



Short-Term Energy Outlook

Forecast highlights

Global liquid fuels

- The December *Short-Term Energy Outlook* (STEO) remains subject to heightened levels of uncertainty related to the ongoing recovery from the COVID-19 pandemic. Notably, the emergence of the [SARS-CoV-2 Omicron variant](#) raises uncertainty about the level of energy consumption throughout the world compared with last month's forecast. U.S. gross domestic product (GDP) declined by 3.4% in 2020 from 2019 levels. This STEO assumes U.S. GDP will grow by 5.5% in 2021 and by 4.4% in 2022. The U.S. macroeconomic assumptions in this outlook are based on forecasts by IHS Markit. The U.S. macroeconomic forecast and the global macroeconomic forecast from Oxford Economics were completed in mid-November before the Omicron variant was identified. In addition to uncertainty about macroeconomic conditions, winter weather along with the evolving effects of consumer behavior on energy demand because of the pandemic present a wide range of potential outcomes for energy consumption. Supply uncertainty in the forecast results from the production decisions of OPEC+ and with the rate at which U.S. oil and natural gas producers increase drilling.
- Brent crude oil spot prices averaged \$81 per barrel (b) in November, a \$3/b decrease from October 2021 but a \$38/b increase from November 2020. Crude oil prices have risen over the past year as result of steady draws on global oil inventories, which averaged 1.4 million barrels per day (b/d) during the first three quarters of 2021. Crude oil prices fell significantly on November 26, and the Brent spot price began December below \$70/b. The drop in prices followed the identification of the new COVID-19 Omicron variant, which raised the possibility that petroleum demand could decline in the near term.
- We expect Brent prices will average \$71/b in December and \$73/b in the first quarter of 2022 (1Q22). For 2022 as a whole, we expect that growth in production from OPEC+, of U.S. tight oil, and from other non-OPEC countries will outpace slowing growth in global oil consumption, especially in light of renewed concerns about COVID-19 variants. We expect Brent prices will remain near current levels in 2022, averaging \$70/b.
- We estimate that 99.7 million b/d of petroleum and liquid fuels was consumed globally in November, a 4.9 million b/d increase from November 2020 but 1.1 million b/d less than in November 2019. We revised down our forecast of consumption of petroleum

and liquid fuels for 4Q21 and 1Q22, partly as a result of recently announced travel restrictions following reported outbreaks of the Omicron variant of COVID-19. The potential effects of the spread of this variant are uncertain, which introduces downside risks to the global oil consumption forecast, particularly for jet fuel. We forecast that global consumption of petroleum and liquid fuels will average 96.9 million b/d for all of 2021, which is a 5.1 million b/d increase from 2020. We forecast that global consumption of petroleum and liquid fuels will increase by 3.5 million b/d in 2022 to average 100.5 million b/d.

- U.S. regular gasoline retail prices averaged \$3.39 per gallon (gal) in November, a 10 cents/gal increase from October and \$1.29/gal higher than in November 2020. The November monthly average was the highest since September 2014. We forecast that retail gasoline prices will average \$3.13/gal in December before falling to \$3.01/gal in January and \$2.88/gal on average in 2022.
- Total U.S. crude oil production was an estimated 11.7 million b/d in November. We forecast that it will rise to an average of 11.8 million b/d in 2022 and to an average of 12.1 million b/d in 4Q22.

Natural Gas

- In November, the natural gas spot price at Henry Hub averaged \$5.05 per million British thermal units (MMBtu), down from the October average of \$5.51/MMBtu but up from an average of \$3.25/MMBtu in the first half of 2021 (1H21). After rising in recent months, natural gas prices declined in November amid mild weather across much of the country that resulted in less natural gas used for space heating than expected. Decreased demand for natural gas also contributed to inventory levels moving closer to the five-year (2016–20) average. Global demand for U.S. liquefied natural gas (LNG) has remained high, limiting some downward pressure on natural gas prices.
- The Henry Hub spot price averages \$4.58/MMBtu from December 2021 through February 2022 in our forecast and then generally declines through 2022, averaging \$3.98/MMBtu in 2022 amid rising U.S. natural gas production and slowing growth in LNG exports. We forecast that U.S. inventory draws will be similar to the five-year average this winter, and we expect that factor, along with rising U.S. natural gas exports and relatively flat production through March, will keep U.S. natural gas prices near recent levels before downward price pressures emerge. Because of uncertainty around seasonal demand, we expect natural gas prices to remain volatile over the coming months, and winter temperatures will be a key driver of natural gas consumption and prices.
- We estimate that U.S. LNG exports averaged 10.7 billion cubic feet per day (Bcf/d) in November 2021, a 0.8 Bcf/d increase from October, supported by large price differences

between the Henry Hub price in the United States and spot prices in Europe and Asia. LNG exports resumed from Cove Point LNG in late October after that facility's annual maintenance was completed. In our forecast, LNG exports average 9.8 Bcf/d for all of 2021, a 50% increase from 2020. We expect that LNG exports will average 11.1 Bcf/d from December through March. We expect high levels of LNG exports to continue into 2022, averaging 11.5 Bcf/d for the year, a 17% increase from 2021. The forecast reflects our assumption that global natural gas demand remains high and [U.S. LNG export capacity increases](#).

- U.S. natural gas inventories ended November 2021 at more than 3.5 trillion cubic feet (Tcf), 3% less than the five-year average for this time of year. Less natural gas was injected into storage this summer than the previous five-year average, largely as a result of more electricity consumption in June because of hot weather, and because of increased exports. However, storage levels moved closer to average as injections outpaced the five-year average in September, October, and early November. We expect natural gas inventories to fall by 2.0 Tcf during the November-to-March withdrawal season, ending March below 1.7 Tcf, which would be 2% less than the 2017–21 average for that time of year.
- We estimate dry U.S. natural gas production averaged 96.1 Bcf/d in the United States in November, up 1.0 Bcf/d from the average in October. Production in November was up from an average of 91.9 Bcf/d in 1H21. Natural gas production in the forecast rises to an average of 95.3 Bcf/d during the rest of this winter (December–March) and averages 96.0 Bcf/d for all of 2022, driven by natural gas and crude oil price levels that we expect will be sufficient to support enough drilling to sustain production growth.

Electricity, coal, renewables, and emissions

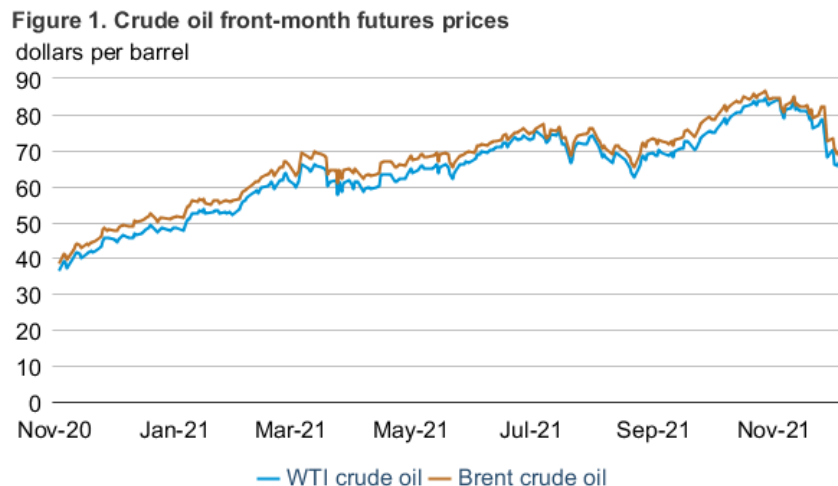
- We forecast that the share of electricity generation produced by natural gas in the United States will average 37% in 2021 and 35% in 2022, down from 39% in 2020. For 2021, the annual share for natural gas as a generation fuel declines in response to our expectation of a higher delivered natural gas price for electricity generators, which we forecast will average \$4.99/MMBtu compared with \$2.40/MMBtu in 2020. The natural gas share declines in 2022 as a result of continued high fuel costs and an increasing share of renewable generation. As a result of the higher expected natural gas prices, the annual forecast share of electricity generation from coal rises from 20% in 2020 to 23% in 2021 and then drops slightly to 22% in 2022. For renewable energy sources, new additions of solar and wind generating capacity have been offset somewhat by reduced generation from hydropower this year. As a result, we forecast that the share of all renewables in U.S. electricity generation will average 20% in 2021, about the same as last year, before rising to 22% in 2022. The nuclear share of U.S. electricity generation declines from 21% in 2020 to 20% in 2021 and 2022.

- We expect coal production to rise by 48 million short tons (MMst), or 9%, in 2021 and by an additional 38 MMst (6%) in 2022. The increase in production reflects more demand and higher prices for coal in the electric power sector because of higher natural gas prices this year compared with last year. Despite the increase in production, growth has not kept pace with rising domestic demand for steam coal in the electric power sector and export growth. As a result, [coal inventories](#) held by the electric power sector fall by an expected 51 MMst (38%) in 2021 and a further 10 MMst (13%) in 2022.
- Planned additions to U.S. wind and solar capacity in 2021 and 2022 increase electricity generation from those sources in our forecast. We estimate that the U.S. electric power sector added 14.6 gigawatts (GW) of [new wind capacity in 2020](#). We expect 17.2 GW of new wind capacity will come online in 2021 and 7.1 GW in 2022. Utility-scale solar capacity rose by an estimated 10.4 GW in 2020. Our forecast for added utility-scale solar capacity is 16.2 GW for 2021 and 20.9 GW for 2022. We expect significant [solar capacity additions in Texas](#) during the forecast period. In addition, in 2020, small-scale solar capacity (systems less than 1 megawatt) increased by 4.4 GW to 27.6 GW. In particular, Texas and Florida had [large increases of small-scale solar](#) capacity in 2020. We project that small-scale solar capacity will grow by 5.1 GW in 2021 and by 5.0 GW in 2022.
- U.S. energy-related carbon dioxide (CO₂) emissions [decreased by 11% in 2020](#) as a result of less energy consumption due to reduced economic activity and to end user responses to the COVID-19 pandemic. For 2021, we forecast energy-related CO₂ emissions will increase about 7% from 2020 as economic activity increases and leads to rising energy use. We expect a 1% increase in energy-related CO₂ emissions in 2022. We forecast that after declining by 19% in 2020, coal-related CO₂ emissions will rise by 17% in 2021 and then fall by 3% in 2022.

