.982	2.068	2.355	2.636	2.165	2.205	7.987	8.632	9.362
Industrial Sector															
Biofuel Losses and Co-products (d)	0.203	0.203	0.197	0.206	0.192	0.202	0.199	0.206	0.203	0.204	0.204	0.210	0.808	0.799	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)	0.003	0.005	0.005	0.003	0.007	0.012	0.012	0.009	0.009	0.013	0.013	0.009	0.016	0.040	0.045
Waste Biomass (c)	0.042	0.040	0.037	0.042	0.040	0.040	0.039	0.041	0.041	0.040	0.039	0.041	0.161	0.160	0.161
Wood Biomass	0.319	0.324	0.322	0.314	0.320	0.327	0.342	0.345	0.334	0.331	0.343	0.346	1.278	1.333	1.354
Subtotal (e)	0.575	0.579	0.569	0.573	0.568	0.589	0.600	0.608	0.595	0.596	0.607	0.614	2.296	2.364	2.412
Commercial Sector															
Geothermal	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.024	0.024	0.025
Solar (b)	0.013	0.019	0.019	0.013	0.031	0.054	0.055	0.038	0.044	0.064	0.065	0.045	0.065	0.177	0.218
Waste Biomass (c)	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.010	0.009	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)	0.057	0.063	0.064	0.057	0.074	0.097	0.099	0.082	0.088	0.108	0.109	0.089	0.240	0.352	0.393
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	0.117	0.117	0.084	0.102	0.154	0.154	0.107	0.120	0.184	0.187	0.131	0.396	0.517	0.622
Wood Biomass	0.119	0.121	0.122	0.122	0.119	0.121	0.122	0.122	0.119	0.121	0.122	0.122	0.484	0.484	0.484
Subtotal	0.207	0.247	0.249	0.216	0.231	0.284	0.286	0.239	0.249	0.314	0.319	0.263	0.919	1.040	1.145
Transportation Sector															
Biodiesel, Renewable Diesel, and Other (g) ...	0.094	0.117	0.116	0.125	0.136	0.142	0.145	0.152	0.151	0.173	0.187	0.199	0.451	0.575	0.710
Ethanol (g)	0.259	0.281	0.279	0.281	0.270	0.286	0.283	0.285	0.271	0.287	0.287	0.288	1.100	1.124	1.132
Subtotal	0.353	0.397	0.395	0.406	0.406	0.427	0.428	0.437	0.422	0.460	0.473	0.487	1.551	1.699	1.843
All Sectors Total															
Biodiesel, Renewable Diesel, and Other (g) ...	0.094	0.117	0.116	0.125	0.136	0.142	0.145	0.152	0.151	0.173	0.187	0.199	0.451	0.575	0.710
Biofuel Losses and Co-products (d)	0.203	0.203	0.197	0.206	0.192	0.202	0.199	0.206	0.203	0.204	0.204	0.210	0.808	0.799	0.821
Ethanol (f)	0.271	0.293	0.292	0.294	0.282	0.297	0.295	0.297	0.282	0.299	0.298	0.300	1.149	1.171	1.179
Geothermal	0.053	0.052	0.054	0.055	0.052	0.049	0.054	0.052	0.047	0.041	0.053	0.051	0.214	0.206	0.192
Hydroelectric Power (a)	0.659	0.615	0.555	0.489	0.580	0.689	0.580	0.537	0.637	0.712	0.573	0.529	2.317	2.386	2.451
Solar (b)(f)	0.353	0.534	0.525	0.344	0.435	0.697	0.707	0.473	0.566	0.900	0.920	0.603	1.755	2.312	2.988
Waste Biomass (c)	0.106	0.102	0.099	0.103	0.103	0.102	0.102	0.103	0.104	0.102	0.102	0.103	0.411	0.410	0.411
Wood Biomass	0.509	0.511	0.520	0.504	0.507	0.511	0.536	0.532	0.521	0.516	0.539	0.534	2.045	2.087	2.111
Wind	1.052	1.070	0.713	1.007	1.133	1.149	0.776	1.083	1.197	1.166	0.798	1.130	3.842	4.142	4.292
Total Consumption	3.300	3.495	3.070	3.125	3.419	3.838	3.394	3.435	3.709	4.115	3.674	3.658	12.989	14.087	15.155

