



Short-Term Energy Outlook

Forecast highlights

Winter Fuels Outlook

- In our [Winter Fuels Outlook](#), we forecast that average household expenditures for home heating fuels will increase this winter because of both higher expected fuel costs and higher energy consumption due to colder temperatures. Compared with last winter, in nominal terms, we forecast expenditures for homes that heat with natural gas will rise by 28%, heating oil by 27%, electricity by 10%, and propane 5% from October–March.

Global liquid fuels

- The Brent crude oil spot price in our forecast averages \$93 per barrel (b) in the fourth quarter of 2022 (4Q22) and \$95/b in 2023. Potential petroleum supply disruptions and slower-than-expected crude oil production growth could lead to higher oil prices, while the possibility of slower-than-forecast economic growth may contribute to lower prices.
- [OPEC+ announced a production cut](#) of 2 million barrels per day (b/d) on October 5. OPEC crude oil production in our forecast falls from an average of 29.6 million barrels per day (b/d) in September to an average of 28.6 million b/d over 4Q22 and 1Q23.
- U.S. crude oil production in our forecast averages 11.7 million b/d in 2022 and 12.4 million b/d in 2023, which would surpass the record high set in 2019.
- We forecast that global consumption of liquid fuels will rise by an average of 2.1 million b/d for all of 2022 and by an average of 1.5 million b/d in 2023.
- U.S. retail gasoline prices in our forecast average \$3.80 per gallon (gal) in 4Q22 and \$3.57/gal in 2023. Retail diesel prices average \$4.86/gal in 4Q22 and \$4.29/gal in 2023.
- We expect U.S. gasoline consumption in 2022 to average 8.8 million b/d, down 40,000 b/d from 2021, and we expect it to stay near that level in 2023, with rising fuel efficiency offsetting price- and economy-driven increases in transportation demand.

Natural gas

- We expect the Henry Hub natural gas spot price to average about \$7.40 per million British thermal units (MMBtu) in 4Q22 and then fall below \$6.00/MMBtu in 2023 as U.S. natural gas production rises.

- We forecast that U.S. natural gas inventories will end the injection season (April–October) at nearly 3.5 Tcf, which would be 6% below the five-year (2017–2021) average.
- U.S. consumption of natural gas will average 87.9 billion cubic feet per day (Bcf/d) in 2022, up 3.9 Bcf/d from 2021, reflecting more consumption across almost all sectors. Consumption falls by 2.6 Bcf/d in the 2023 forecast because of lower consumption in the electric power and industrial sectors.
- In 3Q22, U.S. dry natural gas production averaged 98.5 Bcf/d, up from 95.1 in 1Q22. We forecast natural gas production to average 99.1 Bcf/d in 4Q22 and 99.6 Bcf/d in 2023.

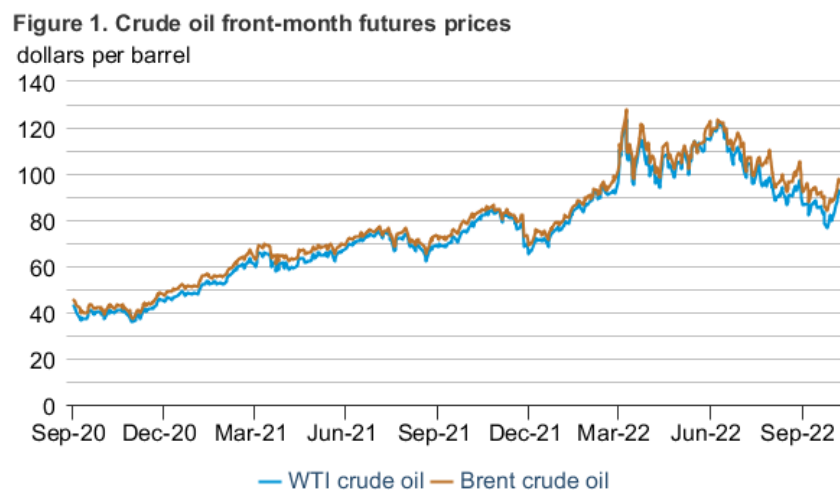
Electricity, coal, renewables, and emissions


- We expect U.S. sales of electricity to ultimate customers to rise by 2.7% in 2022, mostly because of more economic activity but also because of slightly hotter summer weather than last year. We forecast U.S. sales of electricity to fall by 0.9% in 2023.
- Increases in U.S. electricity generation in our forecast come almost entirely from solar and wind. We expect renewable sources will provide 22% of U.S. generation in 2022 and 24% in 2023, up from 20% in 2021.
- Natural gas fuels 38% of U.S. electricity generation in 2022, up from 37% in 2021, but we forecast it to fall back to 36% in 2023. Coal-fired electricity generation falls from 23% of the U.S. total last year to 20% in 2022 and 19% in 2023. Growing generation from renewable sources limits growth in natural gas-fired generation, and coal’s generation share declines because of the expected retirement of some coal-fired capacity.
- We forecast that wholesale electricity prices at major power trading hubs will be about 20-60% higher on average this winter. The highest wholesale electricity prices are likely to be in New England because of possible natural gas pipeline constraints, reduced fuel inventories for power generation, and uncertainty regarding liquefied natural gas (LNG) shipments given the tight global supply conditions.
- We forecast the U.S. residential price of electricity will average 14.9 cents per kilowatthour in 2022, up 8% from 2021. Higher retail electricity prices largely reflect an increase in wholesale power prices, which are driven by higher natural gas prices.
- U.S. coal production in the forecast increases by 20 million short tons (MMst) in 2022 to total 598 MMst for the year. We expect coal production will fall to 581 MMst in 2023.
- We expect energy-related carbon dioxide emissions in the United States to increase by 1.5% in 2022 and then to decrease 2.3% in 2023 to just under 2021 levels.

Petroleum and Natural Gas Markets Review

Crude oil

Prices: The front-month futures price for Brent crude oil settled at \$94.42 per barrel (b) on October 6, an increase of \$2.06/b from the September 1 price of \$92.36/b. The front-month futures price for West Texas Intermediate (WTI) crude oil for delivery at Cushing, Oklahoma, increased by \$1.84/b during the same period, settling at \$88.45/b on October 6 (**Figure 1**). These price increases are mostly attributable to expectations around crude oil production cuts by OPEC+ producers, which were announced at **2 million b/d on October 5**. From September 30 to October 6, the front-month futures price for Brent crude oil increased by \$6.46/b and the front-month futures price for WTI crude oil increased by \$8.96/b.



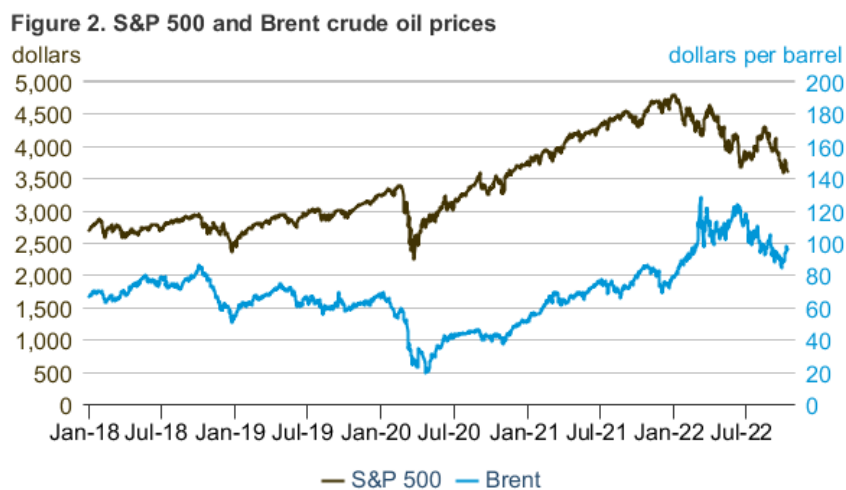
 Data source: CME Group, Intercontinental Exchange, and Bloomberg L.P.
Note: WTI=West Texas Intermediate

Prior to the OPEC+ announcement and the speculation of cuts in the days immediately preceding the announcement, crude oil prices were generally decreasing due to increasing concerns around weakening global economic conditions. In addition, the 180 million barrel Strategic Petroleum Reserve release conducted in recent months may also have relieved supply concerns. The front-month futures price for Brent crude oil averaged \$7/b lower in September than in August. September marked the third consecutive month in which the Brent crude oil futures price decreased, bringing the total decrease to \$27/b in those three months. These decreases in crude oil prices have not affected all countries evenly, however, because Brent crude oil is priced in U.S. dollars. Investors have increasingly purchased U.S. financial assets as a result of the Federal Reserve raising interest rates to curb inflation and because investors seek out U.S. currency as a safe-haven asset during uncertain economic conditions. This trend has led to the U.S. dollar increasing to its highest value since 2002. For countries using other currencies, including many of the globe's emerging markets, the strengthening U.S. dollar makes it more expensive to convert local currency into the U.S. dollars necessary to import crude oil. A

strengthening dollar also creates additional macroeconomic uncertainty by raising debt servicing costs for countries holding U.S. dollar-denominated debt.

With macroeconomic uncertainty rising, Oxford Economics lowered its forecast for global GDP growth to 2.2% for 2023, down from 2.7% last month. We use Oxford Economics' forecast as an input into our global oil demand model. This reduction in forecast GDP led us to lower our forecast for global petroleum demand in 2023 by 0.5 million b/d compared with the [September Short-Term Energy Outlook](#).

Brent price and S&P 500: In the past few years, the price of Brent crude oil has often, but not always, moved in the same direction as the value of the S&P 500, an equity index of widely traded U.S. public companies. For example, from the second half of 2020 (2H20) through 2021, the Brent crude oil price and the value of the S&P 500 both increased as economic growth was reflected in the rising profitability of companies as well as in rising demand for oil (**Figure 2**).



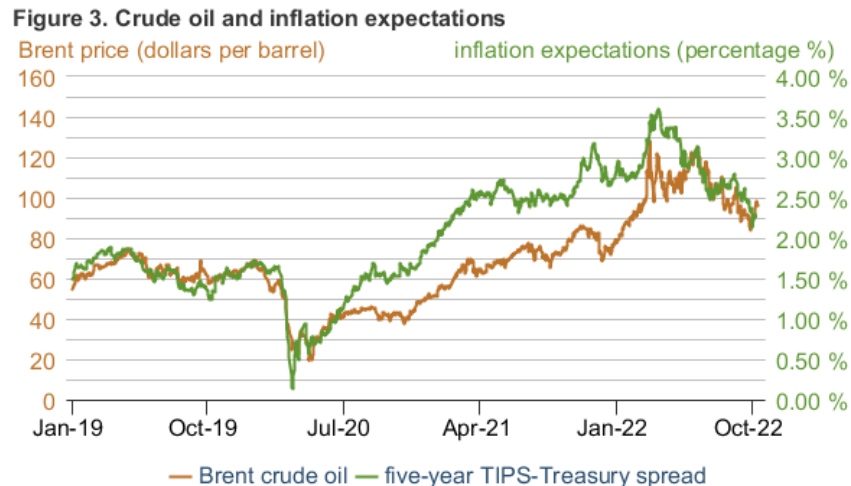
 Data source: CME Group, Intercontinental Exchange, and Bloomberg L.P.

Oil prices and equities began moving in opposite directions in early 2022, when the price of crude oil continued increasing as Russia's full-scale invasion of Ukraine intensified global petroleum supply concerns. These price increases contributed to higher inflation and input costs for companies, leading to a decline in the S&P 500. As the Federal Reserve has increased interest rates to curb inflation, borrowing costs for companies have grown and expectations for economic growth have declined, putting further downward pressure on the S&P 500. However, from July to September 2022, the price of Brent crude oil resumed a positive relationship with equity prices, with both declining as concerns about global economic conditions also reduced expectations of petroleum demand growth, accompanied by pressure from the strong US dollar (discussed above).

Brent price and inflation expectations: Inflation expectations also often move together with crude oil prices. One measure of inflation expectations is the percentage difference between

yields for five-year Treasury Inflation-Protected Securities (TIPS) and U.S. treasury bonds. This spread indicates expectations for what the inflation rate will be in five years. Inflation expectations peaked in March at 3.6% (**Figure 3**), decreasing in recent months in part due to:

- Inflation, as measured by the U.S. Consumer Price Index, has flattened and slightly decreased recently, in part because energy-sector inflation has slowed down as oil prices have dropped; and
- Expectations for future economic activity, which have also fallen.

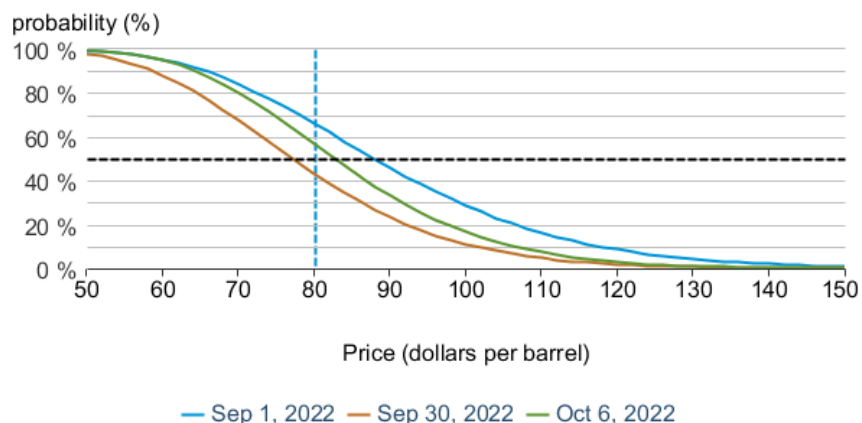


Data source: Based on data from Bloomberg L.P. and Federal Reserve Bank of St. Louis
 Note: TIPS=Treasury Inflation Protected Securities

Although the price of Brent crude oil continued to increase from April to June when inflation expectations were decreasing, persistent concerns about economic conditions and petroleum demand have contributed to crude oil prices decreasing with inflation expectations from July through September.

Market-derived probabilities: Crude oil prices have been subject to high levels of uncertainty due to geopolitical factors, uncertain OPEC+ production, and concerns that a global recession could reduce crude oil demand. [Market-derived price probabilities](#) that are based on futures and options prices reflect this price uncertainty. They also reflect the downward price movements in September and the upward price movements in October. As of September 30, the probability of the December 2022 WTI contract expiring at more than \$80/b was 43%, a decrease from 66% on September 1 (**Figure 4**). The probability of the December 2022 WTI contract expiring above \$90/b was 23% on September 30, and the probability of it expiring above \$100/b was 11%. Conversely, there was also a 32% chance of the December WTI crude oil contract expiring at or below \$70/b as of September 30. But in October, when crude oil prices began to rise in anticipation of OPEC production cuts, higher future crude oil prices became more likely. As of October 6, the probability of WTI expiring above \$80/b was 57% and the probability of it expiring above \$90/b was 33%, both increases from September 30 but decreases from September 1.

Figure 4. Probability of June 2022 WTI futures contracts expiring above different price levels



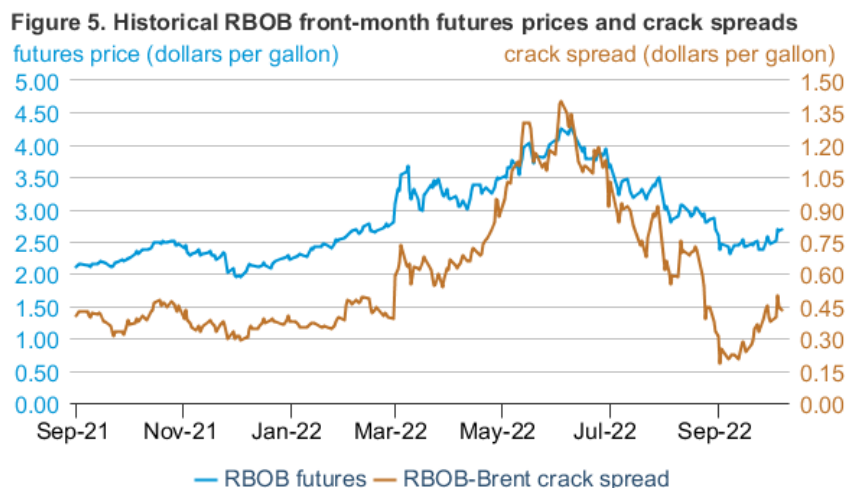
Data source: U.S. Energy Information Administration, CME Group
 Note: WTI=West Texas Intermediate

We forecast the WTI crude oil price to be \$85/b in December and \$87/b in January. We expect the WTI crude oil price to increase to an average of \$89/b in 2023, and we expect the Brent crude oil price to be **\$6/b higher than the WTI price throughout 2023**.

We forecast oil prices to generally remain near current levels in 2023 with Brent averaging \$95/b. We lowered our price forecast for 2023 by \$2/b compared with last month’s forecast, which largely reflected a 0.5 million b/d reduction in our forecast for global oil consumption in response to a lower forecast for global GDP from Oxford Economics. Lower oil consumption resulted in us lowering our price forecast in early 2023. We also reduced our forecast for global oil production by 0.6 million b/d in 2023, with the largest downward revision for next year in 4Q23. As a result of lower production at the end of next year, we forecast Brent prices will end 2023 higher than previously expected, despite a lower crude oil price forecast on average for next year. Our forecast had already included a reduction in OPEC+ crude oil production that was largely consistent with the cuts the group announced on October 5. Accounting for these changes, global oil markets are relatively balanced in our 2023 forecast. The possibility of petroleum supply disruptions and slower-than-expected crude oil production growth continues to create the potential for higher oil prices, while the possibility of slower-than-forecast economic growth creates the potential for lower prices.

Petroleum products

Gasoline prices: The front-month futures price of RBOB (reformulated blendstock for oxygenate blending, the petroleum component of gasoline used in many parts of the country) settled at \$2.68 per gallon (gal) on October 6, up 30 cents/gal from September 1 (**Figure 5**). The RBOB-Brent crack spread (the difference between the price of RBOB and the price of Brent crude oil) settled at 43 cents/gal on October 6, up 25 cents/gal since September 1.



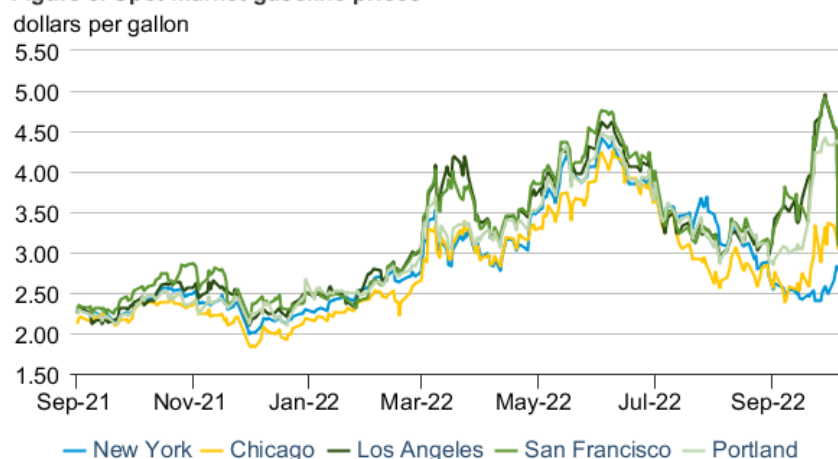
Data source: CME Group and Bloomberg L.P.
 Note: RBOB is the petroleum component of gasoline used in many parts of the country.

RBOB prices started September at their lowest level since January after the RBOB front-month contract rolled over to October delivery, which reflects [winter grade gasoline](#) that is cheaper for refiners to produce. Through the end of September, RBOB prices increased by more than crude oil prices as higher gasoline export levels offset lower-than-average domestic gasoline consumption amid low inventory levels. We estimate U.S. gasoline consumption averaged 8.8 million barrels a day (b/d) in September, which is 2% (0.2 million b/d) lower than the five-year (2017–2021) average for that month. U.S. gasoline exports for the four weeks ending September 30 averaged 1.0 million b/d according to EIA’s [Weekly Petroleum Status Report](#) (WPSR). If confirmed in monthly data, this level would be 32% (240,000 b/d) higher than the five-year average export volume for September. We estimate gasoline inventories declined by 3% (7.2 million barrels) to 208 million barrels in September, which is 10% below the five-year average and the lowest end-of-September level since 2012.

Declining crude oil prices contributed to the RBOB-Brent crack spread increasing in September after reaching its lowest level since February 2021 on September 1. The average RBOB-Brent crack spread in September was 30 cents/gal, 29 cents/gal lower than in August but still 7 cents/gal higher than the five-year average for September. From September 30 to October 6, RBOB prices rose by 8%, and Brent crude oil prices increased by 7% over the same period.

Spot market gasoline prices: Although West Coast spot market prices for gasoline are typically priced higher than in other parts of the country, West Coast premiums in late September increased to more than \$2/gal on average over New York RBOB prices. In September, spot gasoline prices in Los Angeles, San Francisco, and Portland increased by at least 50% while prices in New York decreased by 4% over the same time period (**Figure 6**).

Figure 6. Spot market gasoline prices

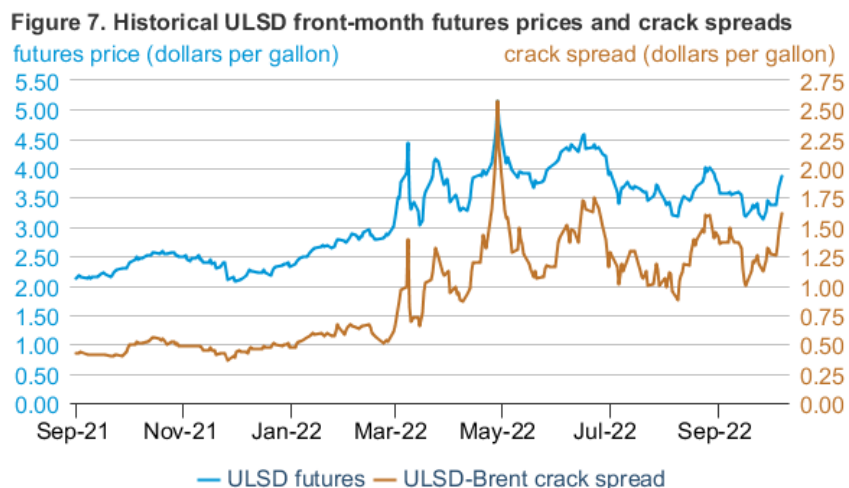


 Data Source: Bloomberg L.P.

Multiple refinery outages for planned and unplanned maintenance on the West Coast, amid West Coast gasoline inventories at their lowest level since May 2012, contributed to the price increase along with lower imports. Gasoline imports to the West Coast, which have historically increased supplies during **past instances** of market tightness, did not materialize in a substantial way through the end of September. **WPSR** data show West Coast gasoline imports averaged 30,000 b/d for the four weeks ending September 30, after unusually low import levels in the second half of July and all of August. This lack of imports contributed to an increase in West Coast retail gasoline prices, which rose 17% (84 cents/gal) from September 19 to October 3. The California Air Resources Board issued a **notice** on September 30 to allow the early sale of winter-blend gasoline to help reduce high prices. From October 4 to October 6, West Coast premiums over New York RBOB declined by 92 cents/gal on average as some refinery capacity came back online in California and expectations rose for an increase in short-term imports.

In the Midwest, a similar situation is developing as **unplanned outages** at two refineries led to an increase in the Chicago spot gasoline price by 30% in September. Subsequently, Midwest retail gasoline prices increased 6% (20 cents/gal) from September 19 to October 3.

Ultra-low sulfur diesel prices: The front-month futures price for ultra-low sulfur diesel (ULSD) for delivery in New York Harbor settled at \$3.86/gal on October 6, a 30 cents/gal increase from September 1 (**Figure 7**). The ULSD-Brent crack spread (the difference between the price of ULSD and the price of Brent crude oil) increased 25 cents/gal during the same period and settled at \$1.62/gal on October 6.



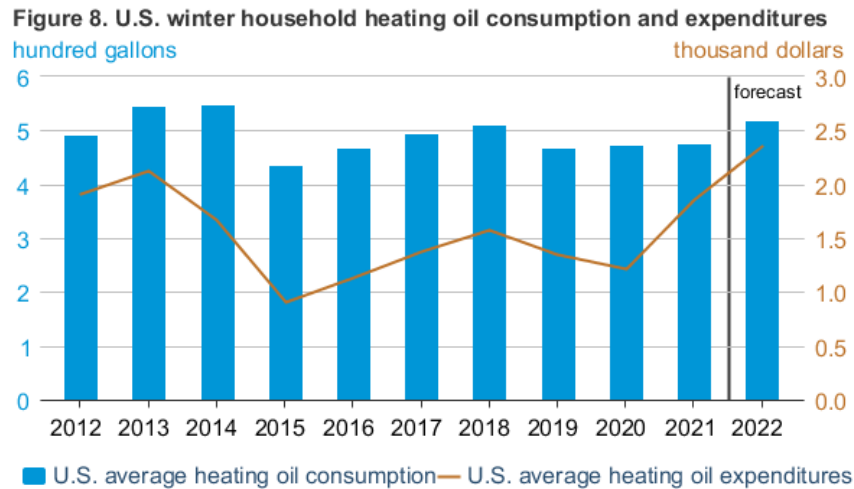
 Data source: CME Group and Bloomberg L.P.
 Note: ULSD=ultra-low sulfur diesel, monthly labels indicate first day per month

ULSD prices and crack spreads both decreased in September on a monthly average basis in response to lower estimated demand in the United States and broader expectations of wavering economic activity. In addition to lower crude oil prices in September, we estimate monthly average distillate consumption in September was 3.7 million b/d, the lowest consumption so far in 2022, likely because of lower trucking and industrial demand related to decreasing economic expectations. We expect distillate consumption to increase in the fourth quarter of 2022, primarily in response to seasonal factors, including agricultural demand brought on by the fall harvest season and winter demand for distillate heating oil. These seasonal factors along with rising crude oil prices are likely contributing to the sharp increase in distillate prices in early October. Agricultural demand is primarily concentrated in the Midwest, and heating demand for distillate is primarily in the Northeast. Distillate inventories in the Midwest and Northeast have both been below their five-year lows through the summer of 2022, so transport constraints between Gulf Coast producers and these regions present the potential for relatively higher distillate prices in these markets.

We expect downward pressure on distillate prices and crack spreads, related to economic conditions, to continue through the end of 2022 and the first half of 2023, but we still forecast distillate crack spreads to remain well above historical levels through the end of the year. The potential for further low demand related to uncertain economic conditions, as well as potential variability in harvest or heating oil demand, are all significant factors in our forecast. Changes in distillate net exports present an additional source of uncertainty, which could mean fewer distillate imports into the United States (primarily to the East Coast) as well as further calls on U.S. distillate exports (mostly from the Gulf Coast) from international markets.

U.S. heating oil expenditures: In the 2022–2023 winter season (October 2022 through March 2023), we currently estimate U.S. average household heating oil consumption—most of which occurs in the Northeast—will be 519 gallons, which would be the most since the 2014–2015

winter season (**Figure 8**). High heating oil prices going into this winter, combined with higher forecast consumption result in our expectation that heating oil expenditures will be about \$2,350 this winter, for homes in which heating oil is the primary space heating fuel. Expenditures at that level would be the highest since 2013–2014 winter season when adjusted for inflation.