Petroleum and natural gas markets review

Crude oil

Prices: The front-month futures price for Brent crude oil settled at \$69.67 per barrel (b) on December 2, 2021, a decrease of \$15.04/b from the November 1 price of \$84.71/b. The front-month futures price for West Texas Intermediate (WTI) crude oil for delivery at Cushing, Oklahoma, decreased by \$17.55/b during the same period, settling at \$66.50/b on December 2 (Figure 1).



Source: Graph by EIA, based on CME Group and Intercontinental Exchange, as compiled by Bloomberg L.P.
Note: WTI=West Texas Intermediate

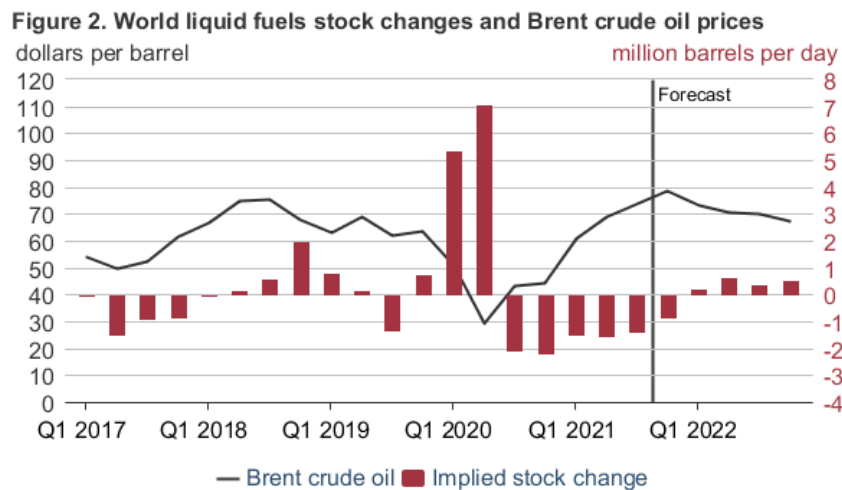
The front-month futures price for Brent crude oil decreased \$9.50/b (11.6%) on November 26 after the World Health Organization designated the [SARS-CoV-2 Omicron variant](#) as a *Variant of Concern*. The price decline reflected market expectations that oil consumption might fall in the coming months as a result of the Omicron variant. The one-day percentage decrease for Brent crude oil on November 26 was the largest since April 21 2020, and larger percentage decreases have occurred on only four days since 2000 (three of which were in March and April 2020, the other in September 2001). In comparison, [daily Brent crude oil prices typically change by less than 2%](#), and in 2021, prior to the price drop, the most the Brent crude oil price decreased in a single day was 6.9%.

Prior to the price decrease on November 26, crude oil prices were already lower than they were at the beginning of November, likely due to gradual increases in production from OPEC+ members and the United States and rising COVID-19 counts in Europe. These factors had already introduced additional uncertainty in oil demand forecasts, even before the Omicron variant was identified. High COVID-19 case counts in November have prompted [renewed mobility restrictions in Austria](#), [work-from-home mandates in Ireland](#) and [the Netherlands](#), and several other guidelines in [the rest of Europe](#). Although COVID-related concerns may have placed some

downward pressure on prices earlier in the month, prices remained above \$80/b throughout most of November as a result of the same trends that have caused prices to rise for much of 2021. Those trends include declining global petroleum stocks amid crude oil production restraint from OPEC+ and the potential for natural gas-to-oil [fuel switching](#) in parts of Asia and Europe.

Crude oil prices may have also experienced downward pressures in early November because of expectations that the United States and other countries would release strategic oil reserves. The United States announced the [release of 50 million barrels of crude oil from the Strategic Petroleum Reserve \(SPR\)](#) on November 23, and other nations also agreed to release reserves.

We estimate that world crude oil consumption has exceeded crude oil production for five consecutive quarters going back to the third quarter of 2020 (3Q20), which has resulted in persistent global petroleum stock withdrawals that have averaged 1.7 million barrels per day (b/d) over this period (**Figure 2**). These stock draws have contributed to consistent increases in crude oil prices in each of those quarters. We forecast stock draws will slow to 0.9 million b/d in 4Q21. With global oil stocks forecast to continue falling in December and with supply and demand moving into relative balance in 1Q22, we expect limited upward price pressure could emerge in the coming months. We forecast Brent spot prices will average \$73/b in 1Q22. In our forecast, global oil stocks rise by an average of 0.5 million b/d from 2Q22 through 4Q22, as production begins to increase faster than global demand. These stock builds should contribute to downward pressure on crude oil prices, and our Brent forecast averages \$71/b in 2Q22, \$70/b in 3Q22, and \$67/b in 4Q22.

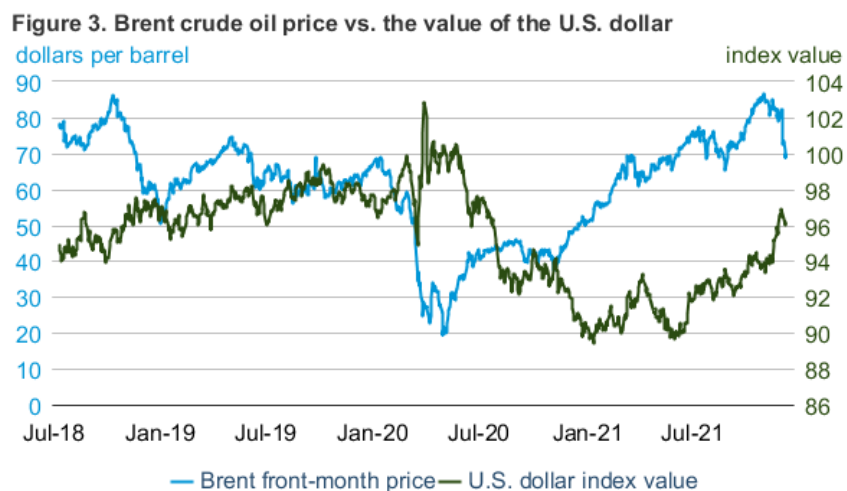


Source: U.S. Energy Information Administration

The Omicron variant has introduced additional uncertainty into oil markets for the coming months, and this uncertainty is reflected in the recent increase in oil price volatility. It is not yet clear how Omicron will affect oil markets and the broader economy. One of the most likely markets to be affected is jet fuel, and some flights have already been canceled because of the

variant. We expect global oil demand to rise by 3.5 million b/d in 2022. The forecast is subject to significant revisions.

Crude oil prices and the U.S. dollar index: The U.S. dollar index increased in November and developed a negative correlation with crude oil prices, which could reflect both reduced global economic growth expectations and financial flows from risky assets, such as commodities, into safer assets, such as U.S. Treasury bills. The U.S. dollar index measures the value of the U.S. dollar against the exchange rates of six currencies. The euro represents 58% of the currency weighting in the index, and the Japanese yen, British pound, Canadian dollar, Swiss franc, and Swedish krona make up the rest. The U.S. dollar index increased in November and reached 96.2 on December 2, which aside from a few days in late November was the highest since July 16, 2020 (**Figure 3**). The higher value of the U.S. dollar likely reflects increased demand for dollars as a financial safe haven as the euro has decreased in value, likely following increased COVID-19 case counts in Eurozone countries. The higher value of the dollar may also reflect expectations of higher U.S. interest rates, following announcements that the Federal Reserve will [reduce its monthly asset purchases](#).

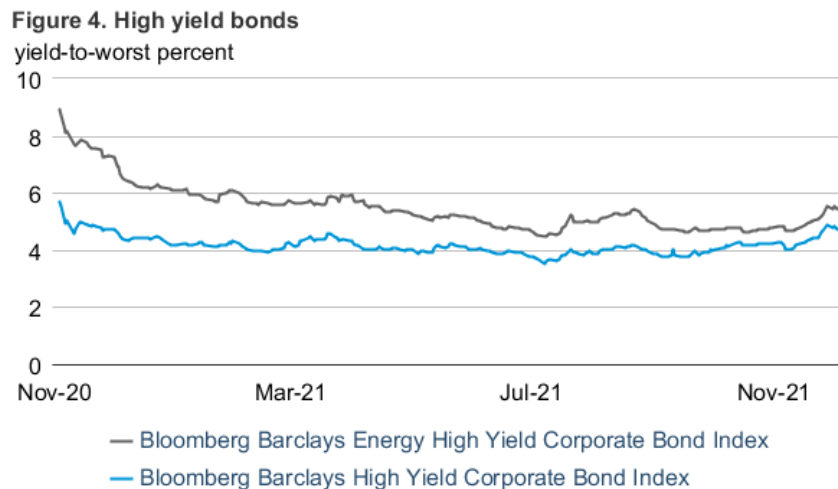



 Source: Graph by EIA, based on data from Intercontinental Exchange, as compiled by Bloomberg L.P.