- (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 April 6, 2022.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 9a. U.S. Macroeconomic Indicators and CO2 Emissions
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
Macroeconomic															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR)	19,924	19,895	20,055	20,182	20,167	20,168	20,248	20,356	20,450	20,550	20,643	20,729	20,014	20,235	20,593
Real Personal Consumption Expend. (billion chained 2012 dollars - SAAR)	14,028	14,099	14,179	14,215	14,353	14,296	14,344	14,399	14,437	14,490	14,545	14,601	14,130	14,348	14,518
Real Private Fixed Investment (billion chained 2012 dollars - SAAR)	3,629	3,582	3,550	3,516	3,494	3,456	3,452	3,477	3,514	3,550	3,581	3,608	3,569	3,470	3,563
Business Inventory Change (billion chained 2012 dollars - SAAR)	257	145	71	162	47	47	16	35	58	76	86	89	159	36	77
Real Government Expenditures (billion chained 2012 dollars - SAAR)	3,393	3,379	3,411	3,442	3,459	3,464	3,481	3,490	3,500	3,509	3,516	3,524	3,406	3,474	3,512
Real Exports of Goods & Services (billion chained 2012 dollars - SAAR)	2,437	2,517	2,604	2,580	2,640	2,651	2,683	2,716	2,743	2,769	2,798	2,826	2,534	2,672	2,784
Real Imports of Goods & Services (billion chained 2012 dollars - SAAR)	3,926	3,947	3,873	3,818	3,880	3,851	3,828	3,857	3,897	3,938	3,978	4,018	3,891	3,854	3,957
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	15,109	15,022	15,141	15,325	15,607	15,613	15,697	15,786	15,916	16,055	16,171	16,271	15,149	15,676	16,103
Non-Farm Employment (millions)	150.8	152.0	153.3	154.3	155.3	155.4	155.1	154.9	154.8	154.8	154.8	154.8	152.6	155.2	154.8
Civilian Unemployment Rate (percent)	3.8	3.6	3.6	3.6	3.5	3.5	3.7	3.8	3.9	3.9	4.0	4.0	3.6	3.6	4.0
Housing Starts (millions - SAAR)	1.72	1.65	1.45	1.40	1.32	1.18	1.16	1.18	1.21	1.25	1.30	1.35	1.55	1.21	1.28
Industrial Production Indices (Index, 2017=100)															
Total Industrial Production	101.7	102.8	103.3	102.7	101.9	102.6	102.4	102.7	103.0	103.3	103.6	103.9	102.6	102.4	103.5
Manufacturing	100.1	100.8	100.9	100.1	99.7	99.1	99.4	100.2	100.8	101.4	102.1	102.7	100.5	99.6	101.7
Food	105.1	105.1	104.8	104.6	105.1	105.6	106.0	106.3	106.6	107.0	107.4	107.9	104.9	105.7	107.2
Paper	95.9	96.2	92.7	89.1	86.5	85.9	86.1	86.4	86.4	86.4	86.6	86.8	93.5	86.2	86.6
Petroleum and Coal Products	89.8	89.6	90.1	89.7	88.5	87.1	87.0	87.0	86.9	87.0	87.0	87.1	89.8	87.4	87.0
Chemicals	102.1	102.3	102.4	101.2	102.4	101.4	101.9	102.2	102.5	102.9	103.8	104.4	102.0	102.0	103.4
Nonmetallic Mineral Products	107.1	108.0	109.7	111.4	113.0	111.9	111.7	111.8	112.2	112.8	113.5	114.2	109.1	112.1	113.2
Primary Metals	94.9	96.4	95.7	92.6	90.7	90.0	91.0	91.5	91.2	91.6	93.0	93.7	94.9	90.8	92.4
Coal-weighted Manufacturing (a)	97.4	97.7	97.2	95.4	94.9	94.0	94.3	94.5	94.4	94.7	95.4	95.9	96.9	94.4	95.1
Distillate-weighted Manufacturing (a)	100.0	100.5	100.4	99.4	99.3	98.2	98.3	98.6	98.8	99.2	99.9	100.5	100.1	98.6	99.6
Electricity-weighted Manufacturing (a)	98.5	98.8	98.2	96.1	95.7	94.9	95.3	95.7	95.8	96.2	97.0	97.5	97.9	95.4	96.6
Natural Gas-weighted Manufacturing (a)	97.0	96.7	95.6	92.9	92.8	91.6	92.0	92.2	92.1	92.3	93.0	93.4	95.5	92.2	92.7
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	3.10	3.12	3.13	2.93	3.04	3.11
Producer Price Index: All Commodities (index, 1982=1.00)	2.53	2.72	2.70	2.63	2.49	2.43	2.41	2.41	2.41	2.39	2.39	2.39	2.64	2.43	2.39
Producer Price Index: Petroleum (index, 1982=1.00)	3.16	4.21	3.74	3.43	2.71	2.72	2.69	2.60	2.55	2.54	2.48	2.36	3.63	2.68	2.48
GDP Implicit Price Deflator (index, 2012=100)	124.2	126.9	128.3	129.5	130.7	131.6	132.5	133.5	134.4	135.2	135.8	136.6	127.2	132.1	135.5
Miscellaneous															
Vehicle Miles Traveled (b) (million miles/day)	8,143	8,914	9,066	8,601	8,336	9,118	9,233	8,836	8,411	9,239	9,379	8,950	8,683	8,883	8,996
Air Travel Capacity (Available ton-miles/day, thousands)	656	686	692	700	660	702	718	687	660	706	728	707	684	692	700
Aircraft Utilization (Revenue ton-miles/day, thousands)	356	419	422	407	376	426	438	409	386	432	439	418	401	412	419
Airline Ticket Price Index (index, 1982-1984=100)	225.6	328.7	293.1	285.2	275.2	325.3	311.7	320.1	316.4	353.5	327.9	323.2	283.1	308.1	330.2
Raw Steel Production (million short tons per day)	0.253	0.253	0.247	0.235	0.238	0.230	0.233	0.235	0.240	0.236	0.240	0.242	0.247	0.234	0.239
Carbon Dioxide (CO2) Emissions (million metric tons)															
Petroleum	561	564	576	571	544	568	573	573	566	572	577	577	2,272	2,258	2,292
Natural Gas	510	374	401	461	489	369	398	461	507	358	385	453	1,746	1,718	1,703
Coal	246	216	266	213	192	190	246	182	208	183	249	180	941	811	821
Total Energy (c)	1,320	1,156	1,246	1,248	1,228	1,130	1,220	1,219	1,284	1,116	1,214	1,213	4,970	4,798	4,827