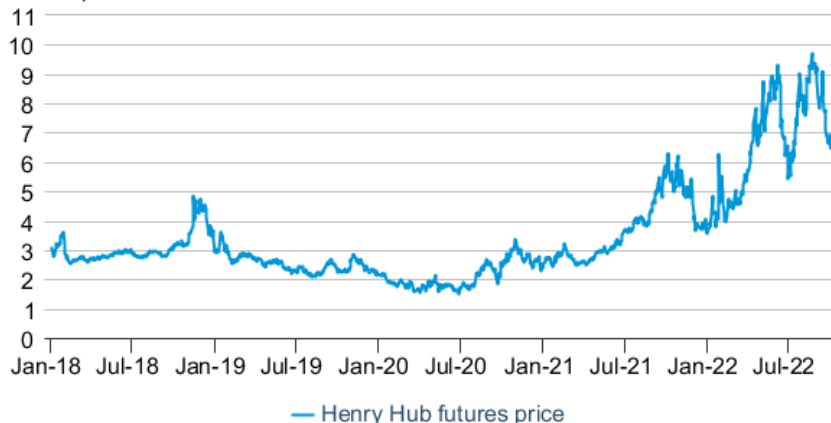
Data source: U.S. Energy Information Administration, Short Term Energy Outlook
 Note: Winter refers to October of the indicated year through March of the following year

The high estimated consumption this winter is a result of our estimates for higher heating degree days, based on the current winter outlook from the National Oceanic and Atmospheric Administration (NOAA). For more information, please see our [Winter Fuels Outlook](#).

Natural Gas

Prices: The front-month natural gas futures contract for delivery at the Henry Hub settled at \$6.97 per million British thermal units (MMBtu) on October 6, 2022, down \$2.29/MMBtu from September 1, 2022 (**Figure 9**). The price for front-month natural gas futures contracts averaged \$7.76/MMBtu in September, compared with \$8.78/MMBtu in August.

Figure 9. Historical nominal front-month U.S. natural gas prices
dollars per million British thermal units

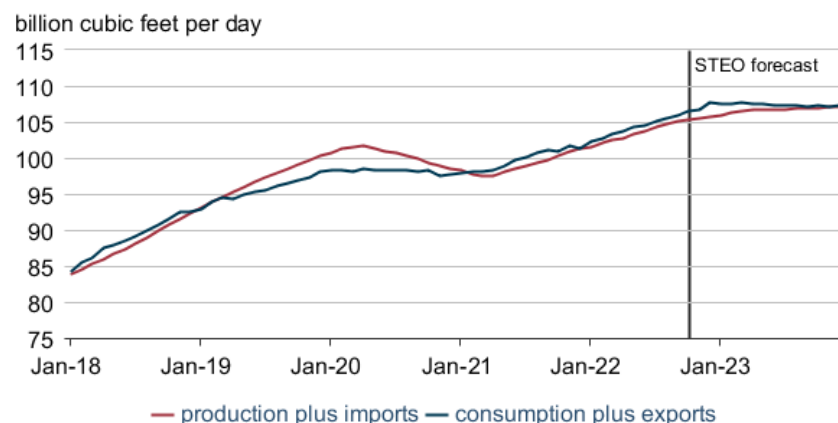


eia Data source: CME Group and Bloomberg L.P.

We estimate U.S. dry natural gas production in September reached a record-high 98.8 billion cubic feet per day (Bcf/d). The record production contributed to September’s natural gas stock builds of 428 Bcf, which were 20% higher than the five-year (2017–2021) average. Despite the above-average builds, natural gas inventories at the end of the month were 3,135 Bcf, which is 8%, or 280 Bcf, below the five-year average. U.S. liquefied natural gas (LNG) exports averaged 10.1 Bcf/d in September, as liquefaction terminals other than the off-line Freeport terminal operated near full capacity.

Supply and demand balance: When natural gas supply (production plus imports) is lower than natural gas demand (consumption plus exports), natural gas prices tend to increase as more natural gas is pulled from storage to meet demand. The 12-month rolling average of natural gas demand has exceeded supply since February 2021 (**Figure 10**), which has contributed to an elevated Henry Hub spot price that **doubled between June 2021 and July 2022**. Monthly storage inventories have remained below the five-year average since June 2021, except for in **December 2021** when unusually warm weather led to **lower-than-normal storage withdrawals**. We expect the Henry Hub spot price to remain elevated until the second quarter of 2023 when we forecast the 12-month rolling average of supply to rise closer to average demand and inventories to rise above the five-year average.

Figure 10. Natural gas production plus imports and consumption plus exports, 12-month moving average



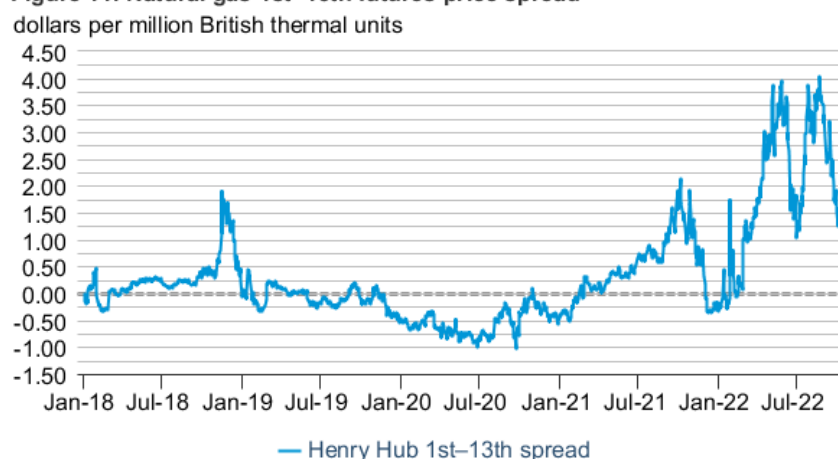
eia Data source: U.S. Energy Information Administration, Short-Term Energy Outlook (STEO)

As a result of higher forecast natural gas prices and consumption, we expect households that use natural gas as their primary space heating fuel will spend 28% more this winter (October 2022 through March 2023) than they spent last winter. Nearly half of all U.S. households heat primarily with natural gas. We expect average household winter consumption to be 58 thousand cubic feet (Mcf), up 5% from last winter. For more information, please see our [Winter Fuels Outlook](#).

We forecast the Henry Hub spot price will start to decline in the first half of 2023 as producers continue to increase supply. In the first three quarters of 2022, U.S. dry natural gas production grew steadily. We forecast dry natural gas production to continue to increase, averaging 99.1 Bcf/d in 4Q22.

Futures price spreads: Natural gas futures contracts allow natural gas to be bought and sold for delivery at specific dates in the future corresponding to the start of each month. The natural gas 1st–13th month spread represents the difference between the price of natural gas sold for delivery 1 month from now compared to natural gas sold for delivery 13 months from now. The natural gas 1st–13th month price spread averaged \$2.32/MMBtu in September, down nearly \$1.13 from the record-high monthly average of \$3.45/MMBtu set in August (**Figure 11**). The 1st–13th price spread has averaged over \$2.00/MMBtu every month since April. During that time, natural gas prices have remained elevated, averaging \$7.74/MMBtu, and natural gas inventories remained 8% or more below the five-year average.

Figure 11. Natural gas 1st–13th futures price spread



 Data source: CME Group and Bloomberg L.P.

When the 1st–13th price spread is positive, known as backwardation, near-term contract prices for the current month are higher than longer-dated contract prices for natural gas delivery one year further in the future. This difference reflects a market that puts greater value on natural gas sold for delivery one month from now compared with natural gas sold for delivery at the same time next year, encouraging market participants to sell natural gas from inventories instead of storing for future sales. Often, this situation occurs when natural gas demand is greater than supply, drawing inventories below the five-year range. The high 1st–13th price spread since April 2022 reflects the [highest annual natural gas demand on record](#), driven by the electric power sector and high LNG export levels. High demand is keeping inventories at a deficit to the five-year average. Dry natural gas production has increased since April but not by enough to significantly reduce the storage deficit to the five-year average. As a result, the 1st–13th price spread has remained at its highest monthly levels on record.

We expect natural gas spot prices to remain elevated in late 2022 before falling in 2023. We forecast the Henry Hub spot price to average about \$7.40/MMBtu in 4Q22, then fall below \$6.00/MMBtu in 2023 as U.S. natural gas production rises.

Notable forecast changes

- Global oil production for 2023 in our forecast averages 100.7 million barrels per day (b/d). Our production forecast is 0.6 million b/d lower than in the September STEO and reflects announced cuts from OPEC+ as well as lower forecast crude oil production in the United States.
- Our forecast for global oil consumption forecast for 2023 is 101.0 million b/d, which is 0.5 million b/d lower than in the September STEO and reflects Oxford Economics

lowering its forecast for global GDP growth in 2023 to 2.2% this month from 2.7% last month.

- We expect U.S. crude oil production will average 12.4 million b/d in 2023, which is down from a forecast of 12.6 million b/d last month. Lower crude oil production in the forecast reflects lower crude oil prices in 4Q22 than we previously expected.
- Our 2023 forecast for U.S. gasoline consumption was revised down by 0.1 million b/d. The downward revision reflects lower forecast vehicle miles traveled as a result of lower expected employment growth, based on forecasts from S&P Global, next year as well as higher expected growth in vehicle fuel efficiency.
- We forecast the Henry Hub natural gas spot price will average about \$7.40 per million British thermal units (MMBtu) in 4Q22, which is about \$1.60/MMBtu less than we forecast in the September STEO. The forecast largely reflects price declines in September that lowered the starting point for our forecast, amid slightly higher expectations for U.S. production in late 2022.
- We raised our forecast for electricity generation by natural gas-fired power plants as a result of lower natural gas prices in recent weeks. We forecast natural gas-fired generation will rise by 5% in 2022, compared with expected growth of 3% in the previous STEO. We have also lowered our forecast for coal-fired generation, which is now expected to fall by almost 7% in 2022 compared with a forecast decline of 4% in the previous STEO.
- You can find more information in the [detailed table of forecast changes](#).

This report was prepared by the U.S. Energy Information Administration (EIA), the statistical and analytical agency within the U.S. Department of Energy. By law, EIA's data, analyses, and forecasts are independent of approval by any other officer or employee of the U.S. Government. The views in this report therefore should not be construed as representing those of the U.S. Department of Energy or other federal agencies.

Short-Term Energy Outlook Chart Gallery



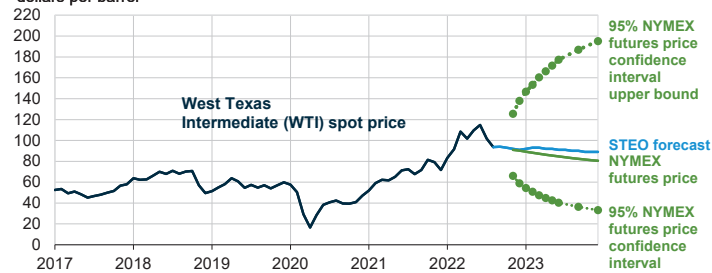
September 7, 2022



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

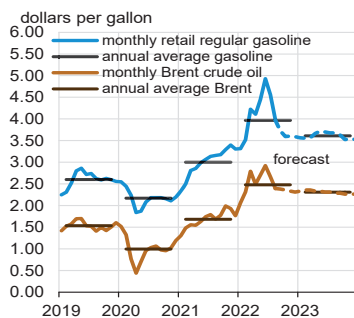


Note: Confidence interval derived from options market information for the five trading days ending Sep 1, 2022. Intervals not calculated for months with sparse trading in near-the-money options contracts.

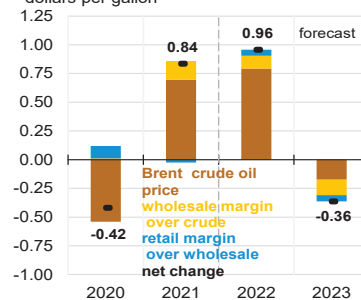
Sources: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022, CME Group, Bloomberg, L.P., and Refinitiv an LSEG Business



U.S. gasoline and crude oil prices



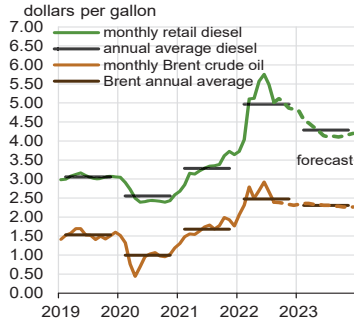
Components of annual gasoline price changes
dollars per gallon



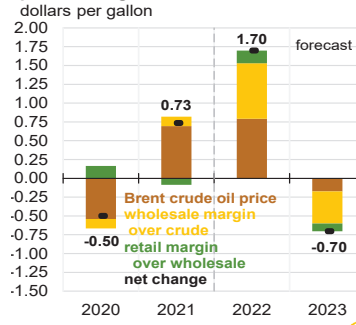
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022, and Refinitiv an LSEG Business



U.S. diesel and crude oil prices



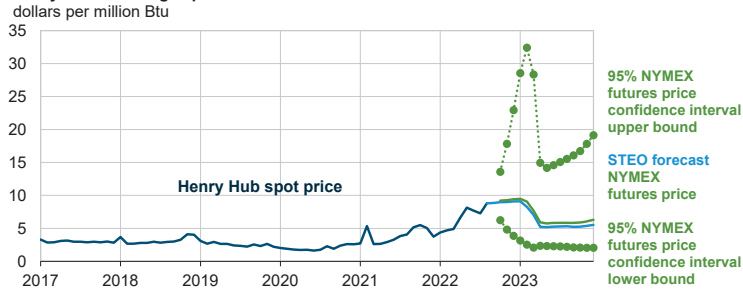
Components of annual diesel prices changes



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022, and Refinitiv an LSEG Business



Henry Hub natural gas price and NYMEX confidence intervals

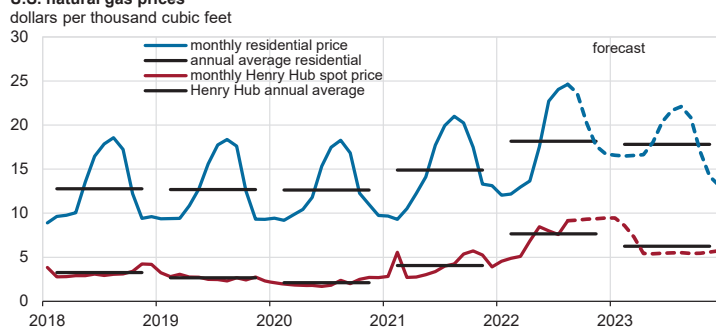


Note: Confidence interval derived from options market information for the five trading days ending Sep 1, 2022. Intervals not calculated for months with sparse trading in near-the-money options contracts.

Sources: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022, CME Group, and Refinitiv an LSEG Business



U.S. natural gas prices

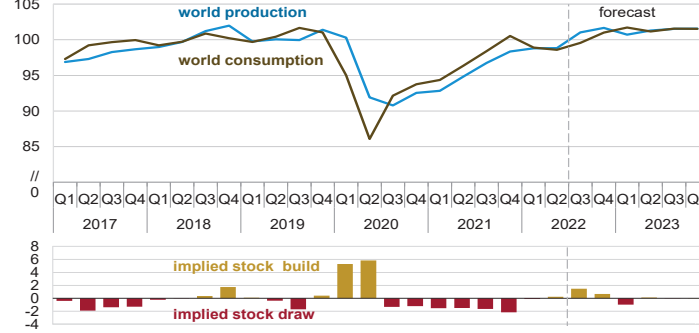


Sources: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022, and Refinitiv an LSEG Business



World liquid fuels production and consumption balance

million barrels per day

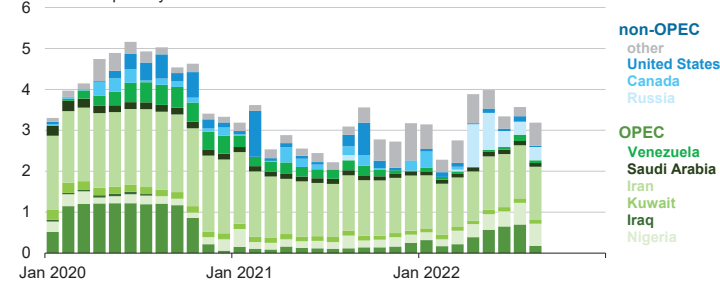


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



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

million barrels per day

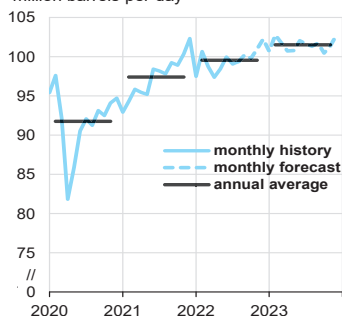


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



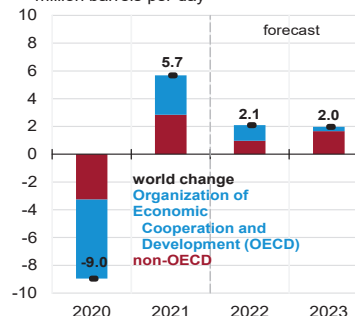
World liquid fuels consumption

million barrels per day



Components of annual change

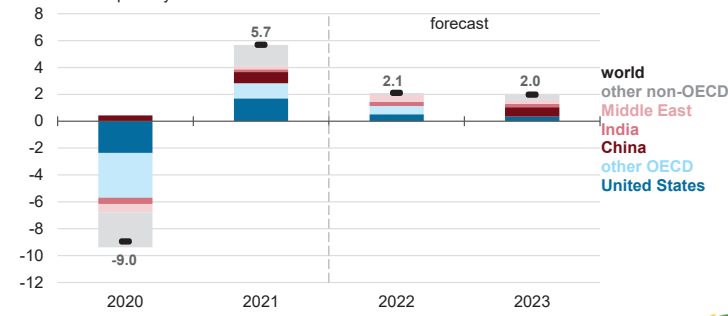
million barrels per day



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022

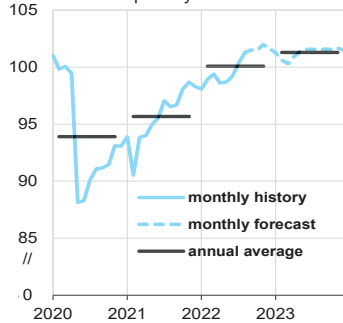


Annual change in world liquid fuels consumption
million barrels per day

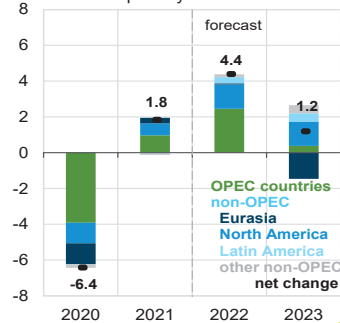


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022

World crude oil and liquid fuels production
million barrels per day

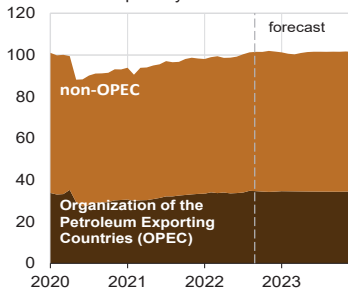


Components of annual change
million barrels per day

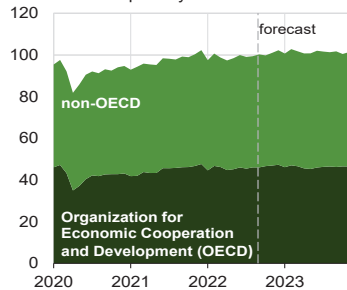


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022

World liquid fuels production
million barrels per day

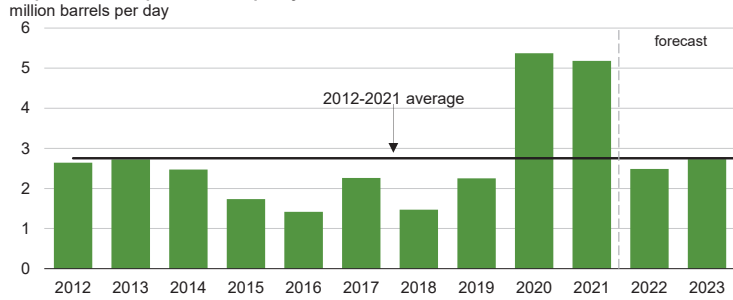


World liquid fuels consumption
million barrels per day



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022

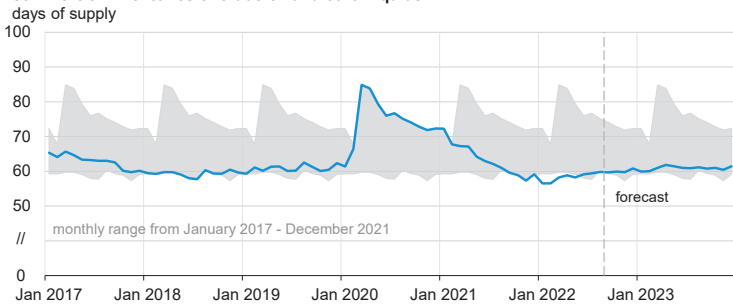
**Organization of the Petroleum Exporting Countries (OPEC)
surplus crude oil production capacity**



Note: Black line represents 2012-2021 average (2.8 million barrels per day).
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



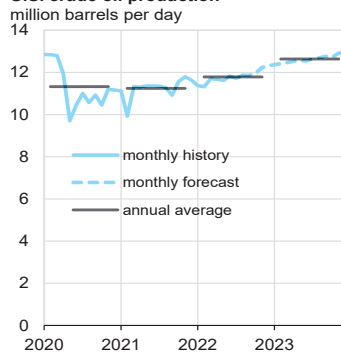
**Organization for Economic Cooperation and Development (OECD)
commercial inventories of crude oil and other liquids**



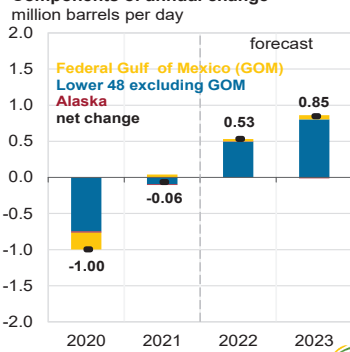
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



U.S. crude oil production



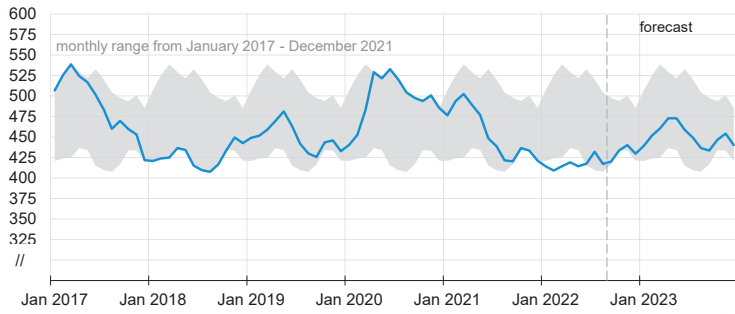
Components of annual change



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



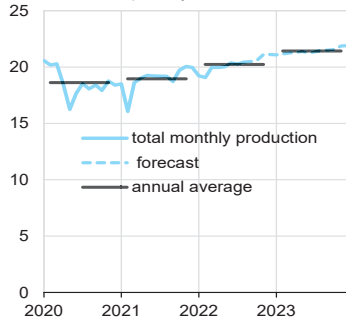
U.S. commercial crude oil inventories
million barrels



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



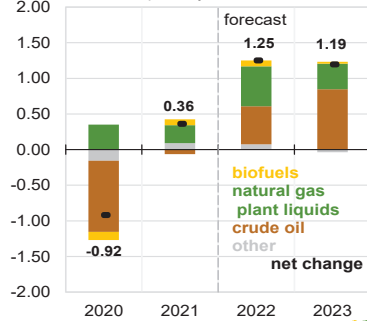
U.S. crude oil and liquid fuels production
million barrels per day



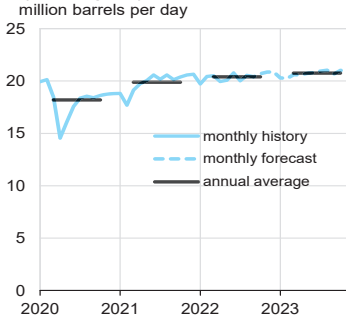
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September



Components of annual change
million barrels per day



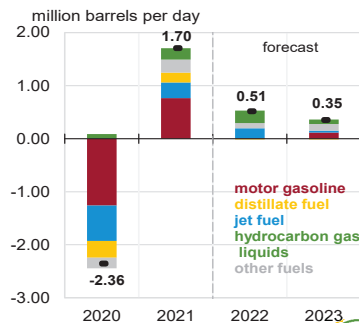
U.S. liquid fuels product supplied (consumption)
million barrels per day



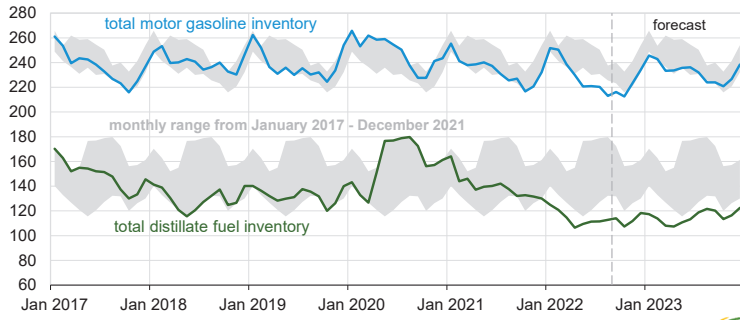
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



Components of annual change
million barrels per day



U.S. gasoline and distillate inventories
million barrels

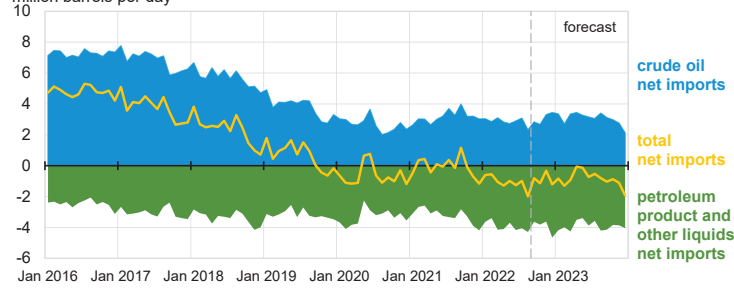


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



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

million barrels per day



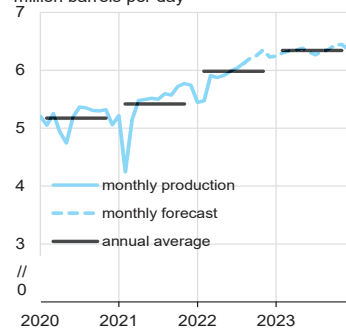
Note: Petroleum product and other liquids include: gasoline, distillate fuels, hydrocarbon gas liquids, jet fuel, residual fuel oil, unfinished oils, other hydrocarbons/oxygenates, and other oils.

Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



U.S. natural gas plant liquids production

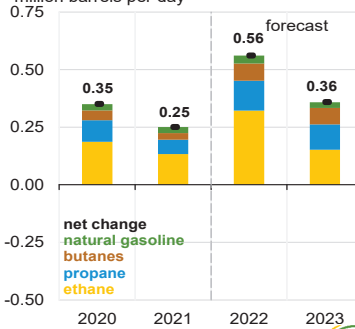
million barrels per day



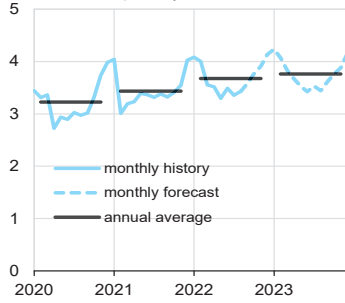
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022

Components of annual change

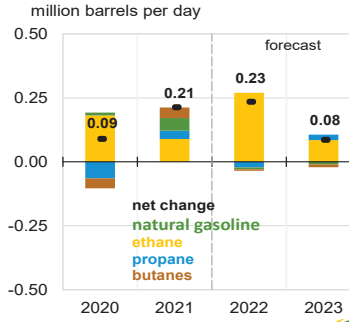
million barrels per day



U.S. hydrocarbon gas liquids product supplied (consumption)
million barrels per day



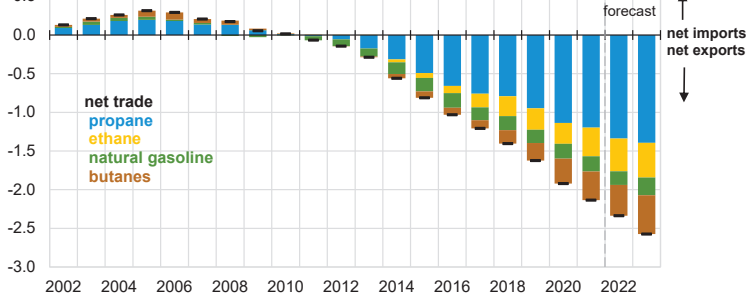
Components of annual change



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



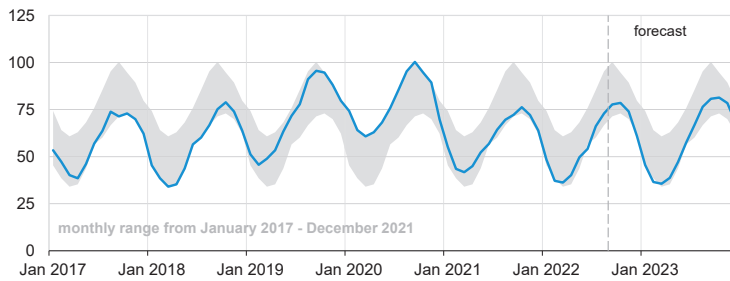
U.S. net trade of hydrocarbon gas liquids (HGL)
million barrels per day



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



U.S. commercial propane inventories
million barrels

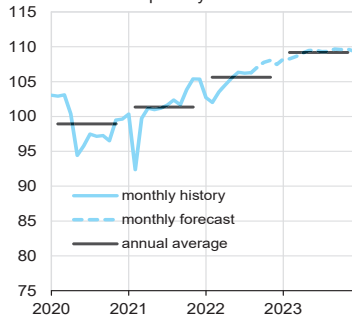


Note: Excludes propylene.

Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



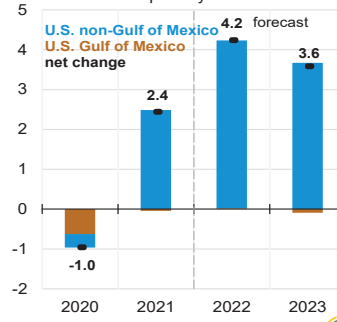
U.S. marketed natural gas production
billion cubic feet per day



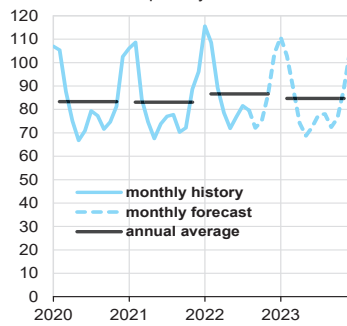
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



Components of annual change
billion cubic feet per day



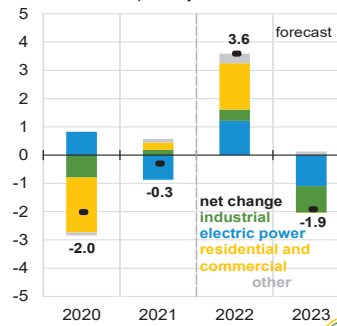
U.S. natural gas consumption
billion cubic feet per day



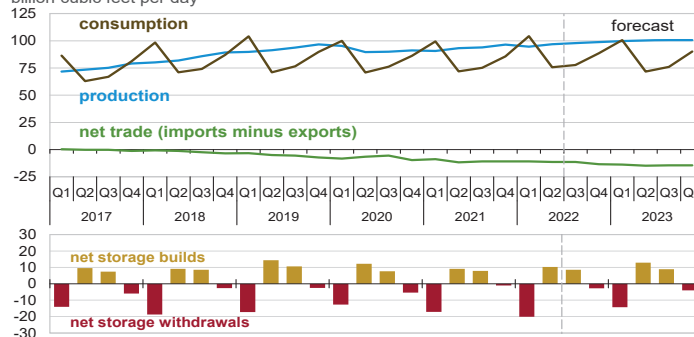
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



Components of annual change
billion cubic feet per day



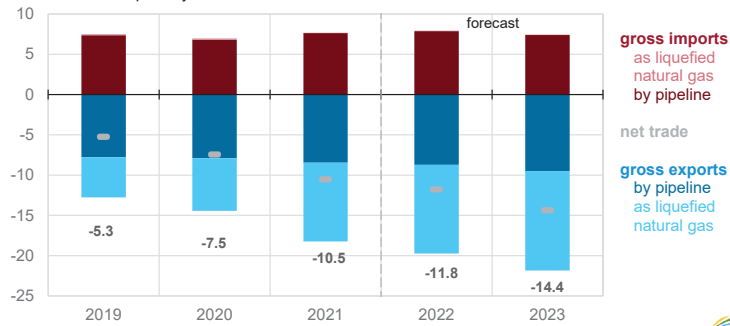
U.S. natural gas production, consumption, and net imports
billion cubic feet per day



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022

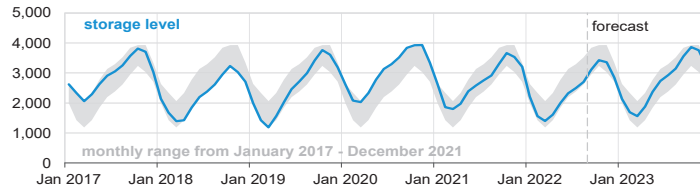


U.S. annual natural gas trade
billion cubic feet per day

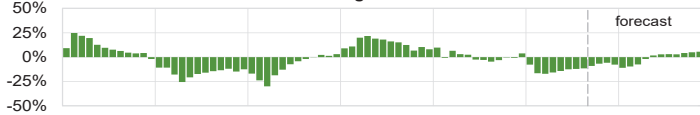


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022

U.S. working natural gas in storage
billion cubic feet

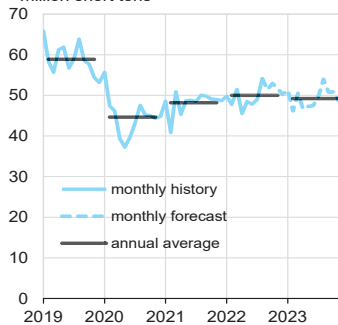


Percent deviation from 2017 - 2021 average

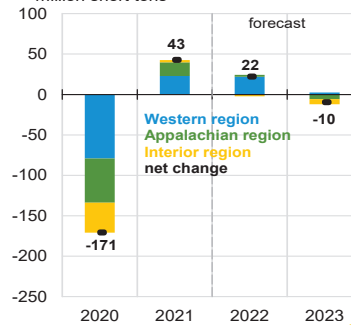


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022

U.S. coal production
million short tons

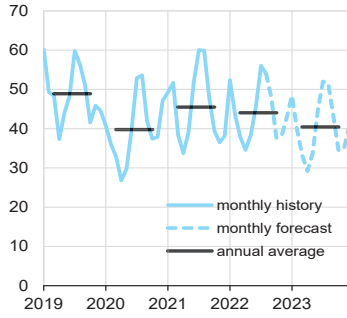


Components of annual change
million short tons

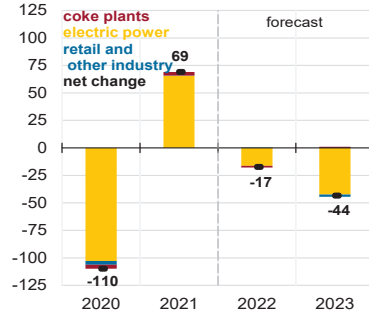


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022

U.S. coal consumption
million short tons



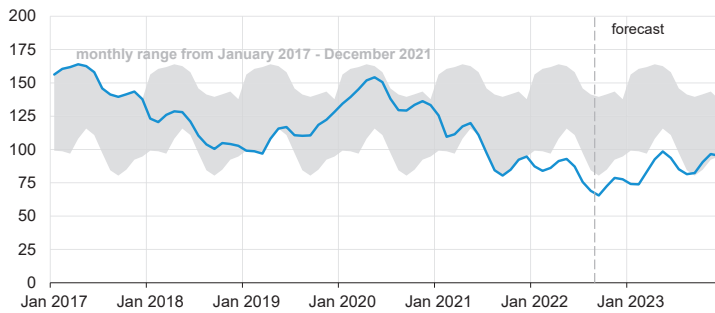
Components of annual change
million short tons



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



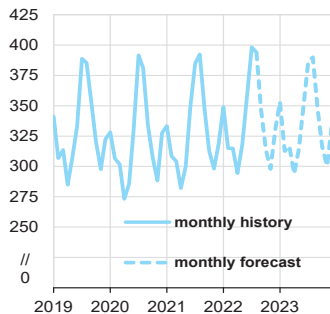
U.S. electric power coal inventories
million short tons



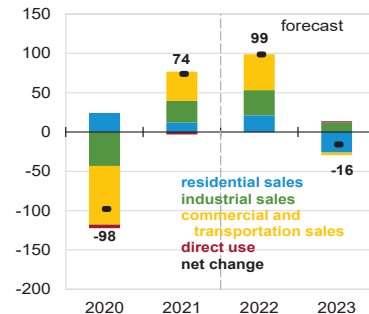
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



U.S. electricity consumption
billion kilowatthours



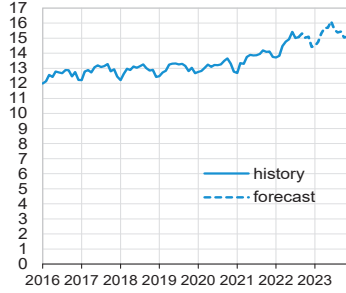
Components of annual change
billion kilowatthours



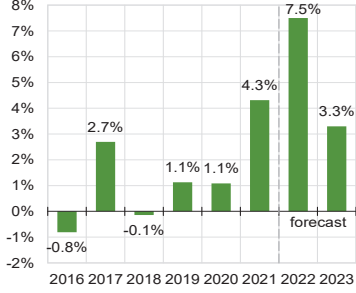
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



U.S. monthly nominal residential electricity price
cents per kilowatthour

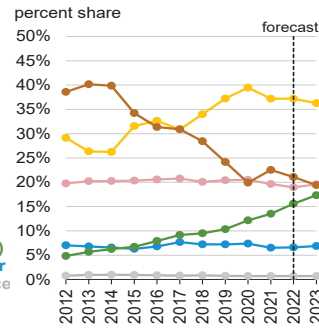
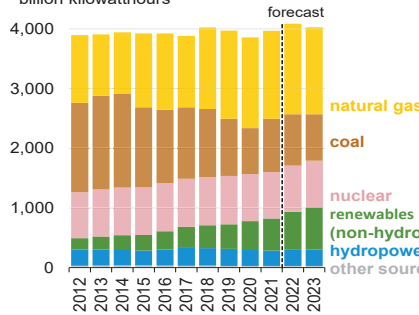


Annual growth in nominal residential electricity prices
percent



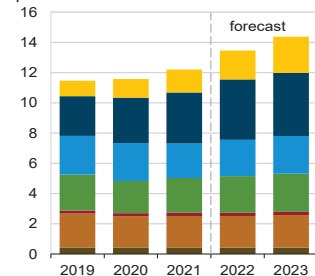
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022

U.S. electricity generation by source, all sectors
billion kilowatthours

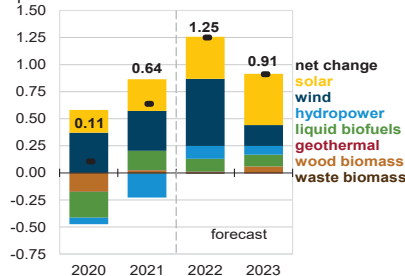


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022

U.S. renewable energy supply
quadrillion British thermal units

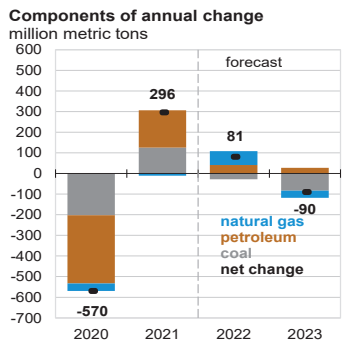
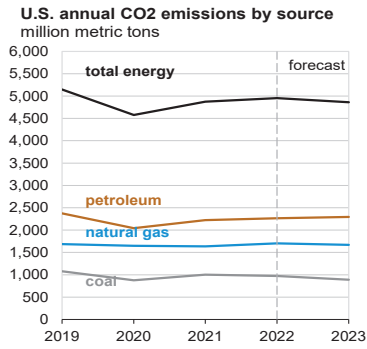


Components of annual change
quadrillion British thermal units



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.

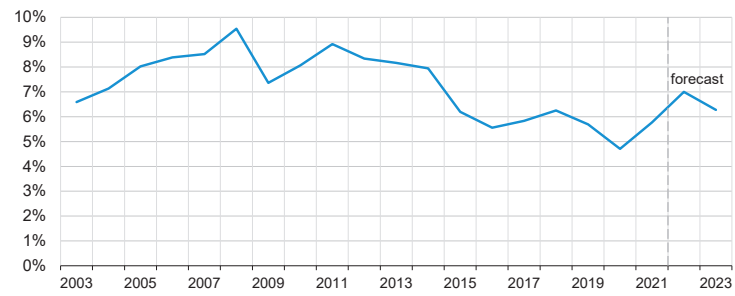
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022

U.S. annual energy expenditures

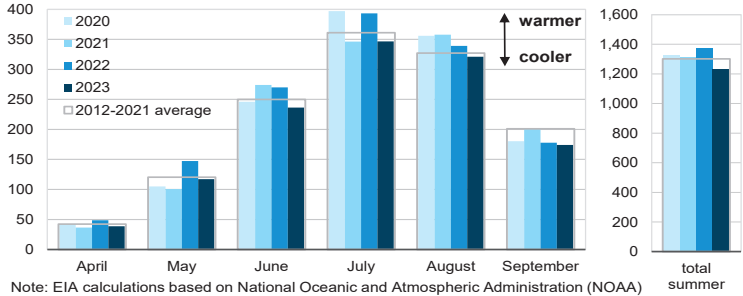
share of gross domestic product



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022

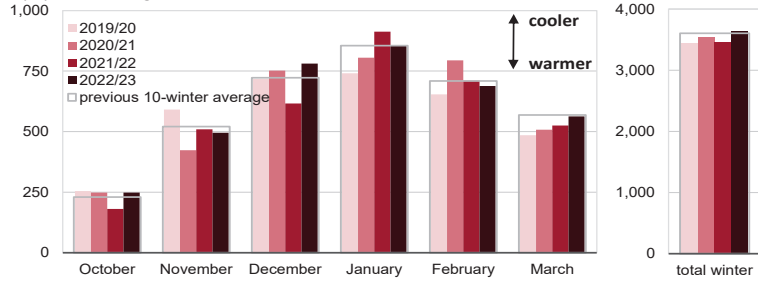
U.S. summer cooling degree days

population-weighted



Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Projections reflect NOAA's 14-16 month outlook.
 Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022

U.S. winter heating degree days
population-weighted

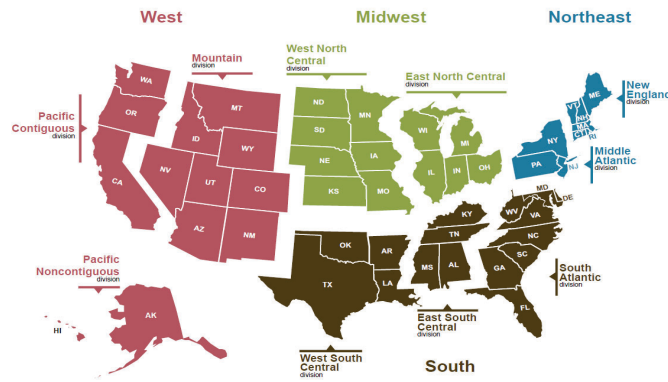


Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Projections reflect NOAA's 14-16 month outlook.

Source: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2022



U.S. Census regions and divisions



Source: U.S. Energy Information Administration, Short-Term Energy Outlook



Table WF01. Average Consumer Prices and Expenditures for Heating Fuels During the Winter

U.S. Energy Information Administration | Short-Term Energy Outlook - October 2022

Fuel / Region	Winter of							Forecast	
	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	% Change
Natural Gas									
Northeast									
Consumption (Mcf**)	57.4	61.5	65.3	66.8	61.1	62.2	62.4	65.2	4.5
Price (\$/mcf)	10.18	10.70	11.37	11.67	11.72	11.77	14.29	16.78	17.4
Expenditures (\$)	584	659	742	780	716	732	892	1,094	22.7
Midwest									
Consumption (Mcf)	63.6	64.8	73.9	76.9	69.7	70.6	70.3	73.5	4.5
Price (\$/mcf)	7.55	8.28	7.83	7.82	7.44	7.80	10.85	13.80	27.1
Expenditures (\$)	480	536	578	601	519	551	763	1,013	32.9
South									
Consumption (Mcf)	40.3	38.0	45.6	46.0	41.4	44.8	42.7	45.8	7.3
Price (\$/mcf)	10.72	12.04	11.23	10.61	11.03	11.40	14.38	16.60	15.4
Expenditures (\$)	432	457	512	488	457	511	614	761	23.9
West									
Consumption (Mcf)	44.7	45.6	43.9	48.8	47.4	46.6	45.6	47.8	4.9
Price (\$/mcf)	9.92	10.68	10.25	10.14	10.44	11.38	14.17	17.46	23.2
Expenditures (\$)	444	488	450	495	495	530	645	834	29.3
U.S. Average									
Consumption (Mcf)	51.8	53.0	57.6	60.2	55.5	56.4	55.6	58.4	4.9
Price (\$/mcf)	9.28	10.06	9.81	9.72	9.72	10.17	13.02	15.95	22.5
Expenditures (\$)	481	533	565	586	539	573	724	931	28.5
Heating Oil									
U.S. Average									
Consumption (gallons)	436.8	468.5	495.8	512.4	467.7	475.3	477.0	518.8	8.7
Price (\$/gallon)	2.06	2.41	2.78	3.07	2.89	2.55	3.90	4.54	16.4
Expenditures (\$)	901	1,129	1,377	1,571	1,352	1,212	1,859	2,354	26.6
Electricity									
Northeast									
Consumption (kWh***)	7,705	8,051	8,345	8,482	8,014	8,178	8,116	8,346	2.8
Price (\$/kwh)	0.164	0.165	0.169	0.169	0.172	0.172	0.186	0.201	8.1
Expenditures (\$)	1,263	1,324	1,407	1,435	1,375	1,406	1,510	1,679	11.2
Midwest									
Consumption (kWh)	9,366	9,479	10,382	10,710	10,004	10,152	10,031	10,338	3.1
Price (\$/kwh)	0.122	0.124	0.124	0.123	0.125	0.127	0.133	0.139	4.7
Expenditures (\$)	1,138	1,173	1,289	1,320	1,247	1,285	1,332	1,437	7.9
South									
Consumption (kWh)	8,786	8,515	9,549	9,542	8,903	9,467	9,092	9,542	4.9
Price (\$/kwh)	0.110	0.111	0.112	0.113	0.114	0.116	0.123	0.131	6.5
Expenditures (\$)	968	949	1,065	1,074	1,018	1,096	1,118	1,249	11.8
West									
Consumption (kWh)	8,444	8,565	8,334	8,993	8,813	8,747	8,547	8,857	3.6
Price (\$/kwh)	0.130	0.132	0.136	0.136	0.138	0.147	0.157	0.163	3.9
Expenditures (\$)	1,096	1,129	1,131	1,223	1,214	1,289	1,338	1,440	7.6
U.S. Average									
Consumption (kWh)	8,457	8,425	9,051	9,260	8,741	9,053	8,833	9,189	4.0
Price (\$/kwh)	0.124	0.125	0.126	0.127	0.128	0.131	0.140	0.148	5.9
Expenditures (\$)	1,044	1,055	1,142	1,174	1,123	1,188	1,233	1,359	10.2

Table WF01. Average Consumer Prices and Expenditures for Heating Fuels During the Winter

U.S. Energy Information Administration | Short-Term Energy Outlook - October 2022

Fuel / Region	Winter of							Forecast	
	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	% Change
Propane									
Northeast									
Consumption (gallons)	505.7	542.6	569.3	585.9	538.3	545.6	547.8	571.2	4.3
Price* (\$/gallon)	2.71	3.03	3.24	3.19	2.50	2.51	3.33	3.45	3.6
Expenditures (\$)	1,371	1,644	1,844	1,869	1,346	1,369	1,825	1,971	8.0
Midwest									
Consumption (gallons)	618.3	629.0	715.1	746.9	679.4	685.1	681.5	710.7	4.3
Price* (\$/gallon)	1.47	1.58	1.82	1.72	1.53	1.56	2.30	2.32	0.5
Expenditures (\$)	909	994	1,302	1,285	1,039	1,069	1,570	1,646	4.8
South									
Consumption (gallons)	448.9	428.0	504.5	504.5	458.7	493.0	471.8	505.8	7.2
Price* (\$/gallon)	2.27	2.45	2.59	2.63	2.31	2.33	3.09	2.99	-3.4
Expenditures (\$)	1,020	1,047	1,308	1,326	1,062	1,146	1,460	1,513	3.6
Number of households by primary space heating fuel (thousands)									
Northeast									
Natural gas	11,845	11,975	12,124	12,281	12,320	12,122	12,239	12,471	1.9
Heating oil	4,946	4,804	4,756	4,623	4,674	4,531	4,183	4,056	-3.1
Propane	888	938	983	1,027	1,038	1,127	1,189	1,157	-2.7
Electricity	3,266	3,343	3,405	3,517	3,518	3,720	3,927	3,940	0.3
Wood	514	474	472	450	455	433	381	357	-6.3
Other/None	435	435	443	451	459	520	555	556	0.2
Midwest									
Natural gas	18,181	18,174	18,241	18,266	18,338	18,198	18,064	18,030	-0.2
Heating oil	300	285	277	270	274	261	235	224	-4.6
Propane	2,069	2,049	2,104	2,176	2,182	2,201	2,210	2,195	-0.7
Electricity	5,725	5,848	5,948	6,021	6,020	6,225	6,580	6,773	2.9
Wood	585	550	525	499	510	482	415	383	-7.8
Other/None	353	358	360	348	352	374	394	414	5.0
South									
Natural gas	13,959	13,932	13,986	14,061	14,237	14,226	14,200	14,371	1.2
Heating oil	652	619	609	579	584	559	506	498	-1.6
Propane	1,899	1,860	1,853	1,863	1,910	1,908	1,912	1,947	1.9
Electricity	29,522	29,903	30,348	30,751	31,020	31,530	32,265	32,729	1.4
Wood	552	510	485	473	487	437	382	385	0.8
Other/None	413	427	434	454	483	588	634	609	-3.9
West									
Natural gas	15,251	15,362	15,489	15,551	15,692	15,452	15,327	15,474	1.0
Heating oil	219	213	213	214	216	209	192	182	-5.3
Propane	919	931	957	975	996	1,036	1,041	1,028	-1.2
Electricity	9,191	9,311	9,439	9,604	9,692	10,131	10,441	10,430	-0.1
Wood	716	697	685	671	684	635	596	621	4.3
Other/None	1,085	1,056	1,085	1,095	1,071	1,085	1,165	1,268	8.8
U.S. Totals									
Natural gas	59,235	59,444	59,839	60,160	60,588	59,997	59,831	60,345	0.9
Heating oil	6,118	5,921	5,855	5,686	5,749	5,561	5,117	4,960	-3.1
Propane	5,776	5,778	5,897	6,042	6,126	6,272	6,351	6,327	-0.4
Electricity	47,703	48,404	49,141	49,893	50,250	51,606	53,212	53,872	1.2
Wood	2,367	2,230	2,167	2,093	2,137	1,988	1,774	1,746	-1.6
Other/None	2,285	2,275	2,323	2,348	2,365	2,566	2,749	2,848	3.6
Heating degree days									
Northeast	4,320	4,699	5,014	5,165	4,658	4,747	4,769	5,017	5.2
Midwest	4,689	4,792	5,577	5,846	5,228	5,296	5,267	5,540	5.2
South	2,015	1,884	2,353	2,361	2,074	2,284	2,156	2,356	9.3
West	2,958	3,043	2,890	3,300	3,189	3,107	3,027	3,217	6.3
U.S. Average	3,209	3,264	3,622	3,801	3,444	3,530	3,455	3,671	6.3

Note: Winter covers the period October 1 through March 31. Fuel prices are nominal prices. Fuel consumption per household is based only on households that use that fuel as the primary space-heating fuel. Included in fuel consumption is consumption for water heating, appliances, electronics, and lighting (electricity). Per-household consumption based on EIA's 2015 Residential Energy Consumption Surveys corrected for actual and projected heating degree days. Number of households using heating oil includes kerosene.