Because Brent crude oil is priced in dollars, oil-importing countries that use a currency that has depreciated relative to the dollar have not experienced the full extent of falling crude oil prices. From November 1 to December 2, the price of Brent crude oil decreased \$15.04/b (17.8%). However, the euro fell by 2.6% compared with the U.S. dollar over the same period, meaning countries that use the euro have not experienced as steep of a relative price decrease in crude oil compared with countries that use the U.S. dollar or have currencies pegged to the dollar.

High yield bonds: Bond yields for companies with a credit rating lower than investment grade, called high yield bonds, were low for energy companies as well as broadly across all sectors in the first nine months of 2021. The lower yields reflected less default risk and reduced borrowing

costs for these companies. However, yields increased slightly in October and increased more substantially in November, particularly in the second half of the month, likely in response to some of the recent economic growth concerns and heightened market volatility. The Bloomberg Barclays Energy High Yield Corporate Bond Index’s yield-to-worst (YTW), which represents the minimum achievable yield on the bonds after accounting for early prepayment, increased to 5.43% as of December 2, 2021, and the broader high yield index increased to 4.71% (Figure 4). The low bond yields for exploration and production companies along with relatively high crude oil prices should result in an ample availability of funding to support the production increase in 2022. We forecast U.S. crude oil production will average 11.8 million b/d in 2022, a 0.7 million b/d increase from this year. Production in our forecast surpasses 12.0 million b/d in 4Q22.

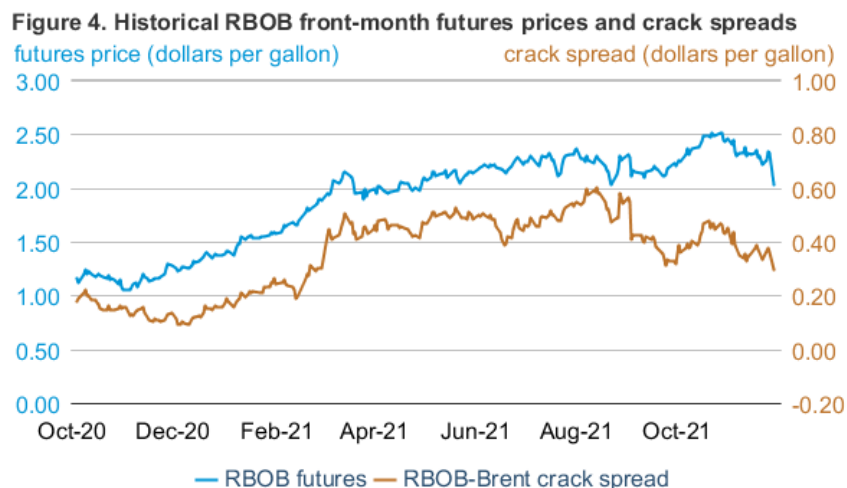


 Source: Graph by EIA, based on data from Barclays, as compiled by Bloomberg L.P.

Recent declines in crude oil prices and heightened volatility increase the risk of some oil producers’ ability to repay principal and interest on their debt. Furthermore, recent increases in interest rates likely reflect some market expectations for tighter monetary policy, which would also affect high yield bonds. Despite the recent increase in yields, the energy high yield bond index has narrowed to an average of 0.61% higher than the broad high yield index in November. Also, despite the recent increase in yields, bond yields for exploration and production companies remain relatively low.

Petroleum products

Gasoline prices: The front-month futures price of RBOB (the petroleum component of gasoline used in many parts of the country) settled at \$1.97 per gallon (gal) on December 2, a 44 cents/gal decrease from November 1 (Figure 5). The RBOB–Brent crack spread (the difference between the price of RBOB and the price of Brent crude oil) decreased by 8 cents/gal to settle at 31 cents/gal during the same period. The average RBOB–Brent crack spread in November was 36 cents/gal, a 7 cents/gal decrease from October.

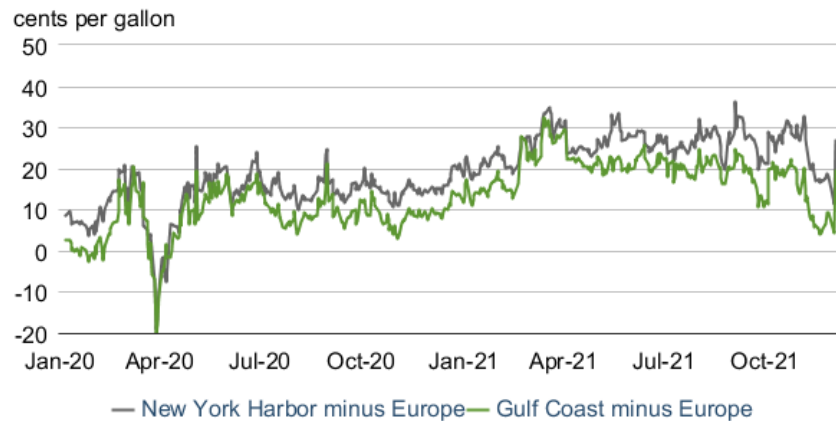


Source: Graph by EIA, based on data from CME Group, as compiled by Bloomberg L.P.
 Note: RBOB is the petroleum component of gasoline used in many parts of the country.

The front-month RBOB price in November averaged \$2.28/gal for the month, a 14 cent/gal decrease from October. The decrease partly reflects a decline in U.S. gasoline consumption, which fell by 0.3 million barrels per day (b/d) from October to 8.9 million b/d in November. Lower demand, combined with increased refinery production, contributed to an overall increase in gasoline inventories in the United States of almost 3.4 million barrels from October. The RBOB price decreased to \$1.98/gal at the end of November, a 43 cents/gal decrease from November 1, primarily reflecting lower crude oil prices. The gasoline crack spread in late November similarly decreased to just under 30 cents/gal, its lowest level since February 2021. The decrease in RBOB prices and the crack spread likely reflected market expectations that responses to the Omicron variant could reduce demand.

Gasoline price differentials to Europe: In mid-November, U.S. gasoline spot price differentials to Europe narrowed to 17 cents/gal at New York Harbor (NYH) and 4 cents/gal at the U.S. Gulf Coast (USGC)—the smallest difference since 2020. Spreads in NYH narrowed further to 11 cents/gal at the end of November (**Figure 6**). The narrowing spreads occurred as a drop in U.S. gasoline demand coincided with increased petroleum product prices in Europe. Higher prices in Europe likely reflect increased refining costs because of higher natural gas prices, along with higher-than-average gasoline demand since July. Gasoline crack spreads in Europe have been increasing compared with the five-year average since early October, during a period when they would normally be decreasing because of colder weather and lower seasonal demand. The rising prices in Europe have contributed to the mid-November decline in differentials to U.S. prices and to decreased U.S. imports of gasoline. According to our [Weekly Petroleum Status Report](#), the rolling four-week average of U.S. gasoline imports decreased from 949,000 b/d during the week ending October 1 to 588,000 b/d during the week ending November 5, a 38% decline.

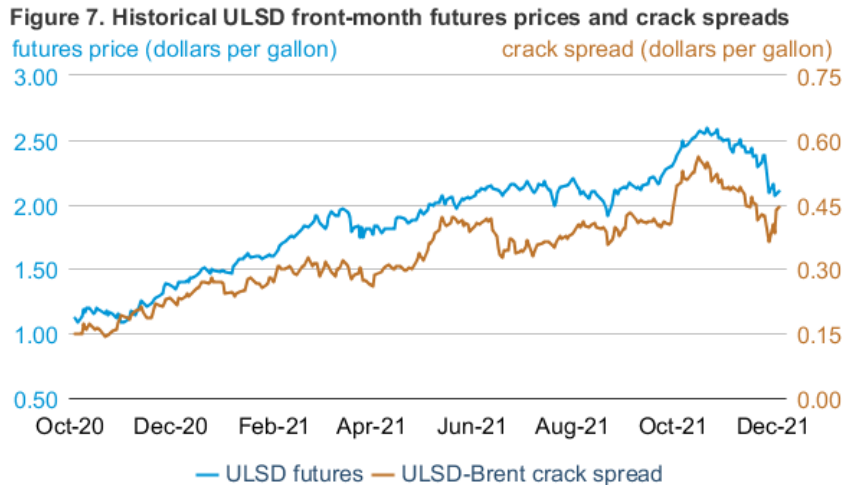
Figure 6. Gasoline spot price differentials, United States and Europe (Jan 2020–Nov 2021)



Source: Graph by EIA, based on data from Bloomberg L.P.

After the U.S. gasoline premiums narrowed for much of the past month, they widened during early December amid market volatility and uncertainty over the demand impact from the Omicron variant.

Ultra-low sulfur diesel prices: The front-month futures price for ultra-low sulfur diesel (ULSD) for delivery in New York Harbor settled at \$2.10/gal on December 2, a 40 cents/gal decrease from November 1 (**Figure 7**). The ULSD-Brent crack spread (the difference between the price of ULSD and the price of Brent crude oil) decreased 4 cents/gal during the same period and settled at 44 cents/gal on December 2.