(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 April 6, 2022.

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

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

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

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

Table 9b. U.S. Regional Macroeconomic Data

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
Real Gross State Product (Billion \$2012)															
New England	1,032	1,024	1,031	1,038	1,036	1,035	1,039	1,044	1,048	1,052	1,057	1,060	1,031	1,039	1,054
Middle Atlantic	2,858	2,858	2,879	2,893	2,889	2,890	2,898	2,912	2,925	2,938	2,950	2,961	2,872	2,897	2,944
E. N. Central	2,596	2,583	2,592	2,603	2,600	2,599	2,609	2,621	2,629	2,639	2,649	2,657	2,594	2,607	2,643
W. N. Central	1,220	1,215	1,220	1,229	1,228	1,228	1,233	1,240	1,246	1,252	1,258	1,263	1,221	1,232	1,255
S. Atlantic	3,578	3,578	3,601	3,626	3,620	3,619	3,636	3,659	3,676	3,694	3,710	3,727	3,596	3,634	3,702
E. S. Central	884	883	887	892	891	890	894	898	901	905	908	912	886	893	906
W. S. Central	2,377	2,383	2,424	2,450	2,452	2,455	2,465	2,479	2,495	2,512	2,527	2,542	2,408	2,463	2,519
Mountain	1,359	1,354	1,366	1,375	1,376	1,376	1,382	1,390	1,397	1,405	1,412	1,419	1,364	1,381	1,408
Pacific	3,805	3,802	3,838	3,859	3,857	3,858	3,875	3,894	3,913	3,932	3,949	3,966	3,826	3,871	3,940
Industrial Output, Manufacturing (Index, Year 2017=100)															
New England	98.9	99.6	99.4	98.2	97.6	96.9	97.2	98.1	98.8	99.4	100.1	100.7	99.0	97.5	99.7
Middle Atlantic	96.3	96.9	96.6	95.7	95.3	94.5	94.6	95.2	95.6	96.1	96.6	97.1	96.4	94.9	96.3
E. N. Central	98.5	98.9	98.6	97.8	97.5	97.0	97.4	98.0	98.4	98.9	99.5	100.0	98.5	97.5	99.2
W. N. Central	101.6	102.1	102.1	101.4	101.0	100.4	100.8	101.6	102.3	102.9	103.7	104.3	101.8	101.0	103.3
S. Atlantic	103.0	104.0	104.4	103.4	103.0	102.3	102.5	103.4	104.0	104.7	105.5	106.1	103.7	102.8	105.1
E. S. Central	100.5	100.8	100.6	99.8	99.3	98.6	98.9	99.5	99.9	100.5	101.2	101.7	100.4	99.1	100.8
W. S. Central	103.1	104.5	105.1	104.5	104.2	103.8	104.1	105.0	105.6	106.2	107.0	107.6	104.3	104.3	106.6
Mountain	112.3	113.3	113.9	113.2	112.9	112.1	112.4	113.2	113.9	114.6	115.4	116.0	113.2	112.7	115.0
Pacific	97.4	98.2	98.1	97.2	96.9	96.4	96.7	97.6	98.5	99.3	100.1	100.7	97.7	96.9	99.6
Real Personal Income (Billion \$2012)															
New England	949	939	947	955	955	951	954	958	963	968	973	978	948	955	971
Middle Atlantic	2,414	2,393	2,406	2,418	2,427	2,421	2,428	2,436	2,451	2,465	2,477	2,488	2,407	2,428	2,470