Table 1. U.S. Energy Markets Summary

U.S. Energy Information Administration | Short-Term Energy Outlook - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Energy Production															
Crude Oil Production (a) (million barrels per day)	10.82	11.34	11.18	11.66	11.47	11.69	11.83	11.99	12.27	12.29	12.36	12.50	11.25	11.75	12.36
Dry Natural Gas Production (billion cubic feet per day)	91.14	94.43	95.14	97.49	95.10	97.55	98.48	99.05	99.20	99.57	99.73	100.00	94.57	97.56	99.63
Coal Production (million short tons)	140	143	148	147	149	142	153	154	148	137	151	145	578	598	581
Energy Consumption															
Liquid Fuels (million barrels per day)	18.58	20.13	20.30	20.54	20.22	20.27	20.15	20.76	20.22	20.52	20.61	20.81	19.89	20.35	20.54
Natural Gas (billion cubic feet per day)	101.03	72.76	75.96	86.56	105.13	76.42	80.07	90.20	102.96	73.04	75.71	89.74	84.01	87.89	85.30
Coal (b) (million short tons)	139	125	168	114	134	118	148	119	121	108	148	111	546	518	487
Electricity (billion kilowatt hours per day)	10.51	10.23	12.22	10.10	10.87	10.65	12.43	10.25	10.94	10.52	12.12	10.26	10.77	11.05	10.96
Renewables (c) (quadrillion Btu)	2.95	3.17	2.96	3.14	3.35	3.55	3.23	3.28	3.49	3.86	3.46	3.48	12.22	13.41	14.29
Total Energy Consumption (d) (quadrillion Btu)	25.11	23.21	24.58	24.61	26.48	23.64	24.81	25.20	26.04	23.68	24.74	25.27	97.52	100.12	99.73
Energy Prices															
Crude Oil West Texas Intermediate Spot (dollars per barrel)	58.09	66.19	70.61	77.27	95.18	108.93	93.07	85.98	87.30	87.35	89.00	90.65	68.21	95.74	88.58
Natural Gas Henry Hub Spot (dollars per million Btu)	3.56	2.94	4.36	4.77	4.66	7.48	7.99	7.41	7.12	5.27	5.31	5.39	3.91	6.88	5.77
Coal (dollars per million Btu)	1.91	1.93	2.03	2.05	2.19	2.26	2.58	2.53	2.53	2.50	2.48	2.45	1.98	2.39	2.49
Macroeconomic															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR)	19,056	19,368	19,479	19,806	19,728	19,699	19,757	19,832	19,900	19,974	20,058	20,142	19,427	19,754	20,019
Percent change from prior year	0.5	12.2	4.9	5.5	3.5	1.7	1.4	0.1	0.9	1.4	1.5	1.6	5.7	1.7	1.3
GDP Implicit Price Deflator (Index, 2012=100)	115.8	117.5	119.3	121.3	123.7	126.4	127.5	129.2	130.2	131.0	131.8	132.7	118.5	126.7	131.4
Percent change from prior year	2.1	4.1	4.6	5.9	6.8	7.5	6.9	6.5	5.2	3.6	3.4	2.7	4.2	7.0	3.7
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	17,219	15,807	15,641	15,462	15,152	15,130	15,156	15,252	15,655	15,698	15,837	15,994	16,032	15,173	15,796
Percent change from prior year	15.1	-4.3	-0.9	0.1	-12.0	-4.3	-3.1	-1.4	3.3	3.8	4.5	4.9	2.3	-5.4	4.1
Manufacturing Production Index (Index, 2017=100)	96.9	98.3	99.2	100.6	101.5	102.5	102.6	102.8	102.9	103.2	103.6	103.9	98.8	102.4	103.4
Percent change from prior year	-0.8	15.8	5.1	4.5	4.8	4.2	3.5	2.1	1.3	0.7	0.9	1.1	5.8	3.6	1.0
Weather															
U.S. Heating Degree-Days	2,107	472	51	1,307	2,148	492	68	1,538	2,133	497	78	1,529	3,936	4,246	4,237
U.S. Cooling Degree-Days	50	410	902	127	46	465	945	97	43	388	836	92	1,489	1,553	1,360

(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 October 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 - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Crude Oil (dollars per barrel)															
West Texas Intermediate Spot Average	58.09	66.19	70.61	77.27	95.18	108.93	93.07	<i>85.98</i>	<i>87.30</i>	<i>87.35</i>	<i>89.00</i>	<i>90.65</i>	68.21	<i>95.74</i>	<i>88.58</i>
Brent Spot Average	61.12	68.91	73.45	79.42	101.17	113.84	100.53	<i>92.98</i>	<i>93.30</i>	<i>93.35</i>	<i>95.00</i>	<i>96.65</i>	70.89	<i>102.09</i>	<i>94.58</i>
U.S. Imported Average	55.29	64.75	68.42	73.66	89.85	107.44	91.03	<i>83.28</i>	<i>84.52</i>	<i>84.59</i>	<i>86.24</i>	<i>87.87</i>	65.92	<i>92.45</i>	<i>85.84</i>
U.S. Refiner Average Acquisition Cost	57.14	66.11	70.31	76.36	92.62	109.87	93.00	<i>84.24</i>	<i>85.55</i>	<i>85.59</i>	<i>87.23</i>	<i>88.92</i>	67.83	<i>94.98</i>	<i>86.85</i>
U.S. Liquid Fuels (cents per gallon)															
Refiner Prices for Resale															
Gasoline	180	216	232	243	278	376	311	<i>303</i>	<i>272</i>	<i>278</i>	<i>277</i>	<i>270</i>	219	<i>318</i>	<i>274</i>
Diesel Fuel	178	204	219	241	301	418	356	<i>352</i>	<i>332</i>	<i>303</i>	<i>294</i>	<i>299</i>	211	<i>358</i>	<i>307</i>
Fuel Oil	162	180	197	222	284	419	340	<i>335</i>	<i>321</i>	<i>292</i>	<i>283</i>	<i>290</i>	188	<i>343</i>	<i>307</i>
Refiner Prices to End Users															
Jet Fuel	163	182	199	226	283	400	340	<i>345</i>	<i>331</i>	<i>301</i>	<i>286</i>	<i>291</i>	195	<i>343</i>	<i>301</i>
No. 6 Residual Fuel Oil (a)	162	181	194	211	252	260	230	<i>202</i>	<i>217</i>	<i>217</i>	<i>222</i>	<i>226</i>	190	<i>234</i>	<i>221</i>
Retail Prices Including Taxes															
Gasoline Regular Grade (b)	256	297	316	333	371	450	408	<i>380</i>	<i>354</i>	<i>359</i>	<i>359</i>	<i>355</i>	302	<i>403</i>	<i>357</i>
Gasoline All Grades (b)	265	306	325	343	380	460	419	<i>393</i>	<i>367</i>	<i>372</i>	<i>372</i>	<i>369</i>	311	<i>414</i>	<i>370</i>
On-highway Diesel Fuel	290	321	336	366	432	549	516	<i>486</i>	<i>457</i>	<i>428</i>	<i>413</i>	<i>420</i>	329	<i>497</i>	<i>429</i>
Heating Oil	272	283	297	346	415	555	494	<i>466</i>	<i>445</i>	<i>406</i>	<i>385</i>	<i>405</i>	300	<i>457</i>	<i>421</i>
Natural Gas															
Henry Hub Spot (dollars per thousand cubic feet)	3.70	3.06	4.53	4.96	4.84	7.77	8.30	<i>7.70</i>	<i>7.40</i>	<i>5.48</i>	<i>5.51</i>	<i>5.60</i>	4.06	<i>7.15</i>	<i>6.00</i>
Henry Hub Spot (dollars per million Btu)	3.56	2.94	4.36	4.77	4.66	7.48	7.99	<i>7.41</i>	<i>7.12</i>	<i>5.27</i>	<i>5.31</i>	<i>5.39</i>	3.91	<i>6.88</i>	<i>5.77</i>
U.S. Retail Prices (dollars per thousand cubic feet)															
Industrial Sector	5.79	4.13	5.09	6.82	6.82	8.25	8.91	<i>9.00</i>	<i>9.11</i>	<i>6.97</i>	<i>6.44</i>	<i>6.77</i>	5.51	<i>8.17</i>	<i>7.35</i>
Commercial Sector	7.54	8.86	10.15	10.27	10.00	11.71	13.49	<i>12.54</i>	<i>12.27</i>	<i>12.08</i>	<i>11.64</i>	<i>10.39</i>	8.83	<i>11.42</i>	<i>11.60</i>
Residential Sector	9.71	13.82	20.27	13.71	12.32	16.57	24.20	<i>16.65</i>	<i>15.28</i>	<i>17.11</i>	<i>21.23</i>	<i>13.97</i>	12.21	<i>15.14</i>	<i>15.60</i>
U.S. Electricity															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	1.91	1.93	2.03	2.05	2.19	2.26	2.58	<i>2.53</i>	<i>2.53</i>	<i>2.50</i>	<i>2.48</i>	<i>2.45</i>	1.98	<i>2.39</i>	<i>2.49</i>
Natural Gas	7.24	3.26	4.36	5.42	5.68	7.38	8.20	<i>7.79</i>	<i>7.72</i>	<i>5.52</i>	<i>5.55</i>	<i>5.79</i>	4.97	<i>7.37</i>	<i>6.11</i>
Residual Fuel Oil (c)	11.28	13.09	14.22	16.10	16.91	26.18	25.65	<i>19.18</i>	<i>18.60</i>	<i>18.51</i>	<i>17.58</i>	<i>17.60</i>	13.66	<i>21.22</i>	<i>18.10</i>
Distillate Fuel Oil	13.54	15.20	16.19	18.03	21.11	30.70	26.94	<i>26.78</i>	<i>25.66</i>	<i>23.27</i>	<i>22.45</i>	<i>22.81</i>	15.50	<i>25.22</i>	<i>23.84</i>
Prices to Ultimate Customers (cents per kilowatthour)															
Industrial Sector	7.09	6.92	7.62	7.38	7.42	8.40	8.93	<i>7.80</i>	<i>7.72</i>	<i>8.26</i>	<i>8.69</i>	<i>7.65</i>	7.26	<i>8.16</i>	<i>8.09</i>
Commercial Sector	10.99	11.07	11.59	11.37	11.63	12.34	12.70	<i>12.06</i>	<i>12.31</i>	<i>12.81</i>	<i>12.93</i>	<i>12.00</i>	11.27	<i>12.21</i>	<i>12.53</i>
Residential Sector	13.10	13.84	13.99	13.97	13.98	15.08	15.44	<i>14.86</i>	<i>14.76</i>	<i>15.81</i>	<i>15.78</i>	<i>14.87</i>	13.72	<i>14.86</i>	<i>15.32</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 October 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 - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Production (million barrels per day) (a)															
OECD	30.26	30.85	31.15	32.23	31.66	31.87	32.54	<i>33.19</i>	<i>33.63</i>	<i>33.67</i>	<i>33.60</i>	<i>34.09</i>	31.13	<i>32.32</i>	<i>33.75</i>
U.S. (50 States)	17.79	19.16	19.03	19.91	19.44	20.12	20.36	<i>20.72</i>	<i>20.93</i>	<i>21.01</i>	<i>21.03</i>	<i>21.37</i>	18.98	<i>20.16</i>	<i>21.09</i>
Canada	5.62	5.37	5.49	5.68	5.66	5.53	5.72	<i>5.85</i>	<i>5.92</i>	<i>5.88</i>	<i>5.90</i>	<i>5.92</i>	5.54	<i>5.69</i>	<i>5.91</i>
Mexico	1.93	1.95	1.90	1.92	1.91	1.89	1.89	<i>1.86</i>	<i>1.90</i>	<i>1.87</i>	<i>1.83</i>	<i>1.79</i>	1.92	<i>1.89</i>	<i>1.85</i>
Other OECD	4.92	4.37	4.73	4.71	4.65	4.34	4.56	<i>4.75</i>	<i>4.87</i>	<i>4.91</i>	<i>4.83</i>	<i>5.01</i>	4.68	<i>4.58</i>	<i>4.91</i>
Non-OECD	62.57	63.98	65.61	66.11	67.21	66.78	68.64	<i>67.68</i>	<i>66.46</i>	<i>67.16</i>	<i>67.56</i>	<i>66.74</i>	64.58	<i>67.58</i>	<i>66.98</i>
OPEC	30.34	30.88	32.28	33.10	33.75	33.80	34.68	<i>34.08</i>	<i>34.32</i>	<i>34.43</i>	<i>34.55</i>	<i>34.20</i>	31.66	<i>34.08</i>	<i>34.37</i>
Crude Oil Portion	25.08	25.49	26.84	27.67	28.19	28.36	29.20	<i>28.56</i>	<i>28.73</i>	<i>28.96</i>	<i>29.05</i>	<i>28.66</i>	26.28	<i>28.58</i>	<i>28.85</i>
Other Liquids (b)	5.26	5.39	5.44	5.44	5.56	5.44	5.48	<i>5.52</i>	<i>5.59</i>	<i>5.46</i>	<i>5.50</i>	<i>5.54</i>	5.38	<i>5.50</i>	<i>5.52</i>
Eurasia	13.42	13.66	13.63	14.27	14.39	13.33	13.70	<i>13.67</i>	<i>12.42</i>	<i>12.25</i>	<i>12.27</i>	<i>12.28</i>	13.75	<i>13.77</i>	<i>12.31</i>
China	4.99	5.03	5.01	4.93	5.18	5.16	5.14	<i>5.18</i>	<i>5.22</i>	<i>5.25</i>	<i>5.24</i>	<i>5.28</i>	4.99	<i>5.16</i>	<i>5.25</i>
Other Non-OECD	13.81	14.41	14.69	13.80	13.90	14.49	15.12	<i>14.74</i>	<i>14.51</i>	<i>15.23</i>	<i>15.50</i>	<i>14.98</i>	14.18	<i>14.57</i>	<i>15.06</i>
Total World Production	92.83	94.83	96.76	98.34	98.87	98.65	101.18	<i>100.86</i>	<i>100.09</i>	<i>100.83</i>	<i>101.16</i>	<i>100.83</i>	95.71	<i>99.90</i>	<i>100.73</i>
Non-OPEC Production	62.48	63.95	64.47	65.24	65.13	64.86	66.50	<i>66.78</i>	<i>65.78</i>	<i>66.40</i>	<i>66.61</i>	<i>66.63</i>	64.05	<i>65.82</i>	<i>66.36</i>
Consumption (million barrels per day) (c)															
OECD	42.59	44.14	45.87	46.89	45.85	45.42	45.69	<i>46.86</i>	<i>46.24</i>	<i>45.27</i>	<i>45.91</i>	<i>46.31</i>	44.89	<i>45.96</i>	<i>45.93</i>
U.S. (50 States)	18.58	20.13	20.30	20.54	20.22	20.27	20.15	<i>20.76</i>	<i>20.22</i>	<i>20.52</i>	<i>20.61</i>	<i>20.81</i>	19.89	<i>20.35</i>	<i>20.54</i>
U.S. Territories	0.21	0.19	0.19	0.20	0.22	0.20	0.20	<i>0.22</i>	<i>0.22</i>	<i>0.20</i>	<i>0.21</i>	<i>0.22</i>	0.20	<i>0.21</i>	<i>0.21</i>
Canada	2.19	2.16	2.43	2.33	2.26	2.19	2.36	<i>2.37</i>	<i>2.30</i>	<i>2.25</i>	<i>2.34</i>	<i>2.32</i>	2.28	<i>2.30</i>	<i>2.30</i>
Europe	11.96	12.67	13.88	13.94	13.15	13.42	13.77	<i>13.80</i>	<i>13.57</i>	<i>13.19</i>	<i>13.59</i>	<i>13.35</i>	13.12	<i>13.54</i>	<i>13.42</i>
Japan	3.77	3.07	3.17	3.66	3.70	3.03	3.16	<i>3.49</i>	<i>3.72</i>	<i>3.06</i>	<i>3.09</i>	<i>3.39</i>	3.41	<i>3.34</i>	<i>3.31</i>
Other OECD	5.89	5.93	5.90	6.23	6.30	6.32	6.04	<i>6.22</i>	<i>6.22</i>	<i>6.05</i>	<i>6.08</i>	<i>6.22</i>	5.99	<i>6.22</i>	<i>6.14</i>
Non-OECD	51.78	52.21	52.53	53.64	53.13	53.37	53.85	<i>54.03</i>	<i>55.04</i>	<i>55.47</i>	<i>55.12</i>	<i>54.76</i>	52.54	<i>53.60</i>	<i>55.10</i>
Eurasia	4.66	4.73	5.09	4.95	4.55	4.40	4.76	<i>4.69</i>	<i>4.29</i>	<i>4.44</i>	<i>4.76</i>	<i>4.67</i>	4.86	<i>4.60</i>	<i>4.54</i>
Europe	0.74	0.74	0.74	0.76	0.76	0.76	0.76	<i>0.77</i>	<i>0.75</i>	<i>0.77</i>	<i>0.77</i>	<i>0.78</i>	0.75	<i>0.76</i>	<i>0.77</i>
China	15.27	15.48	14.99	15.33	15.14	15.12	15.11	<i>15.56</i>	<i>16.35</i>	<i>16.24</i>	<i>15.62</i>	<i>15.54</i>	15.27	<i>15.23</i>	<i>15.93</i>
Other Asia	13.43	12.98	12.84	13.69	13.80	13.81	13.50	<i>13.88</i>	<i>14.41</i>	<i>14.39</i>	<i>13.81</i>	<i>14.10</i>	13.23	<i>13.75</i>	<i>14.18</i>
Other Non-OECD	17.68	18.27	18.87	18.91	18.89	19.27	19.72	<i>19.13</i>	<i>19.24</i>	<i>19.63</i>	<i>20.17</i>	<i>19.67</i>	18.44	<i>19.25</i>	<i>19.68</i>
Total World Consumption	94.37	96.34	98.40	100.53	98.98	98.79	99.54	<i>100.89</i>	<i>101.27</i>	<i>100.74</i>	<i>101.03</i>	<i>101.07</i>	97.43	<i>99.55</i>	<i>101.03</i>
Total Crude Oil and Other Liquids Inventory Net Withdrawals (million barrels per day)															
U.S. (50 States)	0.36	0.51	0.37	0.83	0.81	0.51	0.43	<i>0.55</i>	<i>0.00</i>	<i>-0.36</i>	<i>-0.06</i>	<i>0.49</i>	0.52	<i>0.57</i>	<i>0.02</i>
Other OECD	0.87	0.15	0.97	0.67	-0.12	-0.19	-0.66	<i>-0.17</i>	<i>0.38</i>	<i>0.09</i>	<i>-0.02</i>	<i>-0.08</i>	0.66	<i>-0.29</i>	<i>0.09</i>
Other Stock Draws and Balance	0.31	0.86	0.31	0.68	-0.57	-0.19	-1.40	<i>-0.35</i>	<i>0.80</i>	<i>0.19</i>	<i>-0.05</i>	<i>-0.17</i>	0.54	<i>-0.63</i>	<i>0.19</i>
Total Stock Draw	1.55	1.52	1.65	2.18	0.11	0.13	-1.64	<i>0.02</i>	<i>1.18</i>	<i>-0.09</i>	<i>-0.13</i>	<i>0.24</i>	1.72	<i>-0.35</i>	<i>0.30</i>
End-of-period Commercial Crude Oil and Other Liquids Inventories (million barrels)															
U.S. Commercial Inventory	1,311	1,281	1,251	1,199	1,154	1,180	1,218	<i>1,196</i>	<i>1,198</i>	<i>1,246</i>	<i>1,257</i>	<i>1,222</i>	1,199	<i>1,196</i>	<i>1,222</i>
OECD Commercial Inventory	2,917	2,874	2,755	2,641	2,607	2,651	2,751	<i>2,744</i>	<i>2,712</i>	<i>2,752</i>	<i>2,765</i>	<i>2,738</i>	2,641	<i>2,744</i>	<i>2,738</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 October 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 - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
North America	25.34	26.47	26.42	27.52	27.01	27.54	27.98	28.43	28.76	28.76	28.76	29.08	26.44	27.75	28.84
Canada	5.62	5.37	5.49	5.68	5.66	5.53	5.72	5.85	5.92	5.88	5.90	5.92	5.54	5.69	5.91
Mexico	1.93	1.95	1.90	1.92	1.91	1.89	1.89	1.86	1.90	1.87	1.83	1.79	1.92	1.89	1.85
United States	17.79	19.16	19.03	19.91	19.44	20.12	20.36	20.72	20.93	21.01	21.03	21.37	18.98	20.16	21.09
Central and South America	5.64	6.29	6.69	5.79	5.83	6.41	6.98	6.62	6.38	7.14	7.44	6.94	6.10	6.46	6.98
Argentina	0.65	0.69	0.73	0.74	0.77	0.78	0.79	0.81	0.85	0.86	0.88	0.90	0.70	0.79	0.87
Brazil	3.22	3.89	4.21	3.42	3.33	3.78	4.28	3.82	3.49	4.22	4.52	3.98	3.69	3.81	4.06
Colombia	0.77	0.74	0.77	0.77	0.77	0.78	0.78	0.77	0.77	0.77	0.78	0.77	0.76	0.77	0.77
Ecuador	0.51	0.50	0.49	0.41	0.48	0.47	0.49	0.53	0.54	0.55	0.56	0.56	0.48	0.49	0.55
Other Central and S. America	0.48	0.46	0.49	0.46	0.49	0.60	0.65	0.68	0.73	0.73	0.72	0.73	0.47	0.61	0.73
Europe	4.34	3.84	4.12	4.12	4.08	3.75	4.03	4.21	4.33	4.37	4.30	4.49	4.10	4.02	4.37
Norway	2.11	1.90	2.06	2.05	1.97	1.74	1.98	2.12	2.27	2.30	2.30	2.39	2.03	1.96	2.32
United Kingdom	1.08	0.81	0.93	0.93	0.96	0.91	0.92	0.95	0.94	0.93	0.85	0.94	0.94	0.93	0.91
Eurasia	13.42	13.66	13.63	14.27	14.39	13.33	13.70	13.67	12.42	12.25	12.27	12.28	13.75	13.77	12.31
Azerbaijan	0.75	0.70	0.71	0.71	0.70	0.67	0.66	0.66	0.65	0.64	0.63	0.64	0.72	0.67	0.64
Kazakhstan	1.87	1.86	1.72	2.01	2.01	1.78	1.73	1.88	1.94	1.91	1.92	1.99	1.87	1.85	1.94
Russia	10.42	10.71	10.80	11.16	11.30	10.49	10.92	10.73	9.41	9.30	9.31	9.24	10.78	10.86	9.32
Turkmenistan	0.25	0.25	0.25	0.25	0.26	0.24	0.26	0.26	0.27	0.27	0.27	0.27	0.25	0.25	0.27
Other Eurasia	0.13	0.14	0.14	0.13	0.14	0.14	0.14	0.14	0.14	0.14	0.13	0.13	0.13	0.14	0.14
Middle East	3.09	3.12	3.16	3.17	3.23	3.29	3.27	3.21	3.22	3.22	3.21	3.21	3.13	3.25	3.21
Oman	0.96	0.97	0.98	1.01	1.05	1.07	1.10	1.04	1.04	1.04	1.04	1.04	0.98	1.06	1.04
Qatar	1.80	1.82	1.83	1.83	1.85	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.82	1.86	1.86
Asia and Oceania	9.18	9.10	9.05	8.95	9.17	9.15	9.11	9.19	9.24	9.24	9.20	9.22	9.07	9.15	9.23
Australia	0.46	0.42	0.49	0.48	0.45	0.46	0.43	0.43	0.43	0.42	0.41	0.41	0.46	0.45	0.42
China	4.99	5.03	5.01	4.93	5.18	5.16	5.14	5.18	5.22	5.25	5.24	5.28	4.99	5.16	5.25
India	0.90	0.89	0.89	0.88	0.88	0.89	0.90	0.89	0.91	0.90	0.90	0.89	0.89	0.89	0.90
Indonesia	0.88	0.85	0.85	0.85	0.84	0.82	0.82	0.81	0.81	0.80	0.79	0.79	0.86	0.82	0.80
Malaysia	0.66	0.62	0.57	0.59	0.61	0.60	0.58	0.62	0.62	0.62	0.61	0.61	0.61	0.60	0.61
Vietnam	0.21	0.21	0.20	0.21	0.21	0.20	0.20	0.19	0.19	0.18	0.18	0.18	0.21	0.20	0.18
Africa	1.48	1.47	1.41	1.41	1.41	1.40	1.44	1.45	1.43	1.43	1.41	1.41	1.44	1.42	1.42
Egypt	0.66	0.67	0.65	0.66	0.66	0.65	0.67	0.67	0.67	0.66	0.66	0.67	0.66	0.66	0.67
South Sudan	0.16	0.16	0.15	0.16	0.15	0.15	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.17
Total non-OPEC liquids	62.48	63.95	64.47	65.24	65.13	64.86	66.50	66.78	65.78	66.40	66.61	66.63	64.05	65.82	66.36
OPEC non-crude liquids	5.26	5.39	5.44	5.44	5.56	5.44	5.48	5.52	5.59	5.46	5.50	5.54	5.38	5.50	5.52
Non-OPEC + OPEC non-crude	67.75	69.34	69.92	70.68	70.68	70.30	71.98	72.30	71.37	71.86	72.11	72.17	69.43	71.32	71.88
Unplanned non-OPEC Production Outages	0.61	0.50	0.80	0.86	0.76	1.31	0.72	-	-	-	-	-	0.70	-	-

- = 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 October 6, 2022.