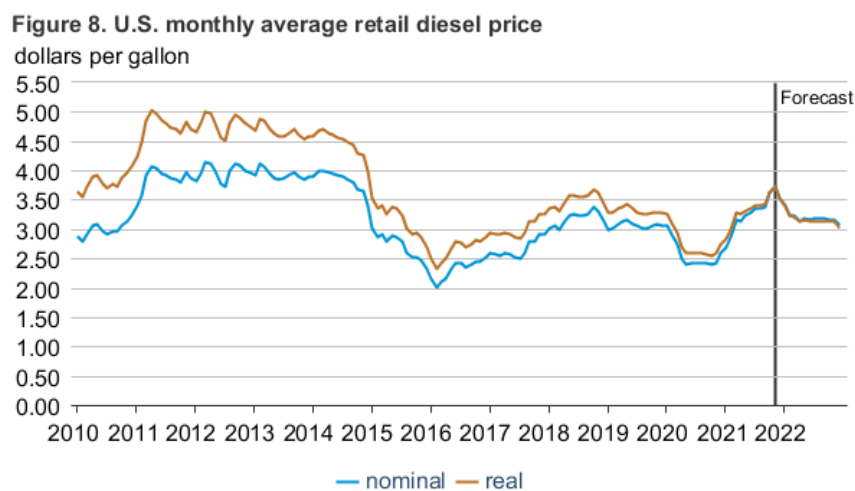
Source: Graph by EIA, based on data from CME Group, as compiled by Bloomberg L.P.
Note: ULSD=ultra-low sulfur diesel

The ULSD–Brent crack spread in November averaged 45 cents/gal, down 7 cents/gal from October’s average but up 25 cents/gal from November 2020. Recent changes in crude oil prices

caused by concerns about the Omicron variant increased volatility in the crack spread, which decreased 6 cents/gal on November 26 (the largest single-day decrease since April 2020) and then increased 7 cents/gal through December 1. We estimate that U.S. distillate consumption increased by 0.1 million b/d (2.8%) from October to 4.2 million b/d in November, more than the five-year average but just below 2019 levels. U.S. distillate production increased from October as refineries came back from maintenance, but it remained below the five-year average.

Our recent [Weekly Petroleum Status Report](#) data show that lower-than-average distillate production and relatively high distillate demand resulted in continued inventory drawdowns, mainly in the Midwest (PADD 2). In the Northeast (PADDs 1A and 1B), where heating oil is used as a primary source of home heating, inventories remained relatively flat, likely mild because of temperatures in October and November. Inventories in the Northeast have been at least 20% below average since mid-May.

Retail diesel prices: The average retail price for on-highway diesel in November was \$3.73/gal, \$1.30/gal (53%) higher than in November 2020. Compared with levels before the COVID-19 pandemic, prices are 66 cents/gal (21%) higher than at the same time in 2019 (**Figure 8**). Rising crude oil prices are the [primary driver](#) of U.S. diesel prices, making up 52% of the total cost to produce a gallon of diesel in October 2021. Diesel serves as an input cost to other sectors of the economy, such as trucking, where rising diesel prices have contributed to [freight rates](#) increasing 36% year over year as of October. Although the November price was the highest since September 2014 in nominal terms, adjusting for inflation shows that recent prices are nearly the same [in real terms](#) as prices in 2018, but lower than prices in 2014. Compared with November 2014, November 2021 nominal prices are 2% higher, but in real terms they are 12% lower. We forecast nominal diesel prices will decline from December 2021 and average \$3.19/gal in 2022.

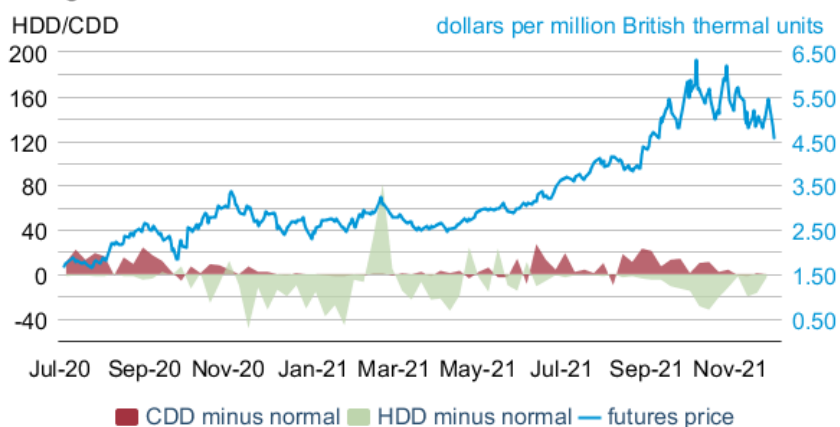


Sources: U.S. Energy Information Administration and FRED

Natural Gas

Prices: The front-month natural gas futures contract for delivery at the Henry Hub settled at \$4.06 per million British thermal units (MMBtu) on December 2, 2021, down \$1.13 cents/MMBtu from November 1, 2021 (**Figure 9**). The average closing price for front-month natural gas futures in November was \$5.12/MMBtu, the highest November monthly average in real terms since November 2009.

Figure 9. Natural gas front-month futures prices and actual minus historical average HDD and CDD

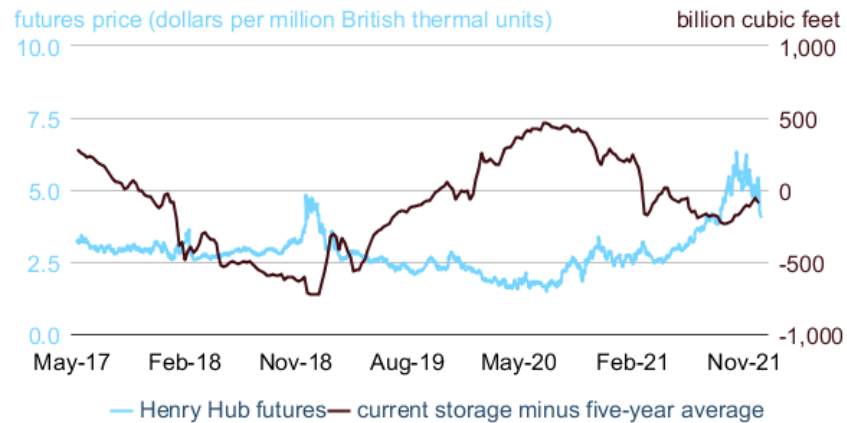


Sources: CME Group and National Oceanic and Atmospheric Administration, as compiled by Bloomberg L.P.
 Note: HDD=heating degree days, CDD=cooling degree days.

Mild weather throughout November and forecasts for a warm start to December have contributed to a decline in natural gas futures prices. As weather gets colder, consumption of natural gas typically increases in the residential and commercial sectors for space heating. However, November 2021 was relatively warm; the United States experienced 479 heating degree days (HDDs), 38 fewer than the November 2011–20 average of 517 HDDs. Milder temperatures affected demand for natural gas in the residential and commercial sectors. We estimate that combined residential and commercial natural gas consumption was 26.7 billion cubic feet per day (Bcf/d) in November, 1.0 Bcf/d less than the five-year (2016–20) average.

Less-than-average natural gas consumption in the residential and commercial sectors in November resulted in natural gas storage levels increasing against their five-year average (**Figure 10**). U.S. natural gas storage typically experiences a net draw during November. Injections often continue through mid-November, but those injections are usually more than offset by draws in the second half of the month. We estimate that U.S. working natural gas inventories decreased by 103 Bcf during November, which was 3.5% less than the five-year average inventory change for that time. At the end of the month, we estimate that storage inventories totaled 3,540 Bcf, which was 3.0% below the five-year average.

Figure 10. U.S. natural gas front-month futures prices and current storage deviation from five-year average



eia Source: Graph by EIA, based on data from CME Group, as compiled by Bloomberg L.P.

The spread between international and domestic natural gas prices remained high in November and contributed to high demand for U.S. liquefied natural gas (LNG) exports. International LNG spot and forward prices established records during the first week of October in northern Asia and Europe. They remained high throughout November. U.S. LNG exports averaged 10.7 Bcf/d in November, or approximately 104% of total nameplate LNG export capacity. We forecast LNG exports will [continue to increase](#) between December 2021 and late 2022 as a result of the optimization of operations at Cheniere’s Sabine Pass and Corpus Christi terminals; the completion of Train 6 at Sabine Pass LNG, which [started producing LNG in November](#); and the completion of a new LNG terminal at Calcasieu Pass, Louisiana. We forecast LNG exports will average 11.1 Bcf/d from December 2021 to February 2022, with exports above 11 Bcf/d in each month during that period. If those levels are reached, December would be the first month on record in which U.S. LNG exports are more than 11 Bcf/d.

Historical volatility: Volatility of U.S. natural gas futures prices has risen in the past three months (**Figure 11**). Historical volatility measures the magnitude of daily changes in closing prices for a commodity during a given time in the past. Based on rolling front-month contracts, the 30-day historical volatility of U.S. natural gas futures prices was 29.8% for April through August of this year. In September, volatility rose to 49.4%, compared with the 2015–19 September average of 30.6%. In October, volatility once again rose to 78.3%, compared with the 2015–19 October average of 32.7%. In November, historical volatility averaged 85.0%, compared with the 2015–19 November average of 53.7%. During November, daily front-month prices for intraday natural gas futures contracts ranged as high as \$5.88/MMBtu on November 4, and as low as \$4.48/MMBtu on November 30.

Figure 11. Natural gas historical volatility
annualized percentage



eia Source: Graph by EIA, based on data from Bloomberg L.P.