E. N. Central	2,448	2,430	2,438	2,453	2,457	2,450	2,459	2,469	2,487	2,503	2,518	2,531	2,442	2,459	2,510
W. N. Central	1,165	1,161	1,169	1,177	1,181	1,178	1,182	1,188	1,196	1,204	1,212	1,219	1,168	1,182	1,208
S. Atlantic	3,395	3,384	3,415	3,436	3,449	3,447	3,465	3,484	3,515	3,541	3,567	3,590	3,408	3,461	3,553
E. S. Central	943	937	940	944	945	941	944	947	952	958	964	969	941	944	961
W. S. Central	2,085	2,085	2,105	2,120	2,133	2,128	2,138	2,150	2,168	2,186	2,202	2,217	2,099	2,137	2,193
Mountain	1,307	1,306	1,327	1,329	1,331	1,327	1,331	1,336	1,346	1,355	1,364	1,372	1,317	1,331	1,359
Pacific	2,956	2,931	2,951	3,021	2,989	2,985	3,000	3,015	3,037	3,059	3,078	3,097	2,965	2,997	3,068
Households (Thousands)															
New England	6,101	6,100	6,098	6,100	6,118	6,125	6,136	6,145	6,152	6,161	6,169	6,177	6,100	6,145	6,177
Middle Atlantic	16,123	16,119	16,108	16,111	16,153	16,172	16,197	16,221	16,243	16,266	16,290	16,315	16,111	16,221	16,315
E. N. Central	19,057	19,063	19,063	19,073	19,118	19,139	19,173	19,205	19,233	19,260	19,289	19,317	19,073	19,205	19,317
W. N. Central	8,655	8,668	8,679	8,691	8,724	8,745	8,770	8,794	8,817	8,837	8,858	8,878	8,691	8,794	8,878
S. Atlantic	27,106	27,219	27,315	27,393	27,524	27,613	27,708	27,795	27,872	27,945	28,020	28,089	27,393	27,795	28,089
E. S. Central	7,826	7,847	7,864	7,885	7,923	7,950	7,979	8,007	8,032	8,056	8,080	8,103	7,885	8,007	8,103
W. S. Central	15,858	15,922	15,979	16,028	16,105	16,160	16,222	16,281	16,333	16,385	16,442	16,497	16,028	16,281	16,497
Mountain	9,792	9,826	9,858	9,882	9,934	9,970	10,011	10,050	10,088	10,125	10,163	10,202	9,882	10,050	10,202
Pacific	19,052	19,064	19,068	19,074	19,129	19,152	19,182	19,210	19,237	19,263	19,291	19,321	19,074	19,210	19,321
Total Non-farm Employment (Millions)															
New England	7.4	7.4	7.5	7.5	7.6	7.6	7.6	7.6	7.5	7.5	7.5	7.5	7.4	7.6	7.5
Middle Atlantic	19.4	19.6	19.7	19.8	20.0	20.0	19.9	19.9	19.9	19.9	19.9	19.8	19.6	19.9	19.9
E. N. Central	21.8	21.9	22.0	22.1	22.3	22.3	22.3	22.2	22.2	22.2	22.2	22.2	22.0	22.3	22.2
W. N. Central	10.6	10.7	10.8	10.8	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.8	10.7	10.9	10.9
S. Atlantic	29.5	29.7	30.1	30.3	30.4	30.4	30.4	30.4	30.4	30.4	30.4	30.4	29.9	30.4	30.4
E. S. Central	8.4	8.4	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.4	8.5	8.5
W. S. Central	18.1	18.3	18.5	18.6	18.8	18.8	18.8	18.7	18.7	18.8	18.8	18.8	18.4	18.8	18.8
Mountain	11.4	11.5	11.6	11.6	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.5	11.7	11.7
Pacific	23.6	23.9	24.1	24.2	24.4	24.4	24.4	24.3	24.3	24.3	24.3	24.3	24.0	24.4	24.3