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

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

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 3c. OPEC Crude Oil (excluding condensates) Production (million barrels per day)
U.S. Energy Information Administration | Short-Term Energy Outlook - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Crude Oil															
Algeria	0.87	0.88	0.92	0.95	0.97	1.00	1.02	-	-	-	-	-	0.90	-	-
Angola	1.11	1.08	1.11	1.13	1.15	1.18	1.16	-	-	-	-	-	1.11	-	-
Congo (Brazzaville)	0.28	0.27	0.26	0.26	0.27	0.28	0.29	-	-	-	-	-	0.26	-	-
Equatorial Guinea	0.11	0.10	0.10	0.09	0.09	0.09	0.09	-	-	-	-	-	0.10	-	-
Gabon	0.16	0.17	0.18	0.19	0.19	0.19	0.20	-	-	-	-	-	0.18	-	-
Iran	2.18	2.47	2.47	2.45	2.55	2.53	2.50	-	-	-	-	-	2.39	-	-
Iraq	3.94	3.98	4.07	4.25	4.30	4.42	4.55	-	-	-	-	-	4.06	-	-
Kuwait	2.33	2.36	2.45	2.53	2.61	2.68	2.80	-	-	-	-	-	2.42	-	-
Libya	1.18	1.16	1.18	1.12	1.06	0.76	0.95	-	-	-	-	-	1.16	-	-
Nigeria	1.31	1.32	1.28	1.31	1.27	1.14	0.97	-	-	-	-	-	1.30	-	-
Saudi Arabia	8.49	8.53	9.55	9.87	10.08	10.30	10.85	-	-	-	-	-	9.11	-	-
United Arab Emirates	2.61	2.65	2.76	2.86	2.94	3.04	3.16	-	-	-	-	-	2.72	-	-
Venezuela	0.52	0.53	0.53	0.68	0.70	0.73	0.66	-	-	-	-	-	0.56	-	-
OPEC Total	25.08	25.49	26.84	27.67	28.19	28.36	29.20	<i>28.56</i>	<i>28.73</i>	<i>28.96</i>	<i>29.05</i>	<i>28.66</i>	26.28	<i>28.58</i>	<i>28.85</i>
Other Liquids (a)	5.26	5.39	5.44	5.44	5.56	5.44	5.48	<i>5.52</i>	<i>5.59</i>	<i>5.46</i>	<i>5.50</i>	<i>5.54</i>	5.38	<i>5.50</i>	<i>5.52</i>
Total OPEC Production	30.34	30.88	32.28	33.10	33.75	33.80	34.68	<i>34.08</i>	<i>34.32</i>	<i>34.43</i>	<i>34.55</i>	<i>34.20</i>	31.66	<i>34.08</i>	<i>34.37</i>
Crude Oil Production Capacity															
Middle East	25.21	25.50	25.50	25.48	25.48	25.46	25.52	<i>25.60</i>	<i>25.90</i>	<i>26.03</i>	<i>26.03</i>	<i>26.03</i>	25.42	<i>25.52</i>	<i>26.00</i>
Other	6.12	6.10	5.96	5.98	5.83	5.45	5.34	<i>5.40</i>	<i>5.74</i>	<i>5.78</i>	<i>5.70</i>	<i>5.66</i>	6.04	<i>5.51</i>	<i>5.72</i>
OPEC Total	31.33	31.59	31.45	31.46	31.31	30.92	30.86	<i>31.00</i>	<i>31.64</i>	<i>31.81</i>	<i>31.73</i>	<i>31.69</i>	31.46	<i>31.02</i>	<i>31.72</i>
Surplus Crude Oil Production Capacity															
Middle East	5.66	5.52	4.21	3.53	3.00	2.48	1.66	<i>2.42</i>	<i>2.90</i>	<i>2.83</i>	<i>2.66</i>	<i>3.03</i>	4.72	<i>2.39</i>	<i>2.85</i>
Other	0.59	0.59	0.40	0.27	0.12	0.08	0.00	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.01</i>	0.46	<i>0.06</i>	<i>0.02</i>
OPEC Total	6.25	6.10	4.61	3.80	3.12	2.56	1.66	<i>2.44</i>	<i>2.92</i>	<i>2.85</i>	<i>2.68</i>	<i>3.03</i>	5.18	<i>2.44</i>	<i>2.87</i>
Unplanned OPEC Production Outages	2.49	2.12	2.15	2.03	1.98	2.42	2.53	-	-	-	-	-	2.20	-	-

(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 October 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 - October 2022

	2021				2022				2023				2021	2022	2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
North America	22.40	23.95	24.34	24.60	24.24	24.45	24.21	24.83	24.21	24.48	24.66	24.86	23.83	24.44	24.56
Canada	2.19	2.16	2.43	2.33	2.26	2.19	2.36	2.37	2.30	2.25	2.34	2.32	2.28	2.30	2.30
Mexico	1.63	1.66	1.61	1.72	1.76	1.99	1.69	1.69	1.68	1.71	1.70	1.72	1.65	1.78	1.70
United States	18.58	20.13	20.30	20.54	20.22	20.27	20.15	20.76	20.22	20.52	20.61	20.81	19.89	20.35	20.54
Central and South America	5.89	6.03	6.25	6.37	6.23	6.28	6.39	6.40	6.19	6.32	6.43	6.37	6.14	6.33	6.33
Brazil	2.79	2.90	3.02	3.12	2.99	3.00	3.08	3.08	2.97	3.03	3.10	3.09	2.96	3.04	3.05
Europe	12.70	13.41	14.62	14.70	13.91	14.17	14.53	14.57	14.32	13.95	14.36	14.13	13.87	14.30	14.19
Eurasia	4.66	4.73	5.09	4.95	4.55	4.40	4.76	4.69	4.29	4.44	4.76	4.67	4.86	4.60	4.54
Russia	3.42	3.53	3.82	3.66	3.40	3.32	3.59	3.50	3.19	3.28	3.57	3.43	3.61	3.45	3.37
Middle East	8.08	8.50	9.04	8.78	8.87	9.19	9.62	8.86	9.13	9.36	9.89	9.27	8.60	9.13	9.42
Asia and Oceania	36.28	35.34	34.78	36.67	36.68	35.78	35.64	37.00	38.53	37.56	36.40	37.07	35.76	36.27	37.38
China	15.27	15.48	14.99	15.33	15.14	15.12	15.11	15.56	16.35	16.24	15.62	15.54	15.27	15.23	15.93
Japan	3.77	3.07	3.17	3.66	3.70	3.03	3.16	3.49	3.72	3.06	3.09	3.39	3.41	3.34	3.31
India	4.94	4.37	4.41	4.87	5.08	5.06	4.80	5.05	5.25	5.32	4.96	5.28	4.65	5.00	5.20
Africa	4.36	4.38	4.28	4.47	4.51	4.50	4.40	4.53	4.60	4.61	4.53	4.69	4.37	4.49	4.61
Total OECD Liquid Fuels Consumption	42.59	44.14	45.87	46.89	45.85	45.42	45.69	46.86	46.24	45.27	45.91	46.31	44.89	45.96	45.93
Total non-OECD Liquid Fuels Consumption	51.78	52.21	52.53	53.64	53.13	53.37	53.85	54.03	55.04	55.47	55.12	54.76	52.54	53.60	55.10
Total World Liquid Fuels Consumption	94.37	96.34	98.40	100.53	98.98	98.79	99.54	100.89	101.27	100.74	101.03	101.07	97.43	99.55	101.03
Real Gross Domestic Product (a)															
World Index, 2015 Q1 = 100	116.4	117.6	119.0	120.7	121.4	121.6	122.3	123.0	123.5	124.2	125.1	126.2	118.4	122.1	124.8
Percent change from prior year	3.4	11.5	5.1	4.6	4.3	3.4	2.8	1.9	1.8	2.1	2.3	2.6	6.1	3.1	2.2
OECD Index, 2015 = 100	109.6	112.4	112.8										109.6	112.4	112.8
Percent change from prior year	5.5	2.6	0.3										5.5	2.6	0.3
Non-OECD Index, 2015 = 100	123.8	128.2	132.9										123.8	128.2	132.9
Percent change from prior year	6.5	3.5	3.7										6.5	3.5	3.7
Nominal U.S. Dollar Index (b)															
Index, 2015 Q1 = 100	106.5	106.1	107.5	109.1	109.6	113.0	116.8	118.5	118.1	117.6	117.0	116.0	107.3	114.5	117.2
Percent change from prior year	-4.6	-8.2	-3.4	0.9	2.9	6.5	8.7	8.7	7.8	4.1	0.1	-2.1	-3.9	6.7	2.4

(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 October 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 4a. U.S. Petroleum and Other Liquids Supply, Consumption, and Inventories
 U.S. Energy Information Administration | Short-Term Energy Outlook - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Supply (million barrels per day)															
Crude Oil Supply															
Domestic Production (a)	10.82	11.34	11.18	11.66	11.47	11.69	11.83	<i>11.99</i>	<i>12.27</i>	<i>12.29</i>	<i>12.36</i>	<i>12.50</i>	11.25	<i>11.75</i>	<i>12.36</i>
Alaska	0.46	0.44	0.41	0.44	0.45	0.44	0.43	<i>0.44</i>	<i>0.44</i>	<i>0.38</i>	<i>0.40</i>	<i>0.41</i>	0.44	<i>0.44</i>	<i>0.41</i>
Federal Gulf of Mexico (b)	1.83	1.80	1.49	1.71	1.67	1.70	1.78	<i>1.80</i>	<i>1.88</i>	<i>1.86</i>	<i>1.79</i>	<i>1.78</i>	1.71	<i>1.74</i>	<i>1.83</i>
Lower 48 States (excl GOM)	8.54	9.10	9.29	9.50	9.35	9.56	9.63	<i>9.75</i>	<i>9.95</i>	<i>10.04</i>	<i>10.17</i>	<i>10.32</i>	9.11	<i>9.57</i>	<i>10.12</i>
Crude Oil Net Imports (c)	2.88	2.94	3.64	3.13	3.00	2.81	2.47	<i>3.33</i>	<i>2.89</i>	<i>3.25</i>	<i>3.47</i>	<i>3.11</i>	3.15	<i>2.90</i>	<i>3.18</i>
SPR Net Withdrawals	0.00	0.18	0.04	0.26	0.31	0.80	0.85	<i>0.31</i>	<i>0.01</i>	<i>0.17</i>	<i>0.06</i>	<i>0.11</i>	0.12	<i>0.57</i>	<i>0.09</i>
Commercial Inventory Net Withdrawals	-0.19	0.60	0.30	-0.01	0.08	-0.03	-0.13	<i>-0.07</i>	<i>-0.26</i>	<i>0.12</i>	<i>0.19</i>	<i>-0.08</i>	0.18	<i>-0.04</i>	<i>-0.01</i>
Crude Oil Adjustment (d)	0.30	0.59	0.44	0.44	0.71	0.81	1.18	<i>0.16</i>	<i>0.22</i>	<i>0.22</i>	<i>0.23</i>	<i>0.16</i>	0.44	<i>0.72</i>	<i>0.21</i>
Total Crude Oil Input to Refineries	13.81	15.65	15.61	15.49	15.56	16.09	16.20	<i>15.73</i>	<i>15.13</i>	<i>16.04</i>	<i>16.30</i>	<i>15.81</i>	15.15	<i>15.89</i>	<i>15.82</i>
Other Supply															
Refinery Processing Gain	0.85	0.98	0.96	1.04	0.95	1.07	1.06	<i>1.04</i>	<i>1.01</i>	<i>0.97</i>	<i>0.98</i>	<i>1.00</i>	0.96	<i>1.03</i>	<i>0.99</i>
Natural Gas Plant Liquids Production	4.89	5.50	5.56	5.74	5.61	5.92	6.09	<i>6.25</i>	<i>6.25</i>	<i>6.32</i>	<i>6.28</i>	<i>6.39</i>	5.42	<i>5.97</i>	<i>6.31</i>
Renewables and Oxygenate Production (e)	1.04	1.13	1.11	1.24	1.19	1.20	1.16	<i>1.23</i>	<i>1.19</i>	<i>1.21</i>	<i>1.19</i>	<i>1.26</i>	1.13	<i>1.20</i>	<i>1.21</i>
Fuel Ethanol Production	0.90	0.99	0.96	1.06	1.02	1.01	0.97	<i>1.01</i>	<i>0.97</i>	<i>0.98</i>	<i>0.96</i>	<i>1.00</i>	0.98	<i>1.00</i>	<i>0.98</i>
Petroleum Products Adjustment (f)	0.20	0.22	0.22	0.23	0.22	0.23	0.22	<i>0.22</i>	<i>0.21</i>	<i>0.22</i>	<i>0.22</i>	<i>0.22</i>	0.22	<i>0.22</i>	<i>0.21</i>
Product Net Imports (c)	-2.79	-3.07	-3.19	-3.79	-3.74	-3.99	-4.29	<i>-4.01</i>	<i>-3.82</i>	<i>-3.59</i>	<i>-4.06</i>	<i>-4.32</i>	-3.21	<i>-4.01</i>	<i>-3.95</i>
Hydrocarbon Gas Liquids	-1.95	-2.25	-2.15	-2.18	-2.14	-2.31	-2.25	<i>-2.52</i>	<i>-2.55</i>	<i>-2.54</i>	<i>-2.55</i>	<i>-2.55</i>	-2.14	<i>-2.31</i>	<i>-2.55</i>
Unfinished Oils	0.18	0.30	0.25	0.10	0.09	0.25	0.39	<i>0.28</i>	<i>0.20</i>	<i>0.26</i>	<i>0.37</i>	<i>0.20</i>	0.21	<i>0.26</i>	<i>0.26</i>
Other HC/Oxygenates	-0.08	-0.04	-0.03	-0.05	-0.09	-0.10	-0.07	<i>-0.05</i>	<i>-0.06</i>	<i>-0.04</i>	<i>-0.03</i>	<i>-0.03</i>	-0.05	<i>-0.08</i>	<i>-0.04</i>
Motor Gasoline Blend Comp.	0.55	0.79	0.67	0.43	0.40	0.60	0.46	<i>0.36</i>	<i>0.42</i>	<i>0.66</i>	<i>0.36</i>	<i>0.39</i>	0.61	<i>0.45</i>	<i>0.46</i>
Finished Motor Gasoline	-0.64	-0.64	-0.68	-0.88	-0.76	-0.73	-0.80	<i>-0.65</i>	<i>-0.59</i>	<i>-0.53</i>	<i>-0.71</i>	<i>-0.81</i>	-0.71	<i>-0.74</i>	<i>-0.66</i>
Jet Fuel	0.03	0.08	0.08	0.01	-0.04	-0.06	-0.11	<i>-0.06</i>	<i>-0.09</i>	<i>0.00</i>	<i>0.04</i>	<i>0.07</i>	0.05	<i>-0.07</i>	<i>0.00</i>
Distillate Fuel Oil	-0.48	-0.87	-0.91	-0.86	-0.81	-1.15	-1.38	<i>-1.05</i>	<i>-0.71</i>	<i>-1.02</i>	<i>-1.16</i>	<i>-1.14</i>	-0.78	<i>-1.10</i>	<i>-1.01</i>
Residual Fuel Oil	0.07	0.05	0.08	0.15	0.14	0.10	0.07	<i>0.20</i>	<i>0.13</i>	<i>0.14</i>	<i>0.14</i>	<i>0.17</i>	0.09	<i>0.13</i>	<i>0.14</i>
Other Oils (g)	-0.48	-0.49	-0.50	-0.50	-0.54	-0.59	-0.59	<i>-0.52</i>	<i>-0.57</i>	<i>-0.52</i>	<i>-0.52</i>	<i>-0.62</i>	-0.49	<i>-0.56</i>	<i>-0.56</i>
Product Inventory Net Withdrawals	0.55	-0.27	0.03	0.58	0.42	-0.25	-0.29	<i>0.31</i>	<i>0.25</i>	<i>-0.65</i>	<i>-0.31</i>	<i>0.46</i>	0.22	<i>0.05</i>	<i>-0.06</i>
Total Supply	18.54	20.13	20.30	20.53	20.22	20.27	20.15	<i>20.76</i>	<i>20.22</i>	<i>20.52</i>	<i>20.61</i>	<i>20.81</i>	19.88	<i>20.35</i>	<i>20.54</i>
Consumption (million barrels per day)															
Hydrocarbon Gas Liquids	3.43	3.33	3.34	3.66	3.87	3.43	3.43	<i>3.97</i>	<i>4.07</i>	<i>3.55</i>	<i>3.52</i>	<i>3.95</i>	3.44	<i>3.68</i>	<i>3.77</i>
Other HC/Oxygenates	0.11	0.13	0.13	0.16	0.13	0.17	0.16	<i>0.22</i>	<i>0.21</i>	<i>0.21</i>	<i>0.20</i>	<i>0.26</i>	0.13	<i>0.17</i>	<i>0.22</i>
Unfinished Oils	0.08	0.07	-0.05	0.00	0.13	0.04	0.04	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	0.02	<i>0.05</i>	<i>0.00</i>
Motor Gasoline	8.04	9.09	9.14	8.98	8.47	9.00	8.82	<i>8.82</i>	<i>8.42</i>	<i>8.98</i>	<i>8.94</i>	<i>8.85</i>	8.82	<i>8.78</i>	<i>8.80</i>
Fuel Ethanol blended into Motor Gasoline	0.81	0.93	0.94	0.95	0.87	0.93	0.90	<i>0.92</i>	<i>0.86</i>	<i>0.93</i>	<i>0.92</i>	<i>0.93</i>	0.91	<i>0.91</i>	<i>0.91</i>
Jet Fuel	1.12	1.34	1.52	1.50	1.45	1.61	1.59	<i>1.56</i>	<i>1.45</i>	<i>1.59</i>	<i>1.66</i>	<i>1.63</i>	1.37	<i>1.55</i>	<i>1.58</i>
Distillate Fuel Oil	3.99	3.96	3.90	4.03	4.14	3.89	3.75	<i>3.93</i>	<i>4.05</i>	<i>3.93</i>	<i>3.84</i>	<i>3.94</i>	3.97	<i>3.93</i>	<i>3.94</i>
Residual Fuel Oil	0.26	0.25	0.35	0.40	0.38	0.31	0.34	<i>0.44</i>	<i>0.37</i>	<i>0.39</i>	<i>0.41</i>	<i>0.41</i>	0.31	<i>0.37</i>	<i>0.40</i>
Other Oils (g)	1.54	1.95	1.98	1.81	1.65	1.82	2.02	<i>1.82</i>	<i>1.64</i>	<i>1.87</i>	<i>2.04</i>	<i>1.77</i>	1.82	<i>1.83</i>	<i>1.83</i>
Total Consumption	18.58	20.13	20.30	20.54	20.22	20.27	20.15	<i>20.76</i>	<i>20.22</i>	<i>20.52</i>	<i>20.61</i>	<i>20.81</i>	19.89	<i>20.35</i>	<i>20.54</i>
Total Petroleum and Other Liquids Net Imports	0.09	-0.13	0.45	-0.65	-0.74	-1.18	-1.81	<i>-0.68</i>	<i>-0.93</i>	<i>-0.34</i>	<i>-0.59</i>	<i>-1.21</i>	-0.06	<i>-1.10</i>	<i>-0.77</i>
End-of-period Inventories (million barrels)															
Commercial Inventory															
Crude Oil (excluding SPR)	502.5	448.1	420.3	421.2	414.4	417.5	429.3	<i>435.7</i>	<i>459.5</i>	<i>448.9</i>	<i>431.0</i>	<i>438.3</i>	421.2	<i>435.7</i>	<i>438.3</i>
Hydrocarbon Gas Liquids	176.9	205.3	235.5	193.1	142.0	186.7	244.4	<i>192.5</i>	<i>148.5</i>	<i>201.8</i>	<i>244.2</i>	<i>203.1</i>	193.1	<i>192.5</i>	<i>203.1</i>
Unfinished Oils	92.5	92.3	89.5	79.7	87.9	88.8	82.0	<i>81.0</i>	<i>91.7</i>	<i>89.4</i>	<i>88.4</i>	<i>81.3</i>	79.7	<i>81.0</i>	<i>81.3</i>
Other HC/Oxygenates	29.3	27.7	25.7	28.7	34.1	29.4	28.1	<i>28.4</i>	<i>30.5</i>	<i>29.2</i>	<i>28.9</i>	<i>29.2</i>	28.7	<i>28.4</i>	<i>29.2</i>
Total Motor Gasoline	237.8	237.3	227.0	232.2	238.5	221.0	207.6	<i>236.1</i>	<i>239.0</i>	<i>244.5</i>	<i>234.8</i>	<i>244.6</i>	232.2	<i>236.1</i>	<i>244.6</i>
Finished Motor Gasoline	20.3	18.5	18.5	17.8	17.3	17.1	17.3	<i>20.5</i>	<i>18.0</i>	<i>19.2</i>	<i>20.7</i>	<i>23.2</i>	17.8	<i>20.5</i>	<i>23.2</i>
Motor Gasoline Blend Comp.	217.6	218.7	208.5	214.4	221.2	203.8	190.2	<i>215.6</i>	<i>221.0</i>	<i>225.3</i>	<i>214.0</i>	<i>221.5</i>	214.4	<i>215.6</i>	<i>221.5</i>
Jet Fuel	39.1	44.7	42.0	35.8	35.6	39.3	36.3	<i>32.4</i>	<i>34.8</i>	<i>38.3</i>	<i>39.1</i>	<i>36.6</i>	35.8	<i>32.4</i>	<i>36.6</i>
Distillate Fuel Oil	146.1	140.1	132.1	130.0	114.6	111.4	111.0	<i>110.9</i>	<i>103.2</i>	<i>107.1</i>	<i>113.9</i>	<i>112.7</i>	130.0	<i>110.9</i>	<i>112.7</i>
Residual Fuel Oil	30.9	31.5	27.8	25.8	27.9	29.2	28.8	<i>27.0</i>	<i>29.1</i>	<i>27.8</i>	<i>26.9</i>	<i>25.3</i>	25.8	<i>27.0</i>	<i>25.3</i>
Other Oils (g)	55.8	54.3	51.0	52.2	58.5	56.4	51.0	<i>52.3</i>	<i>61.4</i>	<i>59.2</i>	<i>49.8</i>	<i>51.2</i>	52.2	<i>52.3</i>	<i>51.2</i>
Total Commercial Inventory	1310.9	1281.4	1250.9	1198.6	1153.6	1179.7	1218.5	<i>1196.2</i>	<i>1197.8</i>	<i>1246.2</i>	<i>1257.1</i>	<i>1222.4</i>	1198.6	<i>1196.2</i>	<i>1222.4</i>
Crude Oil in SPR	637.8	621.3	617.8	593.7	566.1	493.3	415.4	<i>386.8</i>	<i>385.6</i>	<i>370.0</i>	<i>364.8</i>	<i>354.3</i>	593.7	<i>386.8</i>	<i>354.3</i>

(a) Includes lease condensate.

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

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

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

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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 - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
HGL Production															
Natural Gas Processing Plants															
Ethane	1.88	2.20	2.19	2.32	2.33	2.43	2.49	2.59	2.61	2.67	2.58	2.64	2.15	2.46	2.62
Propane	1.63	1.76	1.77	1.82	1.77	1.85	1.89	1.95	1.96	1.95	1.96	2.00	1.74	1.87	1.97
Butanes	0.86	0.93	0.94	0.96	0.93	0.98	1.01	1.05	1.05	1.04	1.06	1.08	0.92	0.99	1.06
Natural Gasoline (Pentanes Plus)	0.53	0.61	0.66	0.64	0.59	0.67	0.70	0.65	0.64	0.66	0.69	0.67	0.61	0.65	0.66
Refinery and Blender Net Production															
Ethane/Ethylene	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.01
Propane	0.25	0.29	0.28	0.29	0.27	0.29	0.30	0.29	0.29	0.28	0.29	0.28	0.28	0.29	0.29
Propylene (refinery-grade)	0.27	0.31	0.29	0.29	0.28	0.28	0.28	0.28	0.27	0.28	0.28	0.28	0.29	0.28	0.28
Butanes/Butylenes	-0.09	0.24	0.18	-0.16	-0.07	0.25	0.19	-0.19	-0.08	0.27	0.20	-0.19	0.04	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	-0.31	-0.38	-0.37	-0.41	-0.50	-0.40	-0.40	-0.43	-0.45	-0.45	-0.45	-0.45	-0.37	-0.43	-0.45
Propane/Propylene	-1.08	-1.26	-1.22	-1.24	-1.18	-1.33	-1.28	-1.45	-1.36	-1.35	-1.35	-1.40	-1.20	-1.31	-1.37
Butanes/Butylenes	-0.34	-0.41	-0.38	-0.35	-0.28	-0.41	-0.39	-0.47	-0.51	-0.52	-0.53	-0.47	-0.37	-0.39	-0.51
Natural Gasoline (Pentanes Plus)	-0.22	-0.21	-0.18	-0.18	-0.17	-0.17	-0.19	-0.18	-0.22	-0.22	-0.23	-0.23	-0.20	-0.18	-0.22
HGL Refinery and Blender Net Inputs															
Butanes/Butylenes	0.40	0.29	0.31	0.53	0.44	0.31	0.32	0.49	0.41	0.27	0.31	0.51	0.38	0.39	0.37
Natural Gasoline (Pentanes Plus)	0.14	0.14	0.16	0.23	0.20	0.20	0.21	0.19	0.18	0.19	0.19	0.19	0.17	0.20	0.19
HGL Consumption															
Ethane/Ethylene	1.55	1.86	1.83	1.98	1.98	2.03	2.07	2.17	2.19	2.16	2.13	2.18	1.81	2.06	2.17
Propane	1.11	0.61	0.65	0.95	1.16	0.60	0.58	1.01	1.15	0.62	0.63	1.00	0.83	0.84	0.85
Propylene (refinery-grade)	0.29	0.32	0.30	0.30	0.30	0.29	0.29	0.29	0.29	0.30	0.29	0.29	0.31	0.29	0.29
Butanes/Butylenes	0.22	0.29	0.26	0.20	0.23	0.26	0.24	0.22	0.20	0.24	0.23	0.22	0.24	0.24	0.22
Natural Gasoline (Pentanes Plus)	0.26	0.24	0.30	0.22	0.21	0.24	0.25	0.28	0.24	0.23	0.24	0.25	0.26	0.25	0.24
HGL Inventories (million barrels)															
Ethane	70.4	72.3	69.8	67.4	51.1	51.7	51.1	53.7	50.2	55.3	56.2	58.9	70.0	51.9	55.2
Propane	41.8	56.8	72.2	63.9	36.3	54.1	83.1	62.0	36.2	58.0	81.1	68.6	63.9	62.0	68.6
Propylene (at refineries only)	1.1	1.2	1.3	1.4	1.0	1.2	1.4	1.5	1.4	1.7	1.9	1.8	1.4	1.5	1.8
Butanes/Butylenes	37.7	54.7	69.9	43.9	35.7	58.8	82.1	52.1	38.9	63.6	81.6	52.5	43.9	52.1	52.5
Natural Gasoline (Pentanes Plus)	23.0	22.5	22.5	20.7	19.4	22.7	25.0	23.9	21.2	22.2	22.8	21.8	20.7	23.9	21.8
Refinery and Blender Net Inputs															
Crude Oil	13.81	15.65	15.61	15.49	15.56	16.09	16.20	15.73	15.13	16.04	16.30	15.81	15.15	15.89	15.82
Hydrocarbon Gas Liquids	0.53	0.43	0.47	0.76	0.64	0.50	0.53	0.68	0.59	0.46	0.50	0.69	0.55	0.59	0.56
Other Hydrocarbons/Oxygenates	1.06	1.19	1.20	1.18	1.12	1.20	1.19	1.15	1.09	1.17	1.16	1.16	1.16	1.16	1.14
Unfinished Oils	-0.07	0.24	0.32	0.21	-0.12	0.21	0.42	0.29	0.08	0.28	0.38	0.28	0.18	0.20	0.26
Motor Gasoline Blend Components	0.70	0.92	0.82	0.28	0.33	0.84	0.70	0.30	0.48	0.72	0.59	0.53	0.68	0.54	0.58
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	16.03	18.43	18.41	17.92	17.53	18.84	19.04	18.15	17.37	18.67	18.93	18.46	17.71	18.39	18.36
Refinery Processing Gain	0.85	0.98	0.96	1.04	0.95	1.07	1.06	1.04	1.01	0.97	0.98	1.00	0.96	1.03	0.99
Refinery and Blender Net Production															
Hydrocarbon Gas Liquids	0.44	0.85	0.76	0.42	0.49	0.84	0.78	0.38	0.49	0.84	0.77	0.37	0.62	0.62	0.62
Finished Motor Gasoline	8.75	9.83	9.83	9.70	9.22	9.74	9.70	9.67	9.07	9.58	9.73	9.86	9.53	9.58	9.56
Jet Fuel	1.10	1.32	1.41	1.42	1.48	1.71	1.67	1.58	1.57	1.63	1.63	1.54	1.31	1.61	1.59
Distillate Fuel	4.30	4.77	4.72	4.87	4.77	5.00	5.13	4.99	4.68	4.99	5.07	5.07	4.67	4.98	4.95
Residual Fuel	0.20	0.21	0.22	0.23	0.26	0.22	0.27	0.22	0.26	0.24	0.26	0.23	0.21	0.24	0.25
Other Oils (a)	2.10	2.43	2.44	2.33	2.26	2.39	2.55	2.35	2.31	2.37	2.45	2.41	2.32	2.39	2.38
Total Refinery and Blender Net Production	16.88	19.41	19.37	18.96	18.49	19.90	20.09	19.19	18.38	19.65	19.91	19.46	18.66	19.42	19.36
Refinery Distillation Inputs	14.25	16.17	16.23	16.02	16.07	16.61	16.68	16.05	15.48	16.30	16.62	16.12	15.67	16.35	16.13
Refinery Operable Distillation Capacity	18.13	18.13	18.13	18.05	17.94	17.94	17.96	17.96	17.96	17.96	17.96	17.96	18.11	17.95	17.96
Refinery Distillation Utilization Factor	0.79	0.89	0.89	0.89	0.90	0.93	0.93	0.89	0.86	0.91	0.93	0.90	0.87	0.91	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 October 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 - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Prices (cents per gallon)															
Refiner Wholesale Price	180	216	232	243	278	376	311	303	272	278	277	270	219	318	274
Gasoline Regular Grade Retail Prices Including Taxes															
PADD 1	252	287	304	327	364	438	392	350	339	351	349	347	294	386	347
PADD 2	247	288	304	315	352	436	398	367	334	344	349	342	290	389	342
PADD 3	227	267	282	298	340	414	358	328	311	323	324	319	270	360	320
PADD 4	247	311	360	351	360	446	437	388	362	363	368	360	319	409	363
PADD 5	312	366	391	410	452	543	511	510	455	433	427	423	372	505	434
U.S. Average	256	297	316	333	371	450	408	380	354	359	359	355	302	403	357
Gasoline All Grades Including Taxes	265	306	325	343	380	460	419	393	367	372	372	369	311	414	370
End-of-period Inventories (million barrels)															
Total Gasoline Inventories															
PADD 1	65.1	69.9	59.0	61.8	56.9	53.6	54.3	60.1	61.2	67.2	62.3	64.5	61.8	60.1	64.5
PADD 2	50.6	50.6	46.8	50.7	56.5	46.7	44.0	49.9	53.1	50.4	47.8	51.7	50.7	49.9	51.7
PADD 3	82.1	81.6	83.0	81.7	87.1	83.9	78.6	88.6	87.1	89.5	86.8	89.4	81.7	88.6	89.4
PADD 4	8.6	6.2	7.6	8.1	8.1	6.4	6.0	7.4	8.0	7.6	7.8	8.3	8.1	7.4	8.3
PADD 5	31.5	29.0	30.6	29.7	29.9	30.3	24.7	30.1	29.6	29.8	30.1	30.7	29.7	30.1	30.7
U.S. Total	237.8	237.3	227.0	232.2	238.5	221.0	207.6	236.1	239.0	244.5	234.8	244.6	232.2	236.1	244.6
Finished Gasoline Inventories															
U.S. Total	20.3	18.5	18.5	17.8	17.3	17.1	17.3	20.5	18.0	19.2	20.7	23.2	17.8	20.5	23.2
Gasoline Blending Components Inventories															
U.S. Total	217.6	218.7	208.5	214.4	221.2	203.8	190.2	215.6	221.0	225.3	214.0	221.5	214.4	215.6	221.5