We forecast the Henry Hub spot price will average \$4.50/MMBtu in December, \$4.64/MMBtu in January, and \$4.61/MMBtu in February. These prices are lower than we forecast last month. We expect U.S. working natural gas in storage to end March at 1,659 Bcf, which is 36 Bcf higher than forecast last month. However, this forecast is highly uncertain as reflected in the recent price volatility. Weather, which is a significant source of uncertainty in this forecast, will continue to be a key indicator of price formation this winter.

Notable forecast changes

- The December STEO forecast incorporates the latest updates to EIA’s *International Energy Statistics*, including historical petroleum consumption and production data for all non-OECD countries for 2019 and updated 2020 petroleum consumption data for several of the largest consuming countries. These historical data updates resulted in us lowering supply and consumption data for 2019 and 2020, and lowering total supply and consumption forecasts through 2022. We made the most significant revisions to data for Argentina, Brazil, Russia, and Hong Kong for 2019 and 2020. We also made additional revisions to a number of data series from 2000 to 2019 that resulted in lower values for consumption, which were offset by nearly equivalent reductions to refinery gains for most countries. These changes to historical data are reflected in our forecast.
- We forecast natural gas spot prices at Henry Hub will average \$4.58/MMBtu in 1Q22, compared with a forecast of \$5.24/MMBtu in the November STEO. The lower forecast reflects our expectation that U.S. natural gas inventories will finish the withdrawal season at the end of March at a higher level than previously expected.

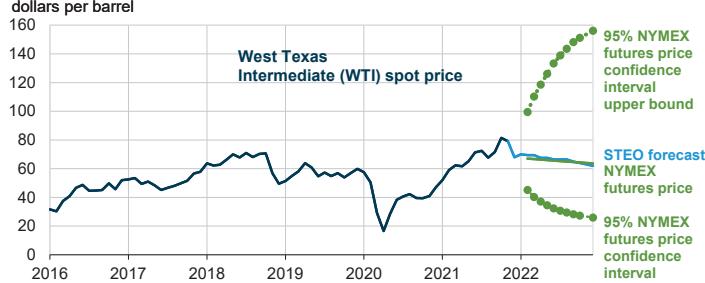
This report was prepared by the U.S. Energy Information Administration (EIA), the statistical and analytical agency within the U.S. Department of Energy. By law, EIA's data, analyses, and forecasts are independent of approval by any other officer or employee of the U.S. Government. The views in this 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



December 7, 2021

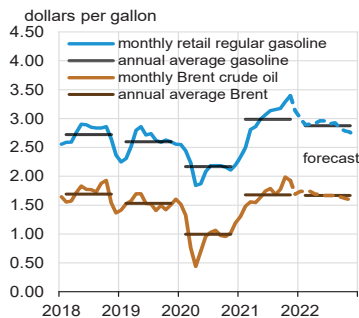
West Texas Intermediate (WTI) crude oil price and NYMEX confidence intervals



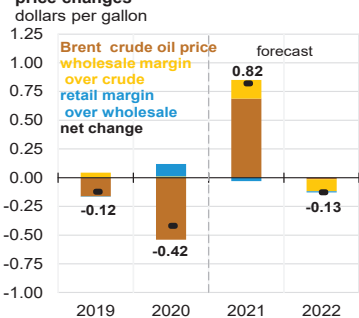
Note: Confidence interval derived from options market information for the five trading days ending Dec 2, 2021. Intervals not calculated for months with sparse trading in near-the-money options contracts.
Sources: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021, CME Group, Bloomberg, L.P., and Refinitiv an LSEG Business



U.S. gasoline and crude oil prices



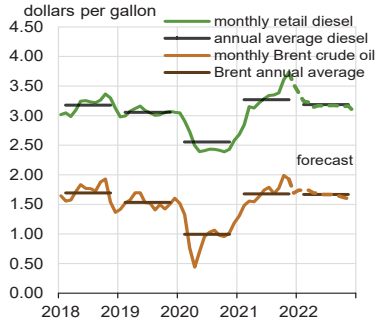
Components of annual gasoline price changes



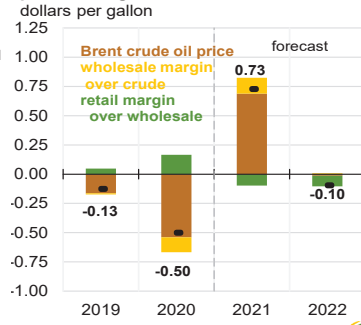
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021, and Refinitiv an LSEG Business



U.S. diesel and crude oil prices



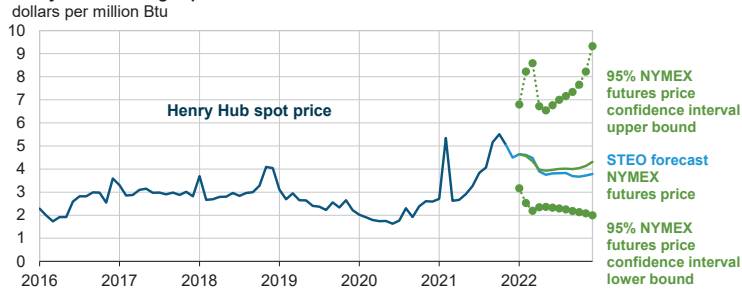
Components of annual diesel prices changes



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021, and Refinitiv an LSEG Business



Henry Hub natural gas price and NYMEX confidence intervals



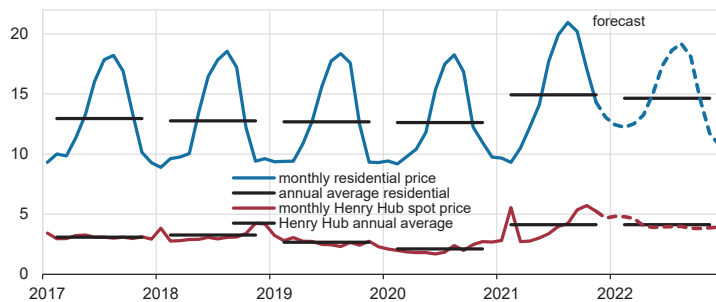
Note: Confidence interval derived from options market information for the five trading days ending Dec 2, 2021. Intervals not calculated for months with sparse trading in near-the-money options contracts.

Sources: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021, CME Group, and Refinitiv an LSEG Business



U.S. natural gas prices

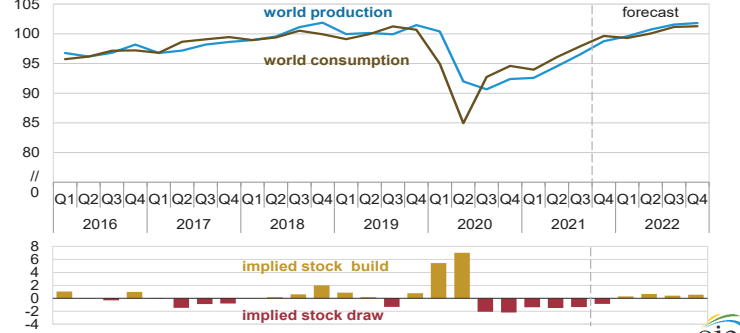
dollars per thousand cubic feet



Sources: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021, and Refinitiv an LSEG Business



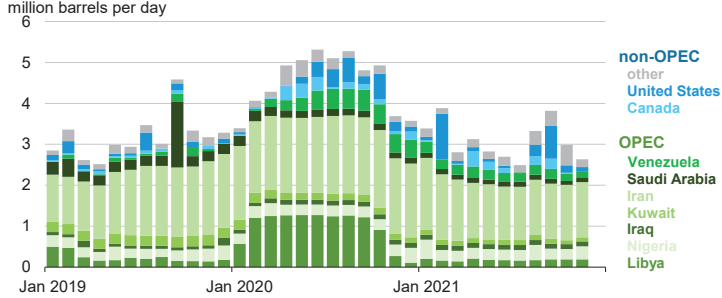
World liquid fuels production and consumption balance
million barrels per day



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



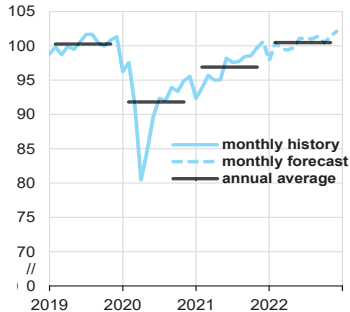
Estimated unplanned liquid fuels production outages among OPEC and non-OPEC producers
million barrels per day



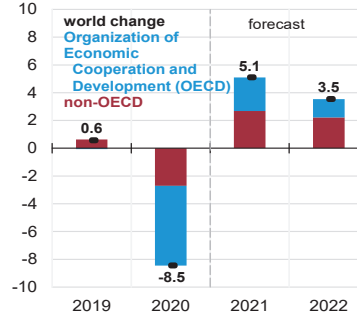
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



World liquid fuels consumption
million barrels per day



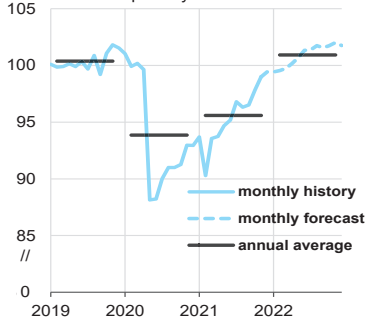
Components of annual change
million barrels per day



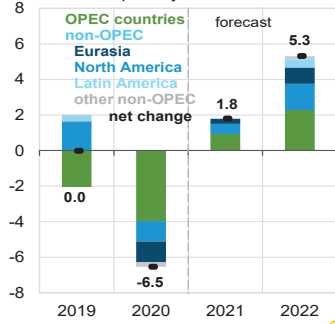
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