- = no data available

Notes: EIA completed modeling and analysis for this report on April 6, 2022.

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 - April 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	3,133	785	115	1,979	2,726	835	129	2,123	3,075	857	129	2,124	6,013	5,813	6,184
Middle Atlantic	2,939	670	74	1,965	2,449	659	82	1,956	2,828	694	82	1,956	5,649	5,146	5,559
E. N. Central	3,266	752	99	2,223	2,729	727	131	2,269	3,095	745	131	2,269	6,341	5,856	6,240
W. N. Central	3,483	792	112	2,515	3,177	742	168	2,478	3,235	716	168	2,478	6,903	6,564	6,597
South Atlantic	1,341	189	13	980	1,073	176	13	942	1,365	195	13	940	2,523	2,204	2,513
E. S. Central	1,825	248	22	1,333	1,403	237	21	1,319	1,819	265	21	1,319	3,428	2,980	3,424
W. S. Central	1,336	56	2	804	947	78	4	811	1,202	90	4	811	2,198	1,840	2,107
Mountain	2,303	738	85	2,021	2,588	749	150	1,887	2,268	716	150	1,886	5,147	5,374	5,020
Pacific	1,402	604	48	1,296	1,816	643	83	1,232	1,560	622	83	1,233	3,350	3,774	3,498
U.S. Average	2,147	490	54	1,552	1,928	490	75	1,532	2,094	496	74	1,530	4,244	4,024	4,194
Heating Degree Days, Prior 10-year Average															
New England	3,100	853	107	2,104	3,151	858	106	2,094	3,111	857	102	2,076	6,164	6,209	6,147
Middle Atlantic	2,887	684	71	1,908	2,945	692	70	1,911	2,894	688	66	1,900	5,551	5,618	5,549
E. N. Central	3,133	727	97	2,162	3,215	741	93	2,168	3,159	738	95	2,149	6,119	6,217	6,141
W. N. Central	3,219	726	125	2,357	3,317	754	121	2,373	3,294	738	128	2,348	6,427	6,565	6,508
South Atlantic	1,380	187	11	905	1,401	190	10	904	1,357	186	10	900	2,483	2,505	2,452
E. S. Central	1,763	243	15	1,228	1,810	251	14	1,230	1,757	246	15	1,220	3,249	3,304	3,237
W. S. Central	1,145	93	3	754	1,188	95	3	763	1,165	89	3	743	1,995	2,049	2,001
Mountain	2,181	685	132	1,818	2,201	701	129	1,842	2,218	702	131	1,830	4,816	4,873	4,882
Pacific	1,455	523	79	1,136	1,440	523	75	1,148	1,466	537	75	1,149	3,193	3,187	3,228
U.S. Average	2,096	479	62	1,473	2,133	486	60	1,478	2,103	484	60	1,465	4,110	4,157	4,112
Cooling Degree Days															
New England	0	81	562	0	0	91	426	2	0	81	426	2	643	519	509
Middle Atlantic	0	153	682	1	0	161	549	5	0	149	549	5	835	714	703
E. N. Central	1	258	556	2	0	215	527	6	0	207	527	6	816	748	740
W. N. Central	3	306	734	8	0	261	656	9	3	254	656	9	1,050	926	922
South Atlantic	155	709	1,194	231	189	692	1,172	239	127	645	1,173	240	2,289	2,922	2,185
E. S. Central	28	599	1,067	38	50	519	1,045	62	27	486	1,045	62	1,732	1,677	1,620
W. S. Central	58	1,095	1,665	173	139	918	1,527	200	82	836	1,528	200	2,991	2,783	2,646
Mountain	17	468	1,013	65	0	407	920	73	16	413	921	74	1,563	1,400	1,424
Pacific	31	221	762	81	24	158	579	62	25	161	578	62	1,095	823	825
U.S. Average	47	466	950	89	63	415	860	95	43	392	862	96	1,552	1,433	1,393
Cooling Degree Days, Prior 10-year Average															
New England	0	87	471	2	0	87	479	2	0	87	478	2	560	568	566
Middle Atlantic	0	162	608	8	0	159	614	8	0	160	616	8	779	781	784
E. N. Central	3	238	571	9	1	234	561	10	1	234	567	10	821	806	811
W. N. Central	7	299	681	11	4	292	674	12	4	295	675	12	999	982	985
South Atlantic	147	668	1,189	269	144	675	1,192	273	152	685	1,205	271	2,272	2,285	2,313
E. S. Central	44	518	1,057	83	36	521	1,059	83	39	527	1,072	84	1,702	1,699	1,723
W. S. Central	113	853	1,536	224	101	861	1,548	223	108	874	1,549	227	2,726	2,733	2,758
Mountain	23	458	945	84	23	455	950	82	21	449	951	84	1,511	1,511	1,505
Pacific	31	208	665	86	32	214	675	86	31	208	674	87	989	1,007	1,000
U.S. Average	53	412	889	109	50	415	894	110	53	419	900	110	1,463	1,469	1,482