- = no data available

Notes: EIA completed modeling and analysis for this report on October 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 - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Supply (billion cubic feet per day)															
Total Marketed Production	98.57	102.12	102.88	105.43	103.27	106.14	107.27	<i>107.88</i>	<i>107.93</i>	<i>108.37</i>	<i>108.56</i>	<i>108.85</i>	102.27	<i>106.16</i>	<i>108.43</i>
Alaska	1.02	0.95	0.90	1.02	1.06	1.00	0.93	<i>1.00</i>	<i>1.00</i>	<i>0.92</i>	<i>0.84</i>	<i>0.98</i>	0.97	<i>1.00</i>	<i>0.94</i>
Federal GOM (a)	2.33	2.30	1.82	2.10	2.05	2.11	2.19	<i>2.16</i>	<i>2.18</i>	<i>2.12</i>	<i>1.99</i>	<i>1.95</i>	2.14	<i>2.13</i>	<i>2.06</i>
Lower 48 States (excl GOM)	95.22	98.87	100.16	102.30	100.16	103.03	104.15	<i>104.72</i>	<i>104.75</i>	<i>105.33</i>	<i>105.72</i>	<i>105.93</i>	99.16	<i>103.03</i>	<i>105.44</i>
Total Dry Gas Production	91.14	94.43	95.14	97.49	95.10	97.55	98.48	<i>99.05</i>	<i>99.20</i>	<i>99.57</i>	<i>99.73</i>	<i>100.00</i>	94.57	<i>97.56</i>	<i>99.63</i>
LNG Gross Imports	0.15	0.02	0.03	0.04	0.15	0.01	0.05	<i>0.06</i>	<i>0.10</i>	<i>0.04</i>	<i>0.04</i>	<i>0.06</i>	0.06	<i>0.07</i>	<i>0.06</i>
LNG Gross Exports	9.27	9.81	9.60	10.32	11.50	10.80	10.02	<i>11.75</i>	<i>12.47</i>	<i>12.53</i>	<i>12.10</i>	<i>12.28</i>	9.76	<i>11.01</i>	<i>12.34</i>
Pipeline Gross Imports	8.68	6.81	7.24	7.82	8.92	7.79	7.72	<i>7.59</i>	<i>8.30</i>	<i>6.87</i>	<i>7.05</i>	<i>7.44</i>	7.63	<i>8.00</i>	<i>7.41</i>
Pipeline Gross Exports	8.31	8.66	8.50	8.40	8.43	8.44	8.56	<i>9.19</i>	<i>9.64</i>	<i>9.10</i>	<i>9.44</i>	<i>9.75</i>	8.47	<i>8.66</i>	<i>9.49</i>
Supplemental Gaseous Fuels	0.17	0.18	0.18	0.19	0.21	0.15	0.19	<i>0.19</i>	<i>0.19</i>	<i>0.19</i>	<i>0.19</i>	<i>0.19</i>	0.18	<i>0.18</i>	<i>0.19</i>
Net Inventory Withdrawals	17.18	-9.12	-7.87	1.03	20.14	-10.25	-8.83	<i>3.03</i>	<i>15.53</i>	<i>-13.19</i>	<i>-9.23</i>	<i>3.76</i>	0.24	<i>0.95</i>	<i>-0.84</i>
Total Supply	99.74	73.84	76.62	87.84	104.59	76.01	79.04	<i>88.98</i>	<i>101.21</i>	<i>71.84</i>	<i>76.24</i>	<i>89.42</i>	84.46	<i>87.09</i>	<i>84.62</i>
Balancing Item (b)	1.28	-1.08	-0.66	-1.28	0.54	0.40	1.03	<i>1.22</i>	<i>1.75</i>	<i>1.20</i>	<i>-0.52</i>	<i>0.33</i>	-0.44	<i>0.80</i>	<i>0.68</i>
Total Primary Supply	101.03	72.76	75.96	86.56	105.13	76.42	80.07	<i>90.20</i>	<i>102.96</i>	<i>73.04</i>	<i>75.71</i>	<i>89.74</i>	84.01	<i>87.89</i>	<i>85.30</i>
Consumption (billion cubic feet per day)															
Residential	26.05	7.58	3.67	14.61	26.09	7.85	3.89	<i>16.84</i>	<i>25.74</i>	<i>7.92</i>	<i>4.17</i>	<i>16.75</i>	12.92	<i>13.62</i>	<i>13.59</i>
Commercial	15.03	6.31	4.73	10.17	15.62	6.70	5.02	<i>11.53</i>	<i>15.27</i>	<i>6.86</i>	<i>5.32</i>	<i>11.62</i>	9.04	<i>9.69</i>	<i>9.75</i>
Industrial	24.21	21.67	21.45	23.59	25.49	22.38	21.47	<i>23.31</i>	<i>23.46</i>	<i>21.11</i>	<i>21.36</i>	<i>24.06</i>	22.73	<i>23.15</i>	<i>22.50</i>
Electric Power (c)	26.79	29.20	37.94	29.47	28.65	31.12	41.14	<i>29.54</i>	<i>28.99</i>	<i>28.78</i>	<i>36.41</i>	<i>28.29</i>	30.88	<i>32.64</i>	<i>30.63</i>
Lease and Plant Fuel	5.02	5.20	5.24	5.37	5.26	5.41	5.46	<i>5.49</i>	<i>5.50</i>	<i>5.52</i>	<i>5.53</i>	<i>5.54</i>	5.21	<i>5.41</i>	<i>5.52</i>
Pipeline and Distribution Use	3.77	2.65	2.78	3.19	3.87	2.81	2.94	<i>3.35</i>	<i>3.84</i>	<i>2.69</i>	<i>2.79</i>	<i>3.33</i>	3.09	<i>3.24</i>	<i>3.16</i>
Vehicle Use	0.15	0.15	0.15	0.15	0.15	0.15	0.15	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	0.15	<i>0.15</i>	<i>0.15</i>
Total Consumption	101.03	72.76	75.96	86.56	105.13	76.42	80.07	<i>90.20</i>	<i>102.96</i>	<i>73.04</i>	<i>75.71</i>	<i>89.74</i>	84.01	<i>87.89</i>	<i>85.30</i>
End-of-period Inventories (billion cubic feet)															
Working Gas Inventory	1,801	2,585	3,306	3,210	1,401	2,325	3,135	<i>2,857</i>	<i>1,460</i>	<i>2,660</i>	<i>3,509</i>	<i>3,163</i>	3,210	<i>2,857</i>	<i>3,163</i>
East Region (d)	313	515	804	766	242	482	756	<i>650</i>	<i>215</i>	<i>572</i>	<i>879</i>	<i>747</i>	766	<i>650</i>	<i>747</i>
Midwest Region (d)	395	630	966	887	296	557	916	<i>795</i>	<i>325</i>	<i>650</i>	<i>1,000</i>	<i>860</i>	887	<i>795</i>	<i>860</i>
South Central Region (d)	760	993	1,053	1,143	587	885	1,003	<i>998</i>	<i>664</i>	<i>1,019</i>	<i>1,105</i>	<i>1,079</i>	1,143	<i>998</i>	<i>1,079</i>
Mountain Region (d)	113	175	205	171	90	137	184	<i>168</i>	<i>91</i>	<i>139</i>	<i>205</i>	<i>186</i>	171	<i>168</i>	<i>186</i>
Pacific Region (d)	197	246	248	218	165	240	247	<i>216</i>	<i>134</i>	<i>249</i>	<i>291</i>	<i>262</i>	218	<i>216</i>	<i>262</i>
Alaska	23	27	30	25	21	25	29	<i>29</i>	<i>29</i>	<i>29</i>	<i>29</i>	<i>29</i>	25	<i>29</i>	<i>29</i>

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

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

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

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

- = no data available

LNG: liquefied natural gas.

Notes: EIA completed modeling and analysis for this report on October 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 - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Wholesale/Spot															
Henry Hub Spot Price	3.70	3.06	4.53	4.96	4.84	7.77	8.30	7.70	7.40	5.48	5.51	5.60	4.06	7.15	6.00
Residential Retail															
New England	14.66	16.24	20.41	17.61	17.69	21.04	25.49	20.68	19.79	20.15	22.44	17.94	16.12	19.44	19.48
Middle Atlantic	10.43	13.49	19.81	14.29	12.79	15.57	23.05	16.46	15.07	16.37	20.35	13.89	12.55	14.61	15.29
E. N. Central	7.41	12.69	22.36	11.40	9.81	14.81	24.83	14.61	13.07	15.03	20.77	11.59	10.19	12.41	13.41
W. N. Central	7.49	11.63	20.32	12.62	11.39	15.23	24.64	15.09	13.18	15.08	20.68	12.10	10.23	13.36	13.59
S. Atlantic	11.94	18.03	27.56	16.62	13.91	21.04	31.22	19.35	16.91	20.81	26.51	15.76	15.24	17.32	17.88
E. S. Central	9.35	14.78	22.94	14.14	11.78	17.23	27.43	17.93	15.57	19.81	25.37	15.77	11.99	14.29	17.15
W. S. Central	9.23	15.85	23.76	17.82	12.64	19.55	27.04	16.86	13.59	18.20	23.62	14.37	13.22	15.66	15.48
Mountain	7.90	10.64	15.58	10.85	10.33	12.92	18.12	13.13	12.79	14.05	16.96	11.34	9.77	11.87	12.86
Pacific	14.20	15.01	15.90	16.47	17.06	17.62	20.73	19.58	19.66	19.51	19.41	18.14	15.25	18.31	19.14
U.S. Average	9.71	13.82	20.27	13.71	12.32	16.57	24.20	16.65	15.28	17.11	21.23	13.97	12.21	15.14	15.60
Commercial Retail															
New England	10.39	11.13	12.24	12.58	12.63	14.45	15.36	14.95	15.07	14.48	13.21	12.54	11.33	13.95	14.06
Middle Atlantic	7.92	7.99	7.99	10.11	10.33	10.80	11.78	12.29	12.49	11.63	10.40	10.41	8.56	11.19	11.48
E. N. Central	6.11	8.59	11.03	8.67	8.14	10.47	12.93	11.28	11.27	11.65	11.78	9.33	7.60	9.74	10.76
W. N. Central	6.32	7.67	9.94	10.19	10.24	11.70	14.51	12.04	11.64	11.28	11.67	9.57	7.91	11.28	10.96
S. Atlantic	8.69	9.84	10.37	11.04	10.52	12.16	14.31	13.41	13.04	13.09	12.68	11.44	9.76	12.09	12.51
E. S. Central	8.33	9.90	11.95	11.80	10.54	13.01	15.20	13.80	13.05	13.29	12.95	11.41	9.89	12.40	12.56
W. S. Central	6.91	8.57	10.14	10.87	9.99	12.28	13.56	12.39	11.50	11.43	10.96	9.88	8.62	11.56	10.99
Mountain	6.50	7.76	9.25	9.02	8.83	10.07	11.96	11.18	11.09	11.23	11.54	10.00	7.75	10.01	10.82
Pacific	10.46	10.31	11.31	12.12	12.74	13.38	15.38	14.55	13.92	12.88	12.29	11.35	11.09	13.76	12.66
U.S. Average	7.54	8.86	10.15	10.27	10.00	11.71	13.49	12.54	12.27	12.08	11.64	10.39	8.83	11.42	11.60
Industrial Retail															
New England	8.59	8.08	7.85	10.08	11.09	11.97	11.89	12.76	12.97	11.54	9.74	10.53	8.73	11.91	11.49
Middle Atlantic	7.66	7.37	7.90	10.36	10.16	9.06	11.82	12.44	12.61	11.27	10.04	9.97	8.24	10.95	11.44
E. N. Central	5.43	8.14	8.49	7.89	7.72	9.64	11.68	10.55	10.52	9.10	8.25	8.13	6.90	9.36	9.32
W. N. Central	5.13	4.34	5.25	6.95	8.03	8.51	9.73	9.76	9.73	7.76	6.97	7.30	5.48	8.99	8.02
S. Atlantic	5.13	4.76	6.02	7.66	7.57	8.90	9.95	9.76	9.82	7.75	7.24	7.50	5.90	8.94	8.16
E. S. Central	4.72	4.28	5.36	7.21	6.87	9.15	9.57	9.38	9.46	7.45	6.77	7.09	5.39	8.65	7.77
W. S. Central	5.75	3.20	4.38	5.95	5.46	7.47	8.47	7.90	7.72	5.84	5.69	5.72	4.80	7.44	6.22
Mountain	4.98	5.32	6.66	7.27	7.07	8.39	9.76	9.85	9.98	9.25	8.85	8.34	5.99	8.64	9.15
Pacific	8.28	7.24	8.88	9.21	8.81	8.83	10.76	11.27	11.23	10.06	9.18	8.95	8.54	9.97	9.93
U.S. Average	5.79	4.13	5.09	6.82	6.82	8.25	8.91	9.00	9.11	6.97	6.44	6.77	5.51	8.17	7.35

- = no data available

Notes: EIA completed modeling and analysis for this report on October 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 - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Supply (million short tons)															
Production	140.3	142.7	148.3	146.7	149.0	141.7	153.3	154.1	147.9	137.2	150.7	145.2	578.1	598.2	581.0
Appalachia	40.8	39.5	36.6	38.9	40.2	38.7	38.7	39.5	39.4	37.5	33.7	33.3	155.8	157.1	144.0
Interior	25.0	23.3	22.7	22.5	23.8	21.9	22.8	22.5	22.5	20.6	22.3	21.6	93.5	90.9	87.0
Western	74.5	80.0	89.0	85.3	85.0	81.1	91.8	92.1	86.0	79.1	94.7	90.3	328.8	350.1	350.0
Primary Inventory Withdrawals	1.2	1.5	1.2	0.7	-0.5	0.6	1.1	-0.6	-1.0	0.4	1.1	-0.6	4.6	0.7	0.0
Imports	1.1	1.5	1.1	1.7	1.3	1.6	2.0	2.1	1.9	2.2	2.6	2.3	5.4	7.0	9.1
Exports	20.7	22.1	20.7	21.7	20.2	23.0	20.7	21.3	21.8	23.5	22.4	24.2	85.2	85.2	92.0
Metallurgical Coal	10.3	11.7	11.4	11.9	10.5	13.1	11.7	11.0	11.2	12.4	11.5	12.2	45.3	46.3	47.3
Steam Coal	10.4	10.4	9.3	9.7	9.7	9.9	9.0	10.3	10.6	11.2	10.9	11.9	39.9	39.0	44.6
Total Primary Supply	121.9	123.6	129.9	127.5	129.7	121.0	135.8	134.3	127.1	116.3	132.0	122.8	502.9	520.7	498.2
Secondary Inventory Withdrawals	20.4	0.3	30.4	-14.0	8.8	-2.5	3.6	-17.6	-7.9	-10.6	14.0	-13.8	37.1	-7.8	-18.4
Waste Coal (a)	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	7.9	7.5	7.2
Total Supply	144.5	125.6	162.3	115.5	140.3	120.4	141.3	118.5	121.0	107.5	147.7	110.7	547.8	520.5	487.0
Consumption (million short tons)															
Coke Plants	4.4	4.5	4.4	4.4	4.2	3.9	4.0	4.2	4.1	4.2	4.3	4.5	17.6	16.2	17.2
Electric Power Sector (b)	128.0	113.8	157.0	102.7	122.6	107.4	137.5	107.6	110.2	97.6	137.7	99.8	501.4	475.1	445.4
Retail and Other Industry	6.8	6.3	6.5	7.0	6.9	6.8	6.3	6.7	6.7	5.6	5.7	6.4	26.7	26.7	24.4
Residential and Commercial	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.4	0.2	0.2	0.3	0.8	0.9	1.1
Other Industrial	6.6	6.2	6.3	6.8	6.7	6.7	6.1	6.5	6.3	5.4	5.5	6.1	25.8	25.9	23.3
Total Consumption	139.2	124.6	167.9	114.1	133.7	118.1	147.8	118.5	121.0	107.5	147.7	110.7	545.7	518.1	487.0
Discrepancy (c)	5.3	1.0	-5.5	1.4	6.6	2.3	-6.5	0.0	0.0	0.0	0.0	0.0	2.2	2.4	0.0
End-of-period Inventories (million short tons)															
Primary Inventories (d)	22.4	20.9	19.7	19.0	19.5	18.8	17.7	18.3	19.2	18.8	17.7	18.3	19.0	18.3	18.3
Secondary Inventories	115.8	115.5	85.1	99.1	90.3	92.8	89.2	106.9	114.7	125.4	111.4	125.3	99.1	106.9	125.3
Electric Power Sector	111.5	110.9	80.4	94.7	86.2	87.3	83.6	101.3	110.0	120.5	106.4	120.3	94.7	101.3	120.3
Retail and General Industry	2.6	2.6	2.7	2.6	2.4	3.5	3.6	3.5	2.9	3.0	3.1	3.1	2.6	3.5	3.1
Coke Plants	1.5	1.9	1.8	1.7	1.6	1.9	1.9	1.9	1.7	1.8	1.8	1.8	1.7	1.9	1.8
Commercial & Institutional	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1
Coal Market Indicators															
Coal Miner Productivity															
(Tons per hour)	6.08	6.08	6.08	6.08	6.05	6.05	6.05	6.05	5.98	5.98	5.98	5.98	6.08	6.05	5.98
Total Raw Steel Production															
(Million short tons per day)	0.246	0.258	0.267	0.260	0.253	0.253	0.263	0.289	0.302	0.302	0.320	0.338	0.258	0.265	0.315
Cost of Coal to Electric Utilities															
(Dollars per million Btu)	1.91	1.93	2.03	2.05	2.19	2.26	2.58	2.53	2.53	2.50	2.48	2.45	1.98	2.39	2.49

(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 October 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 - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Electricity Supply (billion kilowatthours)															
Electricity Generation	989	985	1,166	975	1,033	1,028	1,187	989	1,016	1,010	1,153	984	4,116	4,236	4,163
Electric Power Sector (a)	952	949	1,127	935	994	991	1,147	951	979	972	1,113	945	3,963	4,083	4,008
Industrial Sector (b)	34	33	36	36	35	33	36	35	34	34	37	36	140	140	141
Commercial Sector (b)	3	3	4	3	3	3	3	3	3	3	4	3	13	13	14
Net Imports	11	11	11	6	7	13	13	10	12	12	14	11	39	43	50
Total Supply	1,000	997	1,177	981	1,040	1,040	1,200	999	1,028	1,022	1,168	995	4,155	4,279	4,213
Losses and Unaccounted for (c)	54	66	52	52	61	71	56	56	43	64	53	51	225	244	211
Electricity Consumption (billion kilowatthours unless noted)															
Sales to Ultimate Customers	913	898	1,089	894	944	937	1,109	909	952	924	1,079	909	3,795	3,899	3,864
Residential Sector	379	329	446	324	379	346	453	329	381	334	430	329	1,477	1,507	1,473
Commercial Sector	304	321	377	322	322	335	387	329	325	333	380	327	1,325	1,372	1,364
Industrial Sector	229	247	264	247	242	255	267	250	245	256	268	251	987	1,013	1,020
Transportation Sector	2	2	2	2	2	2	2	2	2	2	2	2	6	6	6
Direct Use (d)	33	32	35	35	34	33	35	34	33	33	36	35	136	136	137
Total Consumption	946	931	1,124	929	979	969	1,144	943	985	958	1,115	944	3,930	4,034	4,001
Average residential electricity usage per customer (kWh)	2,744	2,381	3,232	2,346	2,725	2,487	3,259	2,364	2,712	2,381	3,062	2,345	10,703	10,835	10,500
End-of-period Fuel Inventories Held by Electric Power Sector															
Coal (mmst)	111.5	110.9	80.4	94.7	86.2	87.3	83.6	101.3	110.0	120.5	106.4	120.3	94.7	101.3	120.3
Residual Fuel (mmb)	8.0	7.4	6.9	7.0	5.7	5.8	6.3	6.8	4.6	4.6	2.7	3.5	7.0	6.8	3.5
Distillate Fuel (mmb)	16.0	15.5	15.3	16.0	15.5	15.4	17.1	17.2	16.8	16.5	16.4	16.6	16.0	17.2	16.6
Prices															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	1.91	1.93	2.03	2.05	2.19	2.26	2.58	2.53	2.53	2.50	2.48	2.45	1.98	2.39	2.49
Natural Gas	7.24	3.26	4.36	5.42	5.68	7.38	8.20	7.79	7.72	5.52	5.55	5.79	4.97	7.37	6.11
Residual Fuel Oil	11.28	13.09	14.22	16.10	16.91	26.18	25.65	19.18	18.60	18.51	17.58	17.60	13.66	21.22	18.10
Distillate Fuel Oil	13.54	15.20	16.19	18.03	21.11	30.70	26.94	26.78	25.66	23.27	22.45	22.81	15.50	25.22	23.84
Prices to Ultimate Customers (cents per kilowatthour)															
Residential Sector	13.10	13.84	13.99	13.97	13.98	15.08	15.44	14.86	14.76	15.81	15.78	14.87	13.72	14.86	15.32
Commercial Sector	10.99	11.07	11.59	11.37	11.63	12.34	12.70	12.06	12.31	12.81	12.93	12.00	11.27	12.21	12.53
Industrial Sector	7.09	6.92	7.62	7.38	7.42	8.40	8.93	7.80	7.72	8.26	8.69	7.65	7.26	8.16	8.09
Wholesale Electricity Prices (dollars per megawatthour)															
ERCOT North hub	616.34	39.74	52.31	49.79	42.73	83.19	130.71	74.02	65.00	49.03	62.39	48.35	189.54	82.66	56.19
CAISO SP15 zone	44.74	36.90	72.02	60.47	45.20	60.34	110.03	72.65	64.16	58.72	99.02	48.86	53.53	72.05	67.69
ISO-NE Internal hub	55.26	33.67	52.57	65.75	116.48	73.28	99.14	95.51	182.63	53.41	53.04	80.77	51.81	96.10	92.46
NYISO Hudson Valley zone	44.74	31.85	50.42	57.54	100.10	79.72	104.71	101.11	147.38	58.84	58.43	75.26	46.14	96.41	84.98
PJM Western hub	35.09	33.71	51.32	62.57	58.33	93.00	110.99	91.50	94.49	69.69	74.27	68.69	45.67	88.46	76.78
Midcontinent ISO Illinois hub	44.97	33.82	49.36	57.71	47.88	89.21	101.80	84.24	82.08	65.56	69.43	62.53	46.47	80.78	69.90
SPP ISO South hub	250.31	30.86	48.63	45.72	37.25	72.85	109.97	64.05	61.71	50.31	53.60	46.66	93.88	71.03	53.07
SERC index, Into Southern	41.10	32.93	44.18	51.34	42.45	84.96	94.82	75.19	73.83	59.95	62.70	56.54	42.39	74.35	63.25
FRCC index, Florida Reliability	27.73	32.17	42.76	49.02	41.11	78.70	92.71	69.33	66.74	56.95	57.77	52.97	37.92	70.47	58.61
Northwest index, Mid-Columbia	34.56	51.51	91.61	60.46	39.85	59.39	137.82	75.42	66.96	57.61	100.13	52.01	59.53	78.12	69.18
Southwest index, Palo Verde	41.72	46.57	79.86	53.60	39.02	60.50	128.25	60.42	51.53	53.71	91.55	41.88	55.44	72.05	59.67