World crude oil and liquid fuels production
million barrels per day



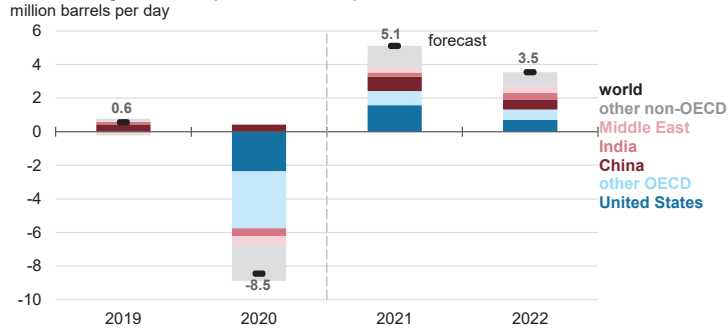
Components of annual change
million barrels per day



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



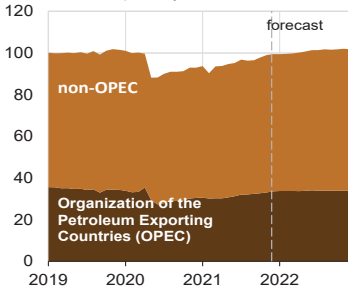
Annual change in world liquid fuels consumption
million barrels per day



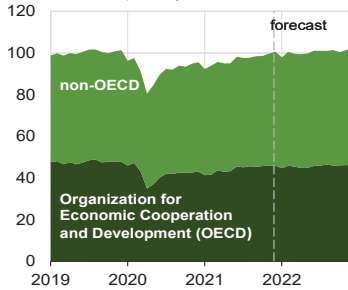
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



World liquid fuels production
million barrels per day



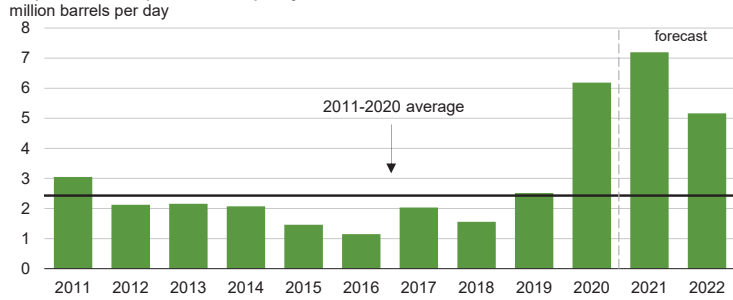
World liquid fuels consumption
million barrels per day



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



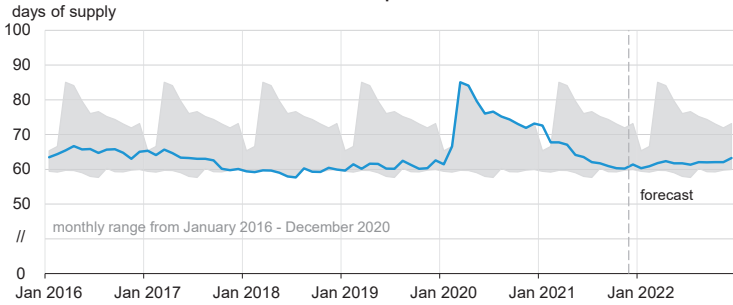
**Organization of the Petroleum Exporting Countries (OPEC)
surplus crude oil production capacity**



Note: Black line represents 2011-2020 average (2.4 million barrels per day).
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



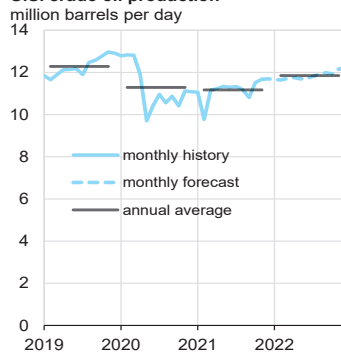
**Organization for Economic Cooperation and Development (OECD)
commercial inventories of crude oil and other liquids**



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021

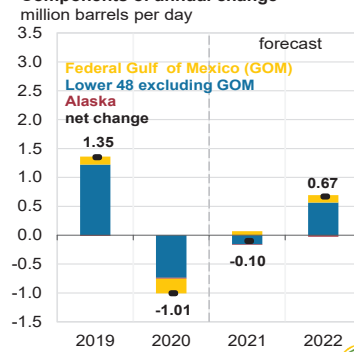


U.S. crude oil production

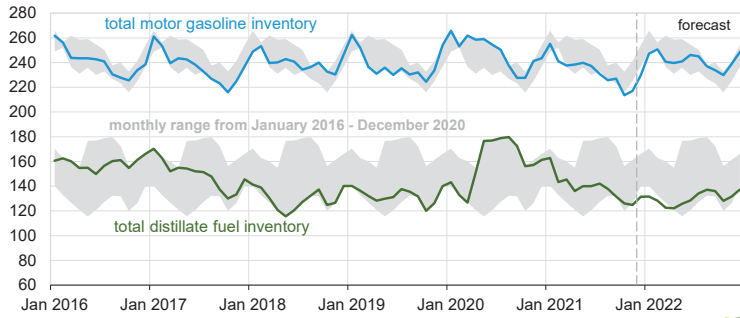


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021

Components of annual change



U.S. gasoline and distillate inventories
million barrels

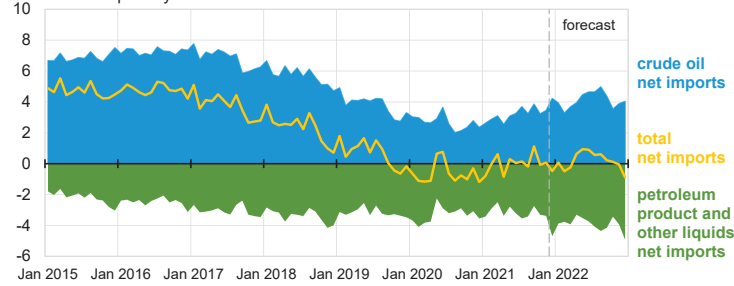


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



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

million barrels per day



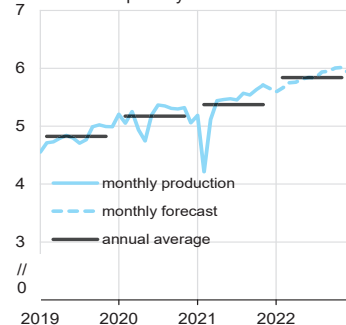
Note: Petroleum product and other liquids include: gasoline, distillate fuels, hydrocarbon gas liquids, jet fuel, residual fuel oil, unfinished oils, other hydrocarbons/oxygenates, and other oils.

Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



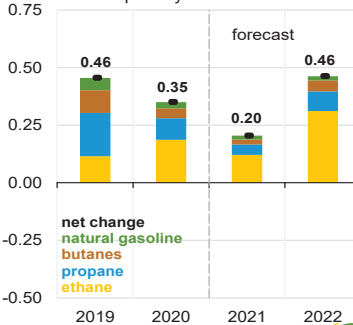
U.S. natural gas plant liquids production

million barrels per day



Components of annual change

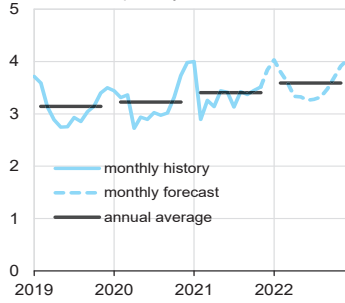
million barrels per day



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021

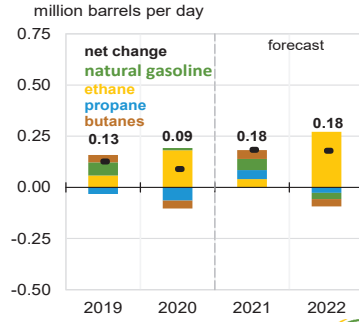


U.S. hydrocarbon gas liquids product supplied (consumption)
million barrels per day

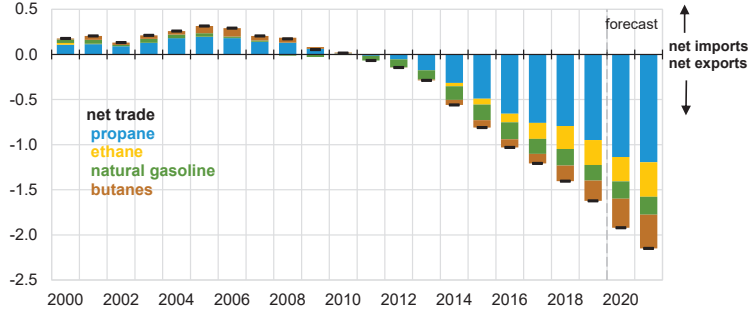


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021

Components of annual change



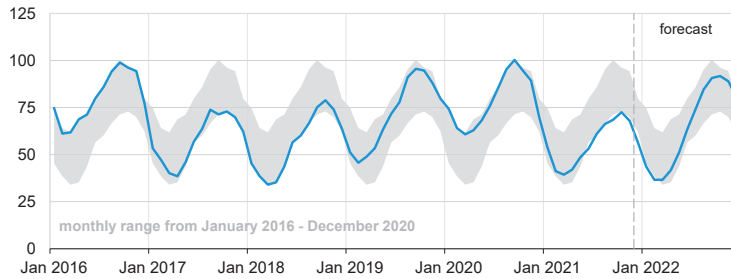
U.S. net trade of hydrocarbon gas liquids (HGL)
million barrels per day



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



U.S. commercial propane inventories
million barrels

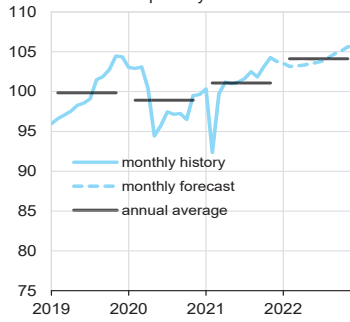


Note: Excludes propylene.

Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



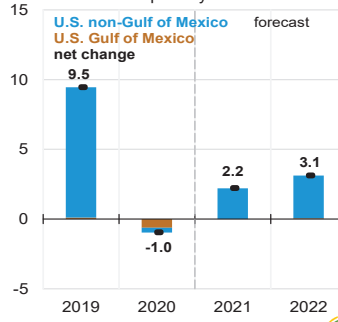
U.S. marketed natural gas production
billion cubic feet per day



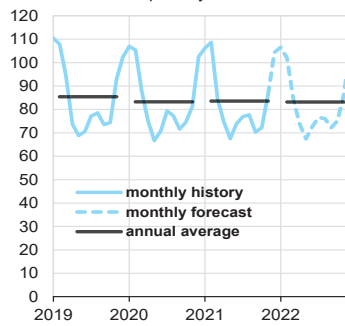
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



Components of annual change
billion cubic feet per day



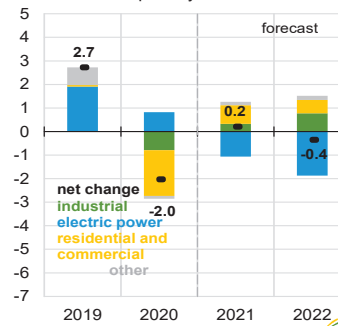
U.S. natural gas consumption
billion cubic feet per day



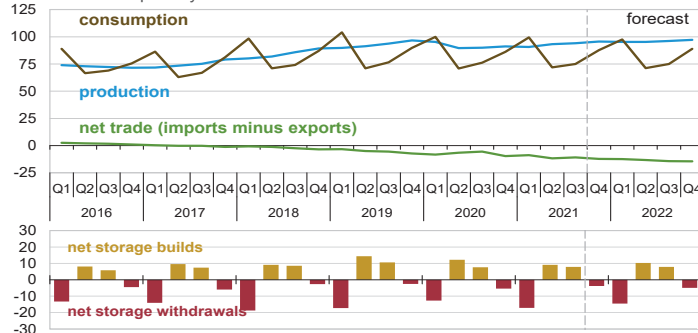
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



Components of annual change
billion cubic feet per day



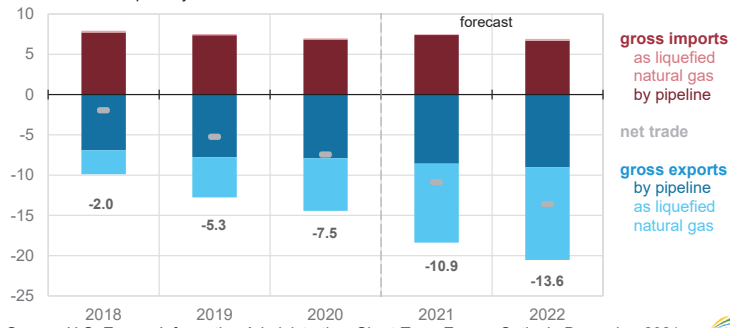
U.S. natural gas production, consumption, and net imports
billion cubic feet per day



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



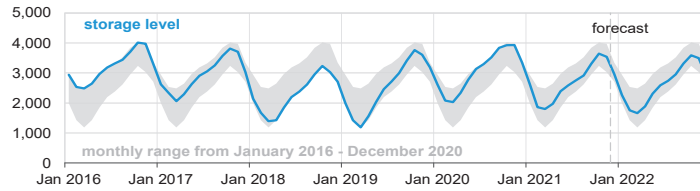
U.S. annual natural gas trade
billion cubic feet per day



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



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



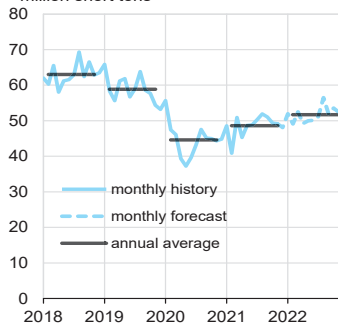
Percent deviation from 2016 - 2020 average



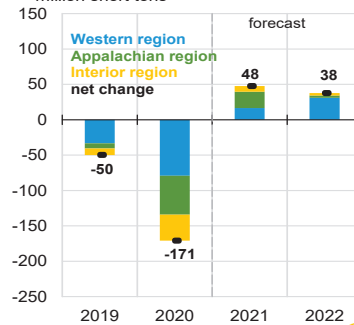
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



U.S. coal production
million short tons



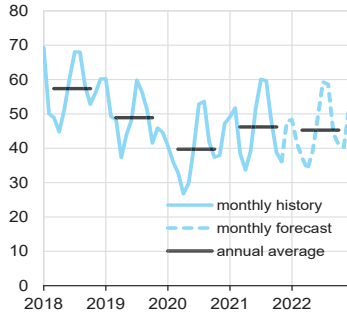
Components of annual change
million short tons



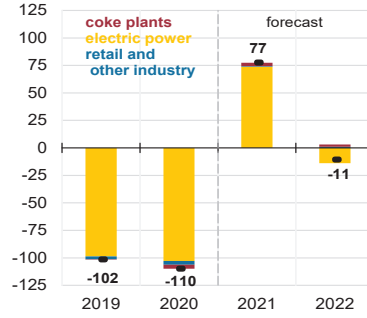
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



U.S. coal consumption
million short tons



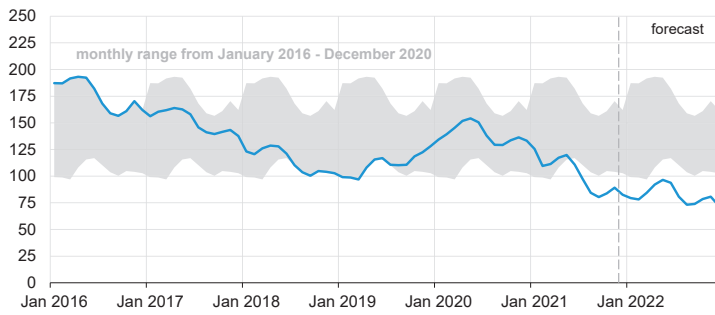
Components of annual change
million short tons



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



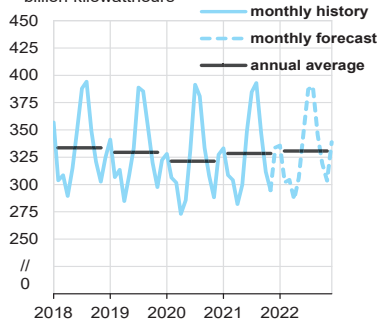
U.S. electric power coal inventories
million short tons



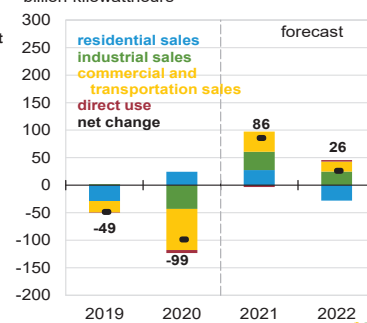
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



U.S. electricity consumption
billion kilowatthours



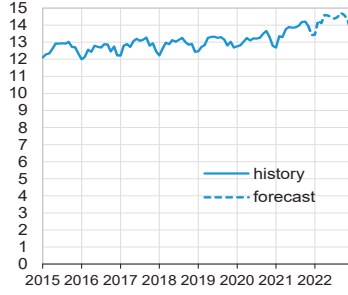
Components of annual change
billion kilowatthours



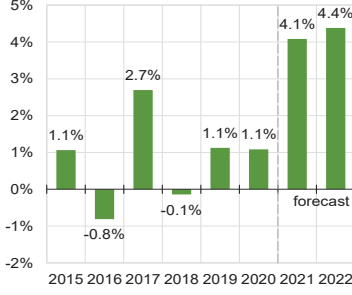
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



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



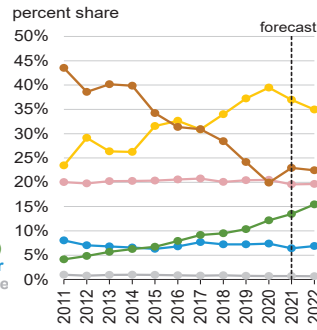
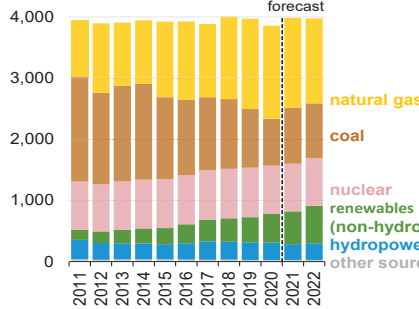
Annual growth in nominal residential electricity prices
percent



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



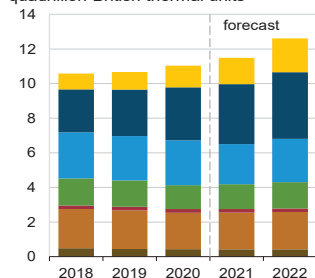
U.S. electricity generation by source, all sectors
billion kilowatthours