- = no data available

Notes: EIA completed modeling and analysis for this report on April 6, 2022.

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

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

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

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

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

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

Appendix to the April 2023 Short-Term Energy Outlook

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

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

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

Table a1. Summary of Estimated Petroleum and Other Liquids Quantities

	Feb 2023	2023	Feb 2023 – Mar 2023 Average	Feb 2022 – Mar 2022 Average	2020 – 2022 Average
Global Petroleum and Other Liquids (million barrels per day)					
Global Petroleum and Other Liquids Production (a)	101.2	101.1	101.2	99.2	96.5
Global Petroleum and Other Liquids Consumption (b)	100.5	101.3	100.9	99.6	96.0
Biofuels Production (c)	2.3	2.3	2.3	2.3	2.8
Biofuels Consumption (c)	2.7	2.7	2.7	2.7	2.7
Iran Liquid Fuels Production	3.8	3.7	3.8	3.7	3.4
Iran Liquid Fuels Consumption	2.4	2.2	2.3	2.2	2.0
Petroleum and Petroleum Products Produced and Consumed in Countries Other Than Iran (million barrels per day)					
Production (d)	95.1	95.1	95.1	93.2	90.3
Consumption (d)	95.4	96.5	95.9	94.7	91.3
Production minus Consumption	-0.3	-1.4	-0.8	-1.5	-1.0
World Inventory Net Withdrawals Including Iran	-0.7	0.2	-0.3	0.3	-0.4
Estimated OECD Inventory Level (e) (million barrels)	2,792	2,805	2,799	2,611	2,878
Surplus Production Capacity (million barrels per day)					
OPEC Surplus Crude Oil Production Capacity (f)	3.0	3.1	3.0	3.0	4.3

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

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

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

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

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

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

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

Data source: U.S. Energy Information Administration.

Table a2. Crude Oil and Petroleum Product Price Data

Item	Feb 2023	Mar 2023	Feb 2023 – Mar	Feb 2022 – Mar	2020 – 2022
			2023 Average	2022 Average	Average
Brent Front Month Futures Price (\$ per barrel)	83.54	79.21	81.17	104.15	71.07
WTI Front Month Futures Price (\$ per barrel)	76.86	73.37	74.95	100.74	67.25
Dubai Front Month Futures Price (\$ per barrel)	82.01	78.34	80.00	101.96	69.66
Brent 1st - 13th Month Futures Spread (\$ per barrel)	5.07	4.06	4.52	17.39	5.09
WTI 1st - 13th Month Futures Spread (\$ per barrel)	3.27	3.11	3.18	18.37	5.09
RBOB Front Month Futures Price (\$ per gallon)	2.43	2.63	2.54	3.02	2.08
Heating Oil Front Month Futures Price (\$ per gallon)	2.83	2.74	2.78	3.29	2.29
RBOB - Brent Futures Crack Spread (\$ per gallon)	0.44	0.74	0.60	0.54	0.39
Heating Oil - Brent Futures Crack Spread (\$ per gallon)	0.84	0.85	0.84	0.81	0.60

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

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

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

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