Notes: EIA completed modeling and analysis for this report on October 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 - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Residential Sector															
New England	12.9	10.8	14.0	11.0	13.1	10.5	14.1	11.0	12.8	10.4	12.5	10.8	48.7	48.7	46.5
Middle Atlantic	36.0	30.3	41.9	30.5	36.1	30.0	42.1	30.8	36.1	30.1	38.6	30.7	138.7	139.0	135.5
E. N. Central	50.1	43.1	56.3	43.2	50.9	43.8	54.0	44.3	50.3	42.5	52.7	44.5	192.6	193.0	190.0
W. N. Central	29.9	23.7	31.0	24.0	30.6	24.7	31.2	23.8	30.5	23.6	29.8	23.1	108.6	110.4	107.0
S. Atlantic	95.2	85.1	111.5	83.1	96.0	91.6	114.6	85.0	98.2	88.9	110.9	85.9	374.9	387.2	383.8
E. S. Central	33.5	25.3	35.8	25.9	32.7	27.7	37.3	26.9	34.1	27.0	35.9	27.0	120.5	124.5	124.0
W. S. Central	56.8	50.0	76.2	47.5	55.7	57.9	81.5	48.1	54.4	53.4	75.6	49.0	230.5	243.2	232.5
Mountain	23.7	26.9	35.2	22.3	24.2	26.3	35.5	23.0	24.2	25.4	34.1	23.2	108.1	108.9	106.9
Pacific contiguous	39.0	32.2	43.0	34.8	38.5	32.4	41.9	34.7	38.8	31.5	38.5	33.6	149.0	147.5	142.3
AK and HI	1.3	1.1	1.2	1.3	1.3	1.1	1.2	1.3	1.2	1.1	1.2	1.3	4.9	4.8	4.8
Total	378.5	328.5	445.8	323.7	379.1	346.0	453.4	328.9	380.5	334.0	429.7	329.1	1,476.6	1,507.4	1,473.4
Commercial Sector															
New England	11.7	11.7	13.5	11.5	12.1	11.8	13.8	11.7	12.1	11.8	13.2	11.6	48.5	49.4	48.7
Middle Atlantic	34.6	33.2	39.7	34.3	36.0	34.3	39.8	34.9	36.4	34.4	38.3	34.4	141.9	145.0	143.6
E. N. Central	41.7	42.1	48.9	42.1	43.3	42.9	48.6	42.9	43.5	42.6	48.1	42.5	174.8	177.7	176.7
W. N. Central	24.0	23.7	27.6	24.0	25.1	24.6	27.9	24.4	25.3	24.4	27.5	24.1	99.3	101.9	101.4
S. Atlantic	70.8	77.3	89.6	75.3	75.1	82.5	92.6	77.1	75.7	81.8	91.5	77.1	313.1	327.4	326.1
E. S. Central	20.7	21.5	26.0	20.9	21.0	22.4	26.8	21.0	21.2	21.9	26.2	21.0	89.0	91.3	90.4
W. S. Central	42.4	50.5	58.7	49.5	46.7	51.7	62.1	51.6	47.7	51.1	61.1	51.9	201.0	212.1	211.8
Mountain	21.9	24.8	28.8	23.2	23.2	25.4	29.2	23.7	23.4	25.3	28.9	23.7	98.7	101.6	101.3
Pacific contiguous	35.2	35.3	43.1	39.6	37.7	37.9	44.7	40.2	38.0	37.7	43.4	39.5	153.2	160.5	158.6
AK and HI	1.3	1.3	1.3	1.4	1.3	1.3	1.4	1.4	1.3	1.3	1.4	1.4	5.3	5.4	5.4
Total	304.3	321.5	377.2	321.8	321.5	334.7	386.9	329.0	324.6	332.5	379.6	327.2	1,324.8	1,372.2	1,363.9
Industrial Sector															
New England	3.8	4.0	4.2	3.9	3.9	3.9	4.1	3.8	3.8	3.8	4.0	3.8	15.8	15.7	15.5
Middle Atlantic	17.6	17.9	19.4	18.1	17.5	18.2	19.5	18.5	17.9	18.5	19.5	18.4	73.1	73.7	74.3
E. N. Central	44.5	46.4	48.6	46.0	45.9	47.0	49.1	46.3	46.2	47.0	49.2	46.6	185.5	188.4	189.0
W. N. Central	23.0	24.2	26.0	24.6	24.0	24.8	26.6	24.8	24.5	24.7	26.3	24.7	97.9	100.2	100.2
S. Atlantic	33.4	35.9	38.2	36.1	36.3	37.4	39.1	36.8	36.9	37.6	39.2	37.0	143.7	149.7	150.8
E. S. Central	23.7	24.9	26.1	25.0	24.7	25.8	26.1	24.7	24.5	25.6	26.0	24.6	99.7	101.3	100.7
W. S. Central	44.1	49.7	54.3	51.5	49.8	53.4	53.9	53.1	51.4	55.7	56.4	55.3	199.7	210.1	218.8
Mountain	19.2	21.6	23.2	20.4	19.9	21.7	23.6	20.4	19.8	21.8	23.8	20.7	84.4	85.6	86.2
Pacific contiguous	18.2	20.9	23.1	20.4	19.0	21.0	23.4	20.0	18.5	20.4	22.4	19.1	82.5	83.5	80.4
AK and HI	1.1	1.2	1.2	1.2	1.1	1.2	1.2	1.2	1.1	1.2	1.2	1.2	4.6	4.7	4.7
Total	228.5	246.7	264.4	247.2	242.1	254.6	266.6	249.5	244.8	256.2	268.0	251.4	986.8	1,012.8	1,020.4
Total All Sectors (a)															
New England	28.5	26.6	31.7	26.5	29.2	26.3	32.1	26.6	28.9	26.2	29.9	26.3	113.4	114.3	111.2
Middle Atlantic	89.1	82.3	101.8	83.7	90.5	83.3	102.2	84.9	91.2	83.8	97.2	84.3	356.9	360.9	356.4
E. N. Central	136.4	131.7	154.0	131.3	140.3	133.8	151.8	133.7	140.2	132.2	150.0	133.7	553.4	559.6	556.1
W. N. Central	77.0	71.6	84.6	72.6	79.7	74.1	85.7	73.0	80.3	72.7	83.6	72.0	305.8	312.5	308.7
S. Atlantic	199.7	198.6	239.6	194.9	207.7	211.8	246.6	199.2	211.1	208.6	241.9	200.2	832.7	865.3	861.8
E. S. Central	77.8	71.8	87.8	71.9	78.4	76.0	90.2	72.6	79.7	74.6	88.1	72.7	309.2	317.1	315.1
W. S. Central	143.4	150.2	189.2	148.5	152.3	163.0	197.5	152.8	153.6	160.3	193.1	156.3	631.4	665.7	663.2
Mountain	64.9	73.3	87.3	66.0	67.3	73.4	88.4	67.2	67.4	72.6	86.9	67.7	291.4	296.3	294.5
Pacific contiguous	92.5	88.6	109.3	95.0	95.4	91.5	110.3	95.1	95.5	89.8	104.4	92.3	385.5	392.3	382.0
AK and HI	3.7	3.6	3.7	3.9	3.7	3.6	3.7	3.8	3.7	3.6	3.7	3.8	14.9	14.9	14.9
Total	913.0	898.2	1,089.1	894.3	944.5	936.9	1,108.5	909.0	951.5	924.3	1,078.8	909.2	3,794.5	3,898.8	3,863.9

(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 October 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 - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Residential Sector															
New England	21.38	21.34	21.43	21.95	23.93	24.31	23.58	25.16	27.63	27.94	26.62	27.51	21.51	24.19	27.40
Middle Atlantic	15.63	16.51	16.93	16.85	17.12	18.31	18.68	17.69	17.97	18.57	18.54	17.36	16.49	17.98	18.13
E. N. Central	13.39	14.50	14.14	14.48	14.22	15.51	15.78	15.36	14.95	16.18	16.29	15.46	14.10	15.21	15.72
W. N. Central	10.88	12.77	13.29	11.90	11.28	13.27	13.98	12.18	11.53	13.66	14.18	12.08	12.21	12.68	12.86
S. Atlantic	11.66	12.34	12.48	12.48	12.68	13.61	13.87	13.29	13.31	14.23	14.22	13.19	12.24	13.38	13.76
E. S. Central	11.20	12.24	11.99	12.02	11.97	13.09	13.38	12.59	12.53	13.35	13.32	12.50	11.83	12.78	12.93
W. S. Central	11.85	11.70	11.80	12.28	11.83	12.97	13.64	13.68	12.78	13.69	13.97	13.50	11.89	13.08	13.52
Mountain	11.53	12.09	12.33	12.27	12.14	12.86	13.15	12.76	12.50	13.25	13.43	12.90	12.08	12.78	13.06
Pacific	16.75	18.15	19.43	17.55	18.12	20.58	21.09	18.15	18.94	21.72	21.80	18.46	18.01	19.51	20.21
U.S. Average	13.10	13.84	13.99	13.97	13.98	15.08	15.44	14.86	14.76	15.81	15.78	14.87	13.72	14.86	15.32
Commercial Sector															
New England	16.31	15.96	16.78	16.89	18.54	17.56	17.45	18.04	19.97	18.83	18.50	18.63	16.49	17.88	18.98
Middle Atlantic	12.51	13.24	14.31	13.53	14.05	14.93	15.92	14.52	14.81	15.23	15.89	14.07	13.43	14.89	15.02
E. N. Central	10.40	10.70	10.66	10.92	11.08	11.85	11.80	11.67	11.82	12.40	12.06	11.61	10.67	11.60	11.97
W. N. Central	9.10	10.19	10.83	9.61	9.65	10.70	10.74	9.07	9.24	9.94	10.14	8.38	9.97	10.06	9.45
S. Atlantic	9.29	9.18	9.52	9.95	10.30	10.87	10.76	10.67	10.96	11.37	11.03	10.50	9.49	10.66	10.98
E. S. Central	10.98	11.24	11.27	11.26	11.69	12.20	12.64	12.24	12.47	12.76	12.97	12.27	11.19	12.22	12.64
W. S. Central	10.37	8.89	8.55	8.65	8.65	9.60	9.12	8.79	8.78	9.46	9.02	8.72	9.04	9.05	9.00
Mountain	9.11	9.76	10.20	9.59	9.56	10.31	10.79	9.93	9.85	10.54	10.98	10.00	9.70	10.19	10.38
Pacific	14.52	15.99	18.08	16.12	16.09	17.77	20.20	17.76	17.89	19.55	21.59	18.55	16.27	18.05	19.46
U.S. Average	10.99	11.07	11.59	11.37	11.63	12.34	12.70	12.06	12.31	12.81	12.93	12.00	11.27	12.21	12.53
Industrial Sector															
New England	13.50	12.99	13.71	14.13	15.14	15.21	15.49	15.18	15.89	15.75	15.84	15.35	13.58	15.26	15.71
Middle Atlantic	6.52	6.59	7.11	7.30	7.87	8.28	8.33	7.47	8.01	7.88	7.82	7.11	6.89	7.99	7.70
E. N. Central	6.97	6.97	7.38	7.70	7.72	8.55	8.57	8.09	8.07	8.45	8.42	8.00	7.26	8.24	8.24
W. N. Central	6.97	7.30	8.00	7.06	7.16	7.98	8.52	7.31	7.43	8.04	8.53	7.36	7.35	7.76	7.85
S. Atlantic	6.24	6.31	7.04	6.89	6.85	8.08	8.17	7.11	7.15	7.85	7.84	6.94	6.64	7.57	7.45
E. S. Central	5.75	5.86	6.27	6.26	6.35	7.36	7.66	6.65	6.62	7.21	7.46	6.52	6.04	7.02	6.96
W. S. Central	7.22	5.46	6.00	6.13	6.20	7.26	8.13	6.82	6.49	6.89	7.49	6.42	6.17	7.12	6.83
Mountain	6.27	6.63	7.39	6.54	6.59	7.27	7.99	6.74	6.71	7.30	7.99	6.72	6.74	7.18	7.22
Pacific	9.69	10.71	12.62	11.06	10.34	11.97	13.79	11.56	10.77	12.31	14.11	11.78	11.10	12.01	12.33
U.S. Average	7.09	6.92	7.62	7.38	7.42	8.40	8.93	7.80	7.72	8.26	8.69	7.65	7.26	8.16	8.09
All Sectors (a)															
New England	18.20	17.67	18.40	18.54	20.48	19.88	19.86	20.53	22.79	21.97	21.51	21.77	18.21	20.18	22.01
Middle Atlantic	12.57	12.98	14.00	13.37	14.07	14.67	15.59	14.13	14.72	14.80	15.31	13.74	13.26	14.65	14.67
E. N. Central	10.38	10.62	10.90	10.96	11.11	11.89	12.16	11.65	11.70	12.21	12.35	11.63	10.72	11.71	11.98
W. N. Central	9.16	10.07	10.86	9.50	9.53	10.65	11.23	9.49	9.56	10.50	11.07	9.22	9.92	10.25	10.11
S. Atlantic	9.91	10.01	10.50	10.46	10.79	11.56	11.79	11.13	11.38	11.95	11.97	10.99	10.23	11.34	11.60
E. S. Central	9.48	9.72	10.08	9.80	10.12	10.88	11.51	10.47	10.70	11.06	11.49	10.41	9.78	10.78	10.94
W. S. Central	9.99	8.69	9.13	8.93	9.01	10.03	10.72	9.64	9.43	9.97	10.51	9.40	9.17	9.91	9.87
Mountain	9.16	9.69	10.31	9.55	9.61	10.32	11.00	9.93	9.88	10.52	11.12	9.99	9.73	10.27	10.43
Pacific	14.50	15.52	17.45	15.55	15.75	17.42	19.17	16.59	16.92	18.65	20.04	17.10	15.83	17.30	18.22
U.S. Average	10.88	10.94	11.61	11.21	11.49	12.28	12.92	11.90	12.10	12.63	13.01	11.83	11.18	12.18	12.42

(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 October 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 - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
United States															
Natural Gas	319.3	345.7	453.9	354.7	337.9	365.1	488.7	352.9	340.9	336.9	431.5	337.2	1,473.6	1,544.7	1,446.5
Coal	230.0	203.8	280.9	178.1	217.5	189.1	243.2	187.0	195.0	170.3	243.2	172.9	892.8	836.9	781.4
Nuclear	198.4	186.6	202.8	190.4	195.6	184.3	201.7	191.3	193.9	187.7	207.3	197.8	778.2	772.9	786.8
Renewable Energy Sources:	197.9	207.3	183.3	206.6	235.5	247.1	208.5	214.5	242.2	272.8	225.8	231.7	795.2	905.7	972.4
Conventional Hydropower	68.7	65.8	60.7	63.8	76.5	70.8	64.8	56.7	69.1	78.6	64.5	60.1	259.0	268.7	272.4
Wind	97.0	96.1	76.8	108.8	119.5	121.7	89.7	118.5	127.4	128.1	95.1	123.0	378.6	449.4	473.7
Solar (a)	21.3	34.7	34.6	23.3	28.9	44.3	42.9	28.9	35.1	55.9	55.0	38.4	113.9	145.0	184.4
Biomass	7.2	6.8	7.2	6.7	6.7	6.5	7.1	6.4	6.6	6.3	6.8	6.4	27.9	26.7	26.1
Geothermal	3.8	3.9	4.0	4.0	3.9	3.8	4.1	4.1	3.9	3.8	4.3	3.9	15.7	16.0	15.9
Pumped Storage Hydropower	-1.1	-1.0	-1.8	-1.2	-1.2	-1.3	-1.8	-1.4	-1.2	-1.5	-1.8	-1.3	-5.1	-5.8	-5.9
Petroleum (b)	5.2	3.5	4.7	4.4	6.6	4.1	4.2	3.9	5.4	3.7	4.3	4.0	17.8	18.7	17.4
Other Gases	0.7	0.8	0.9	0.7	0.8	0.9	1.0	0.8	0.8	0.7	0.9	0.8	3.2	3.4	3.3
Other Nonrenewable Fuels (c)	1.8	1.8	1.8	1.8	1.6	1.6	1.7	1.8	1.5	1.6	1.6	1.7	7.2	6.6	6.3
Total Generation	952.2	948.5	1,126.6	935.5	994.2	990.9	1,147.2	950.8	978.5	972.2	1,112.7	944.7	3,962.8	4,083.1	4,008.1
New England (ISO-NE)															
Natural Gas	12.2	11.0	15.7	12.6	11.8	12.4	16.9	13.7	12.4	11.9	14.9	11.9	51.5	54.8	51.1
Coal	0.5	0.0	0.0	0.0	0.3	0.0	0.1	0.1	0.3	0.1	0.1	0.1	0.6	0.5	0.7
Nuclear	7.1	7.1	7.3	5.6	7.1	5.6	7.4	7.3	7.1	5.6	7.3	6.2	27.1	27.3	26.2
Conventional hydropower	1.7	1.5	1.5	1.5	1.7	1.4	1.0	1.7	2.0	2.2	1.2	1.8	6.3	5.9	7.2
Nonhydro renewables (d)	2.8	2.9	2.6	2.8	3.1	3.2	2.9	2.8	3.1	3.2	2.9	2.9	11.2	12.0	12.1
Other energy sources (e)	0.4	0.3	0.3	0.4	1.4	0.4	0.3	0.4	1.0	0.3	0.3	0.3	1.5	2.5	1.9
Total generation	24.7	22.9	27.6	23.1	25.4	23.0	28.6	25.9	25.9	23.4	26.7	23.2	98.2	102.9	99.2
Net energy for load (f)	29.4	27.0	32.5	27.6	30.2	26.0	32.9	28.5	30.1	27.9	32.2	28.7	116.4	117.5	118.9
New York (NYISO)															
Natural Gas	12.9	14.1	19.7	15.2	14.0	15.5	19.8	14.9	14.0	17.0	19.3	14.2	61.9	64.3	64.4
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nuclear	9.3	7.7	7.2	7.0	6.4	7.0	6.5	6.7	6.7	6.5	7.0	7.0	31.1	26.6	27.1
Conventional hydropower	6.9	6.8	6.9	7.2	7.1	6.6	6.5	6.8	7.1	7.2	7.3	7.5	27.9	27.0	29.1
Nonhydro renewables (d)	1.8	1.8	1.6	1.9	2.2	2.1	1.8	2.1	2.4	2.7	2.2	2.8	7.1	8.2	10.2
Other energy sources (e)	0.6	0.2	0.4	0.1	1.4	0.1	0.2	0.1	0.7	0.1	0.3	0.1	1.3	1.8	1.2
Total generation	31.5	30.6	35.8	31.4	31.0	31.4	34.7	30.7	30.9	33.6	36.0	31.6	129.3	127.8	132.1
Net energy for load (f)	36.6	34.7	42.8	34.9	37.6	34.0	43.2	36.3	37.2	35.8	41.6	35.5	149.0	151.1	150.1
Mid-Atlantic (PJM)															
Natural Gas	72.7	70.8	88.9	78.5	76.9	74.4	99.8	78.1	87.3	77.7	95.8	79.1	310.9	329.3	339.9
Coal	50.5	39.9	55.4	29.5	48.6	35.4	41.1	31.2	40.9	30.3	41.0	27.5	175.4	156.4	139.6
Nuclear	68.3	64.6	70.5	68.3	69.0	65.1	69.7	67.4	67.9	67.1	72.1	68.7	271.7	271.2	275.7
Conventional hydropower	2.6	2.3	2.2	2.2	2.6	2.2	1.3	2.0	2.6	2.6	1.7	2.1	9.3	8.2	9.1
Nonhydro renewables (d)	11.0	10.7	9.2	11.5	13.2	12.9	10.2	11.8	14.2	13.7	11.7	13.1	42.4	48.1	52.7
Other energy sources (e)	0.9	0.6	0.4	0.6	0.6	0.4	0.3	0.5	0.6	0.3	0.3	0.6	2.5	1.8	1.8
Total generation	206.0	188.9	226.7	190.6	211.0	190.4	222.4	191.1	213.5	191.8	222.5	191.1	812.1	814.9	818.9
Net energy for load (f)	194.5	177.6	215.3	182.9	200.9	180.1	211.1	190.1	202.8	183.9	207.6	185.5	770.2	782.2	779.8
Southeast (SERC)															
Natural Gas	57.6	57.2	73.2	64.3	64.1	67.5	83.2	60.2	60.4	56.8	71.5	63.0	252.3	275.0	251.7
Coal	36.3	33.7	44.3	23.3	32.3	32.8	35.8	28.1	30.2	28.5	42.7	27.7	137.7	128.9	129.2
Nuclear	53.8	52.2	54.1	52.0	51.4	51.1	55.5	52.3	52.5	53.9	58.1	59.0	212.2	210.3	223.5
Conventional hydropower	11.6	10.4	10.9	11.0	11.9	9.8	8.2	9.6	12.6	10.0	9.2	10.2	43.9	39.5	42.0
Nonhydro renewables (d)	3.9	5.7	5.4	4.1	5.0	7.0	6.4	5.1	5.7	7.9	7.2	5.8	19.1	23.5	26.6
Other energy sources (e)	0.0	-0.2	-0.5	-0.2	-0.2	-0.3	-0.5	-0.3	-0.2	-0.4	-0.6	-0.3	-0.9	-1.3	-1.6
Total generation	163.2	159.0	187.3	154.6	164.6	167.9	188.5	155.0	161.2	156.8	188.2	165.3	664.2	676.0	671.5
Net energy for load (f)	161.3	154.7	183.9	154.5	166.5	168.3	183.2	146.5	161.7	159.2	184.6	157.5	654.4	664.5	663.0
Florida (FRCC)															
Natural Gas	34.5	43.8	52.5	40.9	38.3	46.7	54.6	40.7	37.0	45.8	50.1	41.8	171.8	180.2	174.6
Coal	4.7	5.3	5.6	2.8	3.5	4.2	4.0	3.0	2.8	3.9	3.5	2.3	18.3	14.8	12.5
Nuclear	7.8	7.2	7.2	5.8	7.3	7.9	7.5	7.7	7.0	6.9	7.5	7.7	28.1	30.4	29.2
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)	2.4	3.1	2.9	2.6	2.9	3.7	3.6	2.9	3.7	5.3	4.6	3.6	11.0	13.1	17.2
Other energy sources (e)	0.8	0.7	0.7	0.6	0.7	0.6	0.7	0.7	0.7	0.6	0.7	0.7	2.8	2.7	2.8
Total generation	50.3	60.2	68.9	52.8	52.8	63.1	70.5	55.0	51.3	62.5	66.5	56.1	232.2	241.4	236.5
Net energy for load (f)	52.4	63.8	72.3	55.6	54.1	66.2	76.3	54.8	51.0	60.7	68.2	53.4	244.1	251.4	233.3

(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 October 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 - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Midwest (MISO)															
Natural Gas	35.4	41.1	50.2	43.1	41.8	47.3	56.7	42.5	39.7	46.7	50.8	41.6	169.7	188.3	178.8
Coal	69.7	60.1	83.2	54.7	64.5	54.0	73.2	57.7	58.9	52.9	71.4	51.0	267.7	249.4	234.2
Nuclear	23.6	22.6	25.2	24.4	23.8	19.6	24.3	23.4	22.3	21.1	24.3	20.9	95.7	91.1	88.6
Conventional hydropower	2.8	2.7	2.5	2.7	3.1	2.9	2.7	2.3	2.6	3.0	2.4	2.2	10.7	10.9	10.2
Nonhydro renewables (d)	24.1	23.1	18.5	27.3	31.8	28.7	20.4	28.7	34.2	30.5	22.0	30.0	93.1	109.6	116.8
Other energy sources (e)	1.8	1.3	1.7	1.7	1.3	1.6	1.4	1.3	1.5	1.4	1.4	1.4	6.4	5.6	5.6
Total generation	157.4	150.9	181.2	153.8	166.4	154.1	178.6	155.9	159.2	155.6	172.3	147.0	643.3	655.0	634.1
Net energy for load (f)	159.0	154.0	180.7	153.5	165.1	158.8	177.2	160.6	163.0	160.3	178.8	158.5	647.3	661.6	660.6
Central (Southwest Power Pool)															
Natural Gas	12.4	14.3	18.8	10.9	11.1	14.0	22.6	12.1	10.8	12.6	16.6	9.8	56.3	59.8	49.9
Coal	21.8	19.8	31.3	19.2	22.1	20.5	30.0	18.9	21.0	16.4	26.5	17.4	92.0	91.5	81.3
Nuclear	4.1	2.8	4.2	4.3	4.3	4.3	4.0	2.3	4.3	4.3	4.4	4.4	15.5	14.9	17.3
Conventional hydropower	4.2	3.9	3.6	3.9	4.6	4.1	3.8	3.1	3.9	4.7	4.2	3.5	15.5	15.7	16.3
Nonhydro renewables (d)	22.9	23.8	20.5	26.4	28.8	29.8	24.1	29.5	30.6	31.5	25.7	30.4	93.6	112.3	118.3
Other energy sources (e)	0.3	0.1	0.1	0.2	0.2	0.3	0.1	0.2	0.2	0.3	0.1	0.2	0.7	0.9	0.9
Total generation	65.7	64.7	78.5	64.7	71.2	73.0	84.7	66.1	70.9	69.9	77.5	65.6	273.6	295.1	284.0
Net energy for load (f)	65.5	65.5	78.5	62.0	68.0	69.5	84.3	63.0	67.1	65.8	76.8	60.8	271.6	284.7	270.5
Texas (ERCOT)															
Natural Gas	32.8	39.7	57.3	34.5	34.2	43.2	62.3	33.2	27.7	27.8	44.6	28.2	164.2	173.0	128.2
Coal	16.3	18.5	22.7	17.0	17.7	16.8	19.7	16.1	15.2	16.4	21.5	15.5	74.5	70.2	68.6
Nuclear	10.5	9.8	11.0	8.9	11.0	9.9	10.7	10.5	10.7	9.0	11.0	10.1	40.2	42.1	40.8
Conventional hydropower	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.6	0.5	0.6
Nonhydro renewables (d)	25.2	27.8	23.8	29.4	31.2	39.4	31.8	34.4	36.8	46.6	37.7	37.8	106.3	136.7	158.8
Other energy sources (e)	0.2	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.4	1.4	1.6	1.5
Total generation	85.2	96.2	115.3	90.4	94.6	109.9	125.0	94.7	90.9	100.3	115.3	92.0	387.1	424.2	398.6
Net energy for load (f)	85.2	96.2	115.3	90.4	94.6	109.9	125.0	94.7	90.9	100.3	115.3	92.0	387.1	424.2	398.6
Northwest															
Natural Gas	20.9	20.1	28.2	21.0	19.6	15.4	27.8	23.4	25.6	12.8	26.1	17.1	90.2	86.2	81.6
Coal	22.5	19.1	26.6	22.2	21.6	18.1	27.7	24.3	19.0	16.0	25.8	23.8	90.5	91.7	84.6
Nuclear	2.5	1.2	2.5	2.3	2.5	2.3	2.5	2.4	2.4	1.2	2.4	2.4	8.5	9.7	8.4
Conventional hydropower	33.8	31.0	25.7	30.4	39.3	36.0	34.4	27.1	32.9	39.6	30.1	27.8	121.0	136.8	130.5
Nonhydro renewables (d)	15.9	17.0	15.2	17.4	19.1	20.5	17.0	19.0	20.0	21.8	18.5	20.5	65.5	75.5	80.9
Other energy sources (e)	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.7	0.6	0.5
Total generation	95.8	88.7	98.5	93.5	102.2	92.5	109.5	96.2	100.1	91.6	103.1	91.6	376.4	400.4	386.4
Net energy for load (f)	89.7	85.9	97.7	89.7	87.9	86.7	102.8	90.2	91.6	86.5	95.9	87.9	363.0	367.7	361.9
Southwest															
Natural Gas	10.7	15.2	19.4	11.5	9.6	12.9	18.6	13.3	12.4	14.0	17.0	10.1	56.8	54.4	53.5
Coal	5.5	5.6	8.3	7.4	6.1	6.3	8.6	5.2	4.8	4.1	7.4	5.4	26.8	26.2	21.7
Nuclear	8.5	7.1	8.6	7.5	8.2	7.5	8.7	7.4	8.4	7.5	8.6	7.5	31.6	31.8	31.9
Conventional hydropower	2.0	2.3	1.9	1.5	1.9	2.0	1.8	1.6	1.7	2.1	2.0	1.6	7.7	7.2	7.5
Nonhydro renewables (d)	3.1	3.9	3.2	3.7	4.6	5.7	4.1	5.0	4.4	6.0	4.4	5.6	14.0	19.4	20.5
Other energy sources (e)	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.2	0.1
Total generation	29.8	34.2	41.5	31.6	30.4	34.4	41.9	32.5	31.7	33.8	39.5	30.2	137.1	139.2	135.2
Net energy for load (f)	20.6	26.4	33.2	22.5	21.2	26.9	34.5	22.0	21.4	26.1	33.2	22.1	102.6	104.6	102.7
California															
Natural Gas	16.7	17.9	29.4	21.6	15.8	15.4	25.9	20.0	12.9	13.0	24.2	19.7	85.6	77.2	69.9
Coal	1.8	1.4	3.0	1.4	0.5	0.7	2.5	2.0	1.4	1.2	2.8	1.9	7.6	5.7	7.2
Nuclear	2.9	4.2	5.0	4.3	4.6	4.1	5.0	3.7	4.6	4.7	4.6	4.1	16.5	17.4	18.0
Conventional hydropower	2.4	4.2	4.9	2.8	3.6	5.2	4.5	2.0	3.0	6.4	5.9	3.0	14.4	15.2	18.3
Nonhydro renewables (d)	15.5	21.2	19.2	15.2	16.7	22.8	21.1	16.2	17.4	24.3	23.7	18.5	71.1	76.8	84.0
Other energy sources (e)	-0.1	-0.1	0.0	-0.1	0.0	-0.2	0.1	-0.1	0.0	-0.2	0.1	-0.1	-0.2	-0.2	-0.2
Total generation	39.3	48.9	61.5	45.3	41.2	48.0	59.0	43.8	39.4	49.4	61.2	47.2	195.0	192.0	197.2
Net energy for load (f)	55.7	62.7	77.3	59.5	56.0	61.2	78.9	60.3	58.2	62.2	74.7	59.1	255.2	256.4	254.2

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

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

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

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

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

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

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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 - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Electric Power Sector															
Geothermal	0.034	0.035	0.035	0.035	0.034	0.033	0.036	0.036	0.034	0.034	0.038	0.034	0.138	0.140	0.140
Hydroelectric Power (a)	0.603	0.577	0.533	0.560	0.671	0.621	0.570	0.505	0.616	0.700	0.575	0.535	2.272	2.367	2.426
Solar (b)	0.189	0.309	0.308	0.207	0.257	0.394	0.382	0.257	0.313	0.498	0.490	0.342	1.014	1.291	1.642
Waste Biomass (c)	0.060	0.059	0.059	0.058	0.056	0.053	0.056	0.056	0.055	0.055	0.056	0.055	0.236	0.221	0.221
Wood Biomass	0.051	0.046	0.054	0.048	0.052	0.047	0.052	0.043	0.047	0.043	0.050	0.043	0.199	0.195	0.183
Wind	0.863	0.856	0.684	0.969	1.064	1.084	0.798	1.055	1.135	1.141	0.847	1.095	3.372	4.002	4.218
Subtotal	1.800	1.881	1.673	1.876	2.135	2.233	1.895	1.952	2.200	2.470	2.056	2.104	7.231	8.215	8.829
Industrial Sector															
Biofuel Losses and Co-products (d)	0.179	0.199	0.196	0.216	0.203	0.203	0.200	0.206	0.194	0.197	0.196	0.204	0.789	0.812	0.791
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)	0.007	0.011	0.011	0.007	0.008	0.011	0.012	0.008	0.009	0.012	0.012	0.009	0.036	0.039	0.042
Waste Biomass (c)	0.042	0.040	0.037	0.042	0.042	0.040	0.039	0.042	0.041	0.040	0.039	0.042	0.160	0.163	0.161
Wood Biomass	0.333	0.339	0.343	0.328	0.315	0.321	0.345	0.355	0.346	0.344	0.356	0.358	1.342	1.335	1.404
Subtotal (e)	0.568	0.596	0.595	0.602	0.576	0.583	0.604	0.619	0.597	0.602	0.612	0.621	2.361	2.382	2.432
Commercial Sector															
Geothermal	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.024	0.025	0.025
Solar (b)	0.028	0.042	0.042	0.028	0.033	0.049	0.049	0.034	0.039	0.057	0.058	0.041	0.140	0.165	0.195
Waste Biomass (c)	0.009	0.008	0.009	0.009	0.010	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.035	0.037	0.037
Wood Biomass	0.020	0.020	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)	0.070	0.085	0.086	0.072	0.077	0.093	0.093	0.078	0.083	0.101	0.102	0.085	0.313	0.340	0.371
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)	0.065	0.099	0.097	0.067	0.079	0.118	0.120	0.084	0.094	0.145	0.148	0.103	0.329	0.402	0.490
Wood Biomass	0.114	0.116	0.117	0.117	0.119	0.121	0.117	0.117	0.119	0.121	0.117	0.117	0.464	0.474	0.474
Subtotal	0.189	0.225	0.224	0.194	0.208	0.249	0.247	0.211	0.223	0.276	0.275	0.230	0.832	0.915	1.004
Transportation Sector															
Biodiesel, Renewable Diesel, and Other (g) ...	0.083	0.099	0.094	0.110	0.094	0.117	0.110	0.139	0.130	0.135	0.133	0.158	0.386	0.459	0.556
Ethanol (g)	0.242	0.281	0.285	0.289	0.259	0.281	0.274	0.280	0.257	0.279	0.279	0.284	1.098	1.094	1.099
Subtotal	0.326	0.379	0.379	0.400	0.353	0.397	0.391	0.419	0.387	0.414	0.412	0.442	1.484	1.560	1.656
All Sectors Total															
Biodiesel, Renewable Diesel, and Other (g) ...	0.083	0.099	0.094	0.110	0.094	0.117	0.110	0.139	0.130	0.135	0.133	0.158	0.386	0.459	0.556
Biofuel Losses and Co-products (d)	0.179	0.199	0.196	0.216	0.203	0.203	0.200	0.206	0.194	0.197	0.196	0.204	0.789	0.812	0.791
Ethanol (f)	0.253	0.293	0.298	0.302	0.271	0.293	0.287	0.293	0.269	0.292	0.292	0.296	1.147	1.143	1.149
Geothermal	0.050	0.052	0.052	0.052	0.051	0.051	0.054	0.053	0.051	0.051	0.055	0.051	0.206	0.209	0.208
Hydroelectric Power (a)	0.605	0.580	0.535	0.562	0.674	0.624	0.572	0.507	0.618	0.703	0.577	0.538	2.283	2.377	2.436
Solar (b)(f)	0.290	0.461	0.458	0.310	0.378	0.572	0.563	0.384	0.455	0.713	0.708	0.494	1.519	1.897	2.370
Waste Biomass (c)	0.110	0.107	0.106	0.109	0.107	0.102	0.105	0.107	0.105	0.104	0.104	0.106	0.431	0.421	0.419
Wood Biomass	0.519	0.520	0.535	0.513	0.507	0.509	0.535	0.536	0.533	0.528	0.544	0.539	2.087	2.087	2.144
Wind	0.863	0.856	0.684	0.969	1.064	1.084	0.798	1.055	1.135	1.141	0.847	1.095	3.372	4.002	4.218
Total Consumption	2.953	3.166	2.958	3.144	3.349	3.554	3.230	3.280	3.490	3.863	3.457	3.481	12.221	13.413	14.292

- (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 October 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 8b. U.S. Renewable Electricity Generation and Capacity
 U.S. Energy Information Administration | Short-Term Energy Outlook - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Renewable Energy Electric Generating Capacity (megawatts, end of period)															
Electric Power Sector (a)															
Biomass	6,133	5,970	5,943	5,933	5,925	5,925	5,870	5,868	5,840	5,874	5,874	5,874	5,933	5,868	5,874
Waste	3,673	3,652	3,641	3,631	3,622	3,623	3,567	3,566	3,537	3,571	3,571	3,571	3,631	3,566	3,571
Wood	2,461	2,318	2,303	2,303	2,303	2,303	2,303	2,303	2,303	2,303	2,303	2,303	2,303	2,303	2,303
Conventional Hydroelectric	78,469	78,525	78,527	78,527	78,544	78,544	78,545	78,576	78,580	78,607	78,633	78,643	78,527	78,576	78,643
Geothermal	2,483	2,483	2,483	2,483	2,483	2,500	2,539	2,539	2,564	2,564	2,564	2,564	2,483	2,539	2,564
Large-Scale Solar (b)	50,536	52,438	55,703	60,939	63,168	65,228	68,717	77,072	81,229	85,179	90,178	105,370	60,939	77,072	105,370
Wind	120,948	124,703	126,657	132,210	134,815	137,321	138,007	144,251	144,433	144,812	145,372	148,537	132,210	144,251	148,537
Other Sectors (c)															
Biomass	6,018	6,022	6,024	6,014	6,005	6,007	6,011	6,011	6,011	6,003	6,003	6,003	6,014	6,011	6,003
Waste	817	821	818	808	808	808	808	808	808	808	808	808	808	808	808
Wood	5,201	5,201	5,206	5,206	5,196	5,198	5,202	5,202	5,202	5,194	5,194	5,194	5,206	5,202	5,194
Conventional Hydroelectric	291	291	288	288	288	291	291	291	291	291	291	291	288	291	291
Large-Scale Solar (b)	474	476	516	538	556	566	569	589	591	599	644	644	538	589	644
Small-Scale Solar (d)	28,846	30,325	31,515	32,972	34,720	36,197	37,942	39,901	41,972	44,167	46,492	48,954	32,972	39,901	48,954
Residential Sector	18,023	19,102	20,039	21,022	22,260	23,446	24,728	26,133	27,628	29,224	30,926	32,740	21,022	26,133	32,740
Commercial Sector	8,734	9,086	9,300	9,728	10,220	10,496	10,913	11,406	11,921	12,456	13,015	13,599	9,728	11,406	13,599
Industrial Sector	2,089	2,137	2,176	2,223	2,240	2,256	2,301	2,362	2,424	2,487	2,551	2,615	2,223	2,362	2,615
Wind	120	120	120	122	122	122	122	122	122	122	122	122	122	122	122
Renewable Electricity Generation (billion kilowatthours)															
Electric Power Sector (a)															
Biomass	7.2	6.8	7.2	6.7	6.7	6.5	7.1	6.4	6.6	6.3	6.8	6.4	27.9	26.7	26.1
Waste	4.0	3.9	3.8	3.8	3.5	3.6	3.7	3.7	3.6	3.6	3.7	3.6	15.5	14.5	14.5
Wood	3.2	2.8	3.4	2.9	3.2	3.0	3.3	2.7	3.0	2.7	3.2	2.7	12.4	12.2	11.5
Conventional Hydroelectric	68.7	65.8	60.7	63.8	76.5	70.8	64.8	56.7	69.1	78.6	64.5	60.1	259.0	268.7	272.4
Geothermal	3.8	3.9	4.0	4.0	3.9	3.8	4.1	4.1	3.9	3.8	4.3	3.9	15.7	16.0	15.9
Large-Scale Solar (b)	21.3	34.7	34.6	23.3	28.9	44.3	42.9	28.9	35.1	55.9	55.0	38.4	113.9	145.0	184.4
Wind	97.0	96.1	76.8	108.8	119.5	121.7	89.7	118.5	127.4	128.1	95.1	123.0	378.6	449.4	473.7
Other Sectors (c)															
Biomass	6.9	6.8	7.1	6.8	6.7	6.8	7.1	6.8	6.7	6.8	7.1	6.8	27.6	27.4	27.4
Waste	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	2.8	2.8	2.8
Wood	6.2	6.1	6.4	6.1	5.9	6.1	6.4	6.1	5.9	6.1	6.4	6.1	24.8	24.5	24.5
Conventional Hydroelectric	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.2	1.2	1.2
Large-Scale Solar (b)	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.8	1.0	1.1
Small-Scale Solar (d)	9.8	14.7	14.5	10.0	12.0	17.7	17.8	12.4	14.3	21.6	22.0	15.3	49.0	59.9	73.3
Residential Sector	5.9	9.1	8.9	6.1	7.6	11.2	11.3	7.9	9.1	14.1	14.4	10.1	30.1	38.0	47.7
Commercial Sector	3.1	4.5	4.5	3.0	3.6	5.2	5.3	3.6	4.2	6.2	6.3	4.3	15.1	17.7	21.0
Industrial Sector	0.8	1.1	1.1	0.8	0.8	1.2	1.2	0.9	0.9	1.3	1.4	0.9	3.8	4.1	4.5
Wind	0.3	0.3	0.2	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.1	0.3	0.3

(a) Power plants larger than or equal to one megawatt in size that are operated by electric utilities or independent power producers.

(b) Solar thermal and photovoltaic generating units at power plants larger than or equal to 1 megawatt.

(c) Businesses or individual households not primarily engaged in electric power production for sale to the public, whose generating capacity is at least one megawatt (except for small-scale solar photovoltaic data, which consists of systems smaller than 1 megawatt).

(d) Solar photovoltaic systems smaller than one megawatt.

- = no data available

Notes: EIA completed modeling and analysis for this report on October 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 Electric Power Monthly, DOE/EIA-0226.

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 - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Macroeconomic															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR)	19,056	19,368	19,479	19,806	19,728	19,699	19,757	19,832	19,900	19,974	20,058	20,142	19,427	19,754	20,019
Real Personal Consumption Expend. (billion chained 2012 dollars - SAAR)	13,283	13,666	13,732	13,818	13,881	13,932	13,986	14,072	14,120	14,182	14,241	14,299	13,625	13,968	14,211
Real Private Fixed Investment (billion chained 2012 dollars - SAAR)	3,564	3,593	3,585	3,609	3,674	3,632	3,568	3,546	3,541	3,549	3,562	3,576	3,588	3,605	3,557
Business Inventory Change (billion chained 2012 dollars - SAAR)	-94	-174	-60	249	238	131	68	83	93	64	58	57	-20	130	68
Real Government Expenditures (billion chained 2012 dollars - SAAR)	3,391	3,374	3,382	3,359	3,334	3,319	3,313	3,327	3,354	3,367	3,379	3,392	3,376	3,323	3,373
Real Exports of Goods & Services (billion chained 2012 dollars - SAAR)	2,262	2,304	2,273	2,391	2,361	2,459	2,526	2,539	2,551	2,560	2,576	2,601	2,308	2,471	2,572
Real Imports of Goods & Services (billion chained 2012 dollars - SAAR)	3,488	3,549	3,590	3,741	3,906	3,933	3,885	3,914	3,937	3,928	3,940	3,965	3,592	3,909	3,943
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	17,219	15,807	15,641	15,462	15,152	15,130	15,156	15,252	15,655	15,698	15,837	15,994	16,032	15,173	15,796
Non-Farm Employment (millions)	143.7	145.2	146.9	148.6	150.4	151.6	152.7	153.4	153.6	153.7	153.7	153.6	146.1	152.0	153.6
Civilian Unemployment Rate (percent)	6.2	5.9	5.1	4.2	3.8	3.6	3.6	3.6	3.5	3.6	3.7	3.8	5.4	3.6	3.7
Housing Starts (millions - SAAR)	1.58	1.59	1.57	1.68	1.72	1.65	1.47	1.44	1.39	1.37	1.36	1.36	1.61	1.57	1.37
Industrial Production Indices (Index, 2017=100)															
Total Industrial Production	98.1	99.7	100.5	101.7	102.9	104.2	104.7	105.1	105.3	105.5	105.9	106.2	100.0	104.2	105.7
Manufacturing	96.9	98.3	99.2	100.6	101.5	102.5	102.6	102.8	102.9	103.2	103.6	103.9	98.8	102.4	103.4
Food	104.5	103.3	102.0	103.5	105.5	105.1	103.9	104.5	104.6	105.0	105.4	105.7	103.3	104.7	105.2
Paper	95.0	96.0	96.0	95.2	96.4	97.4	96.2	95.2	95.0	95.0	95.1	95.2	95.5	96.3	95.1
Petroleum and Coal Products	86.0	92.3	93.5	96.0	94.2	94.0	93.4	92.2	92.1	91.9	92.0	92.0	92.0	93.5	92.0
Chemicals	94.3	101.1	101.2	102.6	102.4	103.4	104.3	104.2	104.5	105.0	105.6	105.9	99.8	103.6	105.2
Nonmetallic Mineral Products	97.8	96.0	97.3	99.1	102.9	103.4	104.3	103.6	102.7	102.5	102.4	102.7	97.5	103.5	102.6
Primary Metals	93.0	96.6	98.3	98.7	95.6	97.5	96.9	96.5	97.2	97.9	98.9	99.5	96.6	96.6	98.4
Coal-weighted Manufacturing (a)	91.1	94.9	95.5	96.6	96.2	96.9	96.7	96.1	96.2	96.5	96.8	97.1	94.5	96.5	96.6
Distillate-weighted Manufacturing (a)	100.9	102.2	102.7	104.2	105.7	106.1	106.0	105.6	105.2	105.1	105.2	105.4	102.5	105.9	105.2
Electricity-weighted Manufacturing (a)	93.1	96.4	96.5	97.6	98.0	98.8	98.7	98.6	98.8	99.1	99.6	99.9	95.9	98.5	99.4
Natural Gas-weighted Manufacturing (a)	88.8	94.6	94.1	95.2	95.2	95.7	95.4	95.2	95.3	95.7	96.1	96.3	93.1	95.4	95.9
Price Indexes															
Consumer Price Index (all urban consumers) (index, 1982-1984=1.00)	2.64	2.69	2.73	2.78	2.85	2.92	2.96	2.99	3.01	3.02	3.04	3.07	2.71	2.93	3.04
Producer Price Index: All Commodities (index, 1982=1.00)	2.10	2.24	2.33	2.42	2.53	2.73	2.71	2.68	2.63	2.55	2.54	2.53	2.27	2.66	2.56
Producer Price Index: Petroleum (index, 1982=1.00)	2.00	2.36	2.55	2.72	3.16	4.20	3.55	3.05	2.90	2.85	2.83	2.82	2.41	3.49	2.85
GDP Implicit Price Deflator (index, 2012=100)	115.8	117.5	119.3	121.3	123.7	126.4	127.5	129.2	130.2	131.0	131.8	132.7	118.5	126.7	131.4
Miscellaneous															
Vehicle Miles Traveled (b) (million miles/day)	7,928	9,125	9,367	8,934	8,373	9,162	9,239	8,982	8,450	9,294	9,481	9,140	8,843	8,942	9,094
Air Travel Capacity (Available ton-miles/day, thousands)	537	597	658	667	656	686	733	699	680	700	733	722	615	694	709
Aircraft Utilization (Revenue ton-miles/day, thousands)	245	340	372	376	356	419	406	376	364	408	411	386	334	389	392
Airline Ticket Price Index (index, 1982-1984=100)	198.4	243.3	218.5	210.0	225.6	328.7	287.8	277.4	242.6	298.2	280.6	265.7	217.5	279.8	271.8
Raw Steel Production (million short tons per day)	0.246	0.258	0.267	0.260	0.253	0.253	0.263	0.289	0.302	0.302	0.320	0.338	0.258	0.265	0.315
Carbon Dioxide (CO2) Emissions (million metric tons)															
Petroleum	521	562	571	580	562	564	573	579	553	568	575	579	2,234	2,278	2,274
Natural Gas	485	353	373	426	508	372	390	444	498	356	372	441	1,637	1,714	1,667
Coal	256	229	307	210	245	216	278	217	222	198	270	204	1,002	956	894
Total Energy (c)	1,264	1,147	1,255	1,218	1,318	1,155	1,244	1,242	1,275	1,124	1,219	1,227	4,884	4,960	4,846

(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 October 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 9c. U.S. Regional Weather Data

U.S. Energy Information Administration | Short-Term Energy Outlook - October 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Heating Degree Days															
New England	3,012	779	83	1,920	3,139	786	137	2,159	3,142	866	139	2,165	5,795	6,221	6,312
Middle Atlantic	2,822	669	57	1,726	2,938	669	89	1,994	2,920	698	92	1,979	5,274	5,690	5,690
E. N. Central	3,085	708	69	1,887	3,270	754	137	2,265	3,176	748	129	2,222	5,749	6,425	6,275
W. N. Central	3,225	717	87	2,026	3,482	792	133	2,465	3,288	718	158	2,420	6,055	6,873	6,584
South Atlantic	1,347	213	10	800	1,344	189	27	957	1,396	202	15	959	2,370	2,518	2,572
E. S. Central	1,790	315	19	1,036	1,822	247	41	1,306	1,843	268	22	1,309	3,160	3,417	3,442
W. S. Central	1,296	121	1	497	1,348	58	5	786	1,202	92	5	815	1,916	2,197	2,114
Mountain	2,308	663	110	1,634	2,302	738	83	1,844	2,237	711	156	1,864	4,715	4,966	4,968
Pacific	1,559	482	78	1,206	1,388	606	51	1,246	1,555	599	95	1,227	3,323	3,291	3,476
U.S. Average	2,107	472	51	1,307	2,148	492	68	1,538	2,133	497	78	1,529	3,936	4,246	4,237
Heating Degree Days, Prior 10-year Average															
New England	3,133	855	107	2,100	3,100	852	107	2,103	3,151	858	108	2,112	6,195	6,163	6,229
Middle Atlantic	2,912	677	71	1,911	2,887	684	71	1,908	2,945	692	72	1,914	5,572	5,551	5,622
E. N. Central	3,157	731	104	2,170	3,133	727	97	2,162	3,215	741	97	2,172	6,161	6,119	6,226
W. N. Central	3,248	728	133	2,368	3,219	726	125	2,357	3,317	754	123	2,368	6,477	6,426	6,562
South Atlantic	1,395	181	11	916	1,380	187	11	906	1,401	190	12	902	2,503	2,484	2,505
E. S. Central	1,771	231	16	1,249	1,763	243	15	1,228	1,809	251	16	1,227	3,267	3,249	3,303
W. S. Central	1,140	86	3	786	1,145	93	3	754	1,190	96	3	761	2,015	1,995	2,049
Mountain	2,188	704	135	1,850	2,181	685	132	1,817	2,201	701	129	1,824	4,877	4,816	4,854
Pacific	1,461	553	81	1,147	1,454	522	79	1,136	1,438	522	76	1,144	3,242	3,192	3,180
U.S. Average	2,112	483	65	1,487	2,095	479	62	1,473	2,133	486	62	1,476	4,147	4,110	4,157
Cooling Degree Days															
New England	0	144	458	7	0	80	572	1	0	86	412	1	608	653	500
Middle Atlantic	0	182	625	23	0	153	691	4	0	152	529	4	830	849	685
E. N. Central	2	250	630	30	1	256	567	7	0	207	522	6	912	830	736
W. N. Central	8	312	748	23	3	305	739	10	3	256	660	10	1,092	1,057	928
South Atlantic	154	615	1,167	283	155	708	1,197	241	125	635	1,136	231	2,220	2,301	2,128
E. S. Central	40	434	1,016	126	29	600	1,086	67	27	482	1,014	62	1,615	1,781	1,585
W. S. Central	90	766	1,468	313	56	1,090	1,644	211	81	830	1,466	193	2,637	3,001	2,571
Mountain	10	529	964	68	17	471	982	76	17	415	901	73	1,571	1,545	1,407
Pacific	24	253	707	59	31	219	735	61	25	165	573	62	1,043	1,047	824
U.S. Average	50	410	902	127	46	465	945	97	43	388	836	92	1,489	1,553	1,360
Cooling Degree Days, Prior 10-year Average															
New England	0	80	474	1	0	87	472	2	0	87	480	2	555	561	570
Middle Atlantic	0	163	610	6	0	162	608	8	0	159	614	8	779	779	782
E. N. Central	3	234	572	7	3	238	571	9	1	234	562	10	816	821	807
W. N. Central	7	294	686	10	7	299	681	11	4	292	675	12	997	999	982
South Atlantic	143	679	1,194	260	147	668	1,188	269	144	675	1,192	274	2,276	2,272	2,285
E. S. Central	42	532	1,065	74	44	518	1,057	84	36	521	1,061	86	1,713	1,702	1,704
W. S. Central	114	881	1,568	210	113	853	1,536	224	101	860	1,546	227	2,772	2,725	2,734
Mountain	24	441	949	85	23	459	945	84	23	456	947	83	1,499	1,511	1,509
Pacific	31	193	648	86	31	208	665	86	32	214	673	84	959	989	1,002
U.S. Average	52	413	892	104	53	412	889	109	50	415	893	110	1,461	1,463	1,469

- = no data available

Notes: EIA completed modeling and analysis for this report on October 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 September 2022 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

	Aug 2022	Sept 2022	Aug 2022 – Sept 2022 Average	Aug 2021 – Sept 2021 Average	2019 – 2021 Average
Global Petroleum and Other Liquids (million barrels per day)					
Global Petroleum and Other Liquids Production (a)	101.5	101.8	101.6	96.6	96.6
Global Petroleum and Other Liquids Consumption (b)	99.3	99.8	99.5	98.5	96.6
Biofuels Production (c)	3.2	3.1	3.1	3.1	2.7
Biofuels Consumption (c)	2.6	2.6	2.6	2.6	2.6
Iran Liquid Fuels Production	3.6	3.6	3.6	3.5	3.2
Iran Liquid Fuels Consumption	2.0	1.9	1.9	1.8	1.9
Petroleum and Petroleum Products Produced and Consumed in Countries Other Than Iran (million barrels per day)					
Production (d)	94.7	95.1	94.9	90.0	90.7
Consumption (d)	94.8	95.3	95.0	94.2	92.2
Production minus Consumption	-0.1	-0.2	-0.1	-4.2	-1.5
World Inventory Net Withdrawals Including Iran	-2.1	-2.0	-2.1	1.9	0.0
Estimated OECD Inventory Level (e) (million barrels)	2,722	2,751	2,736	2,785	2,946
Surplus Production Capacity (million barrels per day)					
OPEC Surplus Crude Oil Production Capacity (f)	1.5	1.5	1.5	4.5	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.

Source: U.S. Energy Information Administration.

Table a2. Crude Oil and Petroleum Product Price Data

Item	Aug 2022	Sept 2022	Aug 2022 – Sept 2022 Average	Aug 2021 – Sept 2021 Average	2019 – 2021 Average
Brent Front Month Futures Price (\$ per barrel)	97.74	90.57	94.32	72.64	59.44
WTI Front Month Futures Price (\$ per barrel)	91.48	83.80	87.81	69.58	54.82
Dubai Front Month Futures Price (\$ per barrel)	97.24	90.38	93.97	71.04	58.86
Brent 1st - 13th Month Futures Spread (\$ per barrel)	9.84	10.23	10.03	5.35	1.80
WTI 1st - 13th Month Futures Spread (\$ per barrel)	8.71	8.32	8.52	5.22	1.37
RBOB Front Month Futures Price (\$ per gallon)	2.91	2.45	2.69	2.20	1.67
Heating Oil Front Month Futures Price (\$ per gallon)	3.59	3.41	3.51	2.13	1.75
RBOB - Brent Futures Crack Spread (\$ per gallon)	0.58	0.29	0.44	0.47	0.25
Heating Oil - Brent Futures Crack Spread (\$ per gallon)	1.27	1.25	1.26	0.40	0.34

(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.

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