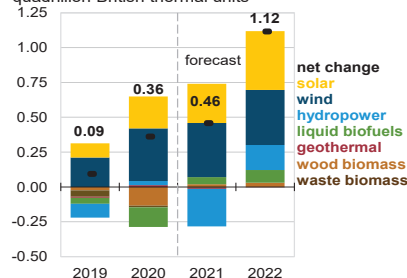
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



U.S. renewable energy supply
quadrillion British thermal units



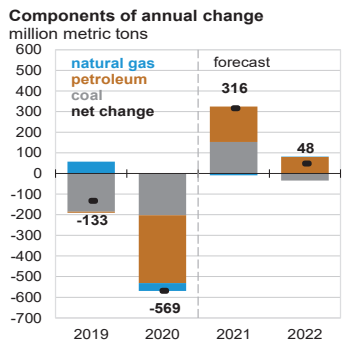
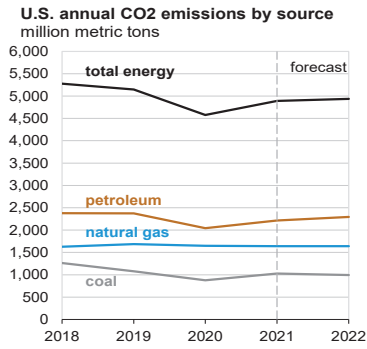
Components of annual change
quadrillion British thermal units



Note: Hydropower excludes pumped storage generation. Liquid biofuels include ethanol and biodiesel. Other biomass includes municipal waste from biogenic sources, landfill gas, and other non-wood waste.

Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



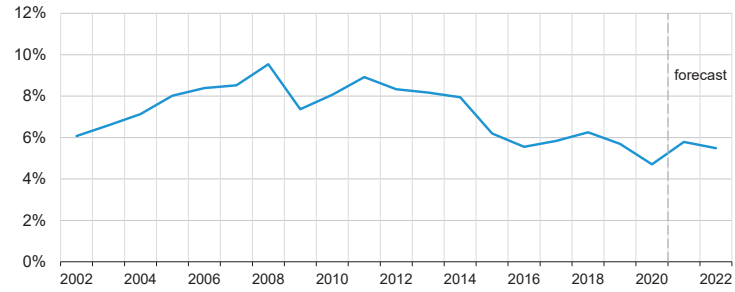


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



U.S. annual energy expenditures

share of gross domestic product

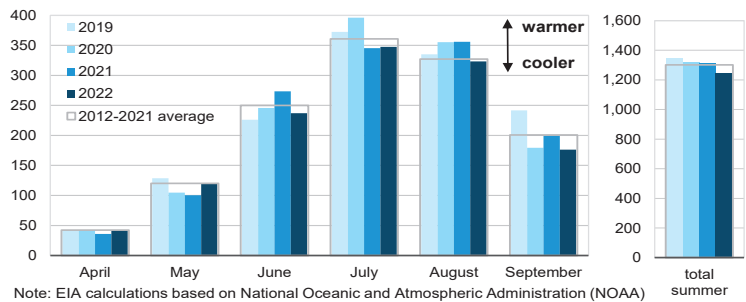


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



U.S. summer cooling degree days

population-weighted

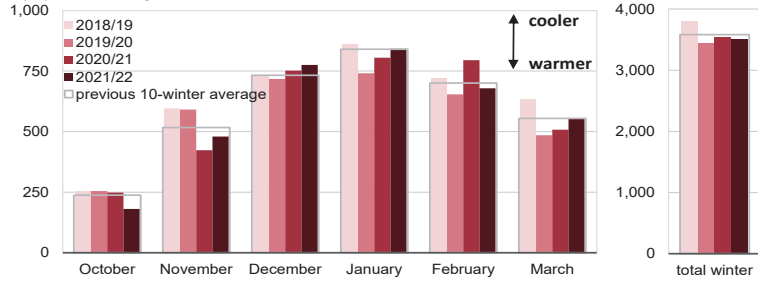


Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Projections reflect NOAA's 14-16 month outlook.

Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



U.S. winter heating degree days
population-weighted

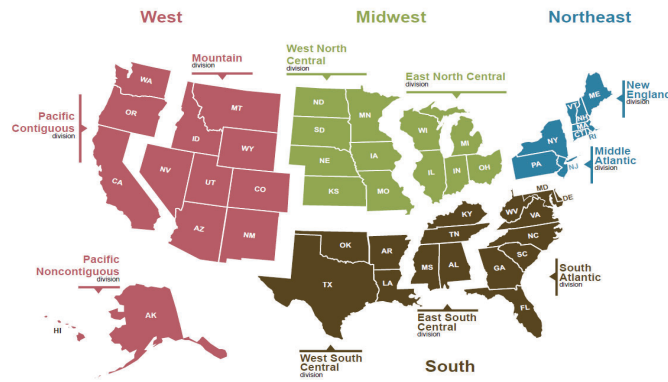


Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Projections reflect NOAA's 14-16 month outlook.

Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



U.S. Census regions and divisions



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



Table 1. U.S. Energy Markets Summary

U.S. Energy Information Administration | Short-Term Energy Outlook - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Energy Production															
Crude Oil Production (a) (million barrels per day)	12.81	10.67	10.79	10.87	10.69	11.28	11.11	11.63	11.67	11.72	11.91	12.09	11.28	11.18	11.85
Dry Natural Gas Production (billion cubic feet per day)	95.29	89.57	89.99	91.14	90.62	93.20	94.01	95.59	95.22	95.35	96.10	97.21	91.49	93.37	95.97
Coal Production (million short tons)	149	116	136	134	140	143	153	147	154	149	160	158	535	583	621
Energy Consumption															
Liquid Fuels (million barrels per day)	19.50	16.07	18.45	18.72	18.45	20.03	20.21	20.35	19.79	20.43	20.86	20.80	18.19	19.77	20.47
Natural Gas (billion cubic feet per day)	99.89	70.83	76.16	86.21	99.39	71.94	75.05	87.67	97.47	71.25	74.99	88.88	83.26	83.46	83.10
Coal (b) (million short tons)	110	96	148	122	139	125	168	123	127	122	162	133	477	554	543
Electricity (billion kilowatt hours per day)	10.29	9.78	12.02	10.04	10.51	10.23	12.23	10.22	10.47	10.34	12.21	10.45	10.53	10.80	10.87
Renewables (c) (quadrillion Btu)	2.91	3.00	2.83	2.89	2.95	3.17	2.92	3.11	3.27	3.53	3.23	3.28	11.64	12.15	13.31
Total Energy Consumption (d) (quadrillion Btu)	25.21	20.63	23.47	23.82	25.05	23.16	24.37	24.53	25.13	23.37	24.67	25.25	93.13	97.11	98.41
Energy Prices															
Crude Oil West Texas Intermediate Spot (dollars per barrel)	45.34	27.96	40.89	42.50	58.09	66.19	70.61	75.96	69.66	67.15	66.01	62.98	39.17	67.87	66.42
Natural Gas Henry Hub Spot (dollars per million Btu)	1.91	1.71	2.00	2.53	3.56	2.94	4.36	5.02	4.58	3.82	3.78	3.73	2.03	3.97	3.98
Coal (dollars per million Btu)	1.92	1.91	1.93	1.91	1.91	1.92	2.03	2.03	2.04	2.04	2.03	2.02	1.92	1.98	2.03
Macroeconomic															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR)	18,952	17,258	18,561	18,768	19,056	19,368	19,465	19,675	19,915	20,150	20,363	20,518	18,385	19,391	20,236
Percent change from prior year	0.6	-9.1	-2.9	-2.3	0.5	12.2	4.9	4.8	4.5	4.0	4.6	4.3	-3.4	5.5	4.4
GDP Implicit Price Deflator (Index, 2012=100)	113.4	113.0	114.0	114.6	115.8	117.5	119.2	120.2	121.2	121.8	122.3	122.9	113.7	118.2	122.0
Percent change from prior year	1.7	0.7	1.3	1.5	2.1	4.1	4.6	4.9	4.6	3.6	2.6	2.2	1.3	3.9	3.2
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	14,963	16,520	15,783	15,443	17,219	15,740	15,513	15,275	15,265	15,411	15,571	15,659	15,677	15,937	15,476
Percent change from prior year	1.6	12.5	6.9	4.0	15.1	-4.7	-1.7	-1.1	-11.3	-2.1	0.4	2.5	6.2	1.7	-2.9
Manufacturing Production Index (Index, 2017=100)	97.6	84.2	94.2	96.7	97.3	98.7	100.0	100.9	102.1	103.7	105.4	106.8	93.2	99.2	104.5
Percent change from prior year	-2.7	-15.3	-5.2	-2.4	-0.2	17.2	6.1	4.4	4.9	5.0	5.5	5.9	-6.4	6.5	5.3
Weather															
U.S. Heating Degree-Days	1,880	543	71	1,424	2,108	473	51	1,436	2,077	492	77	1,541	3,919	4,067	4,187
U.S. Cooling Degree-Days	70	393	931	120	49	410	901	112	48	400	847	93	1,514	1,472	1,387

(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 December 2, 2021.

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 IHS Markit 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 - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Crude Oil (dollars per barrel)															
West Texas Intermediate Spot Average	45.34	27.96	40.89	42.50	58.09	66.19	70.61	<i>75.96</i>	<i>69.66</i>	<i>67.15</i>	<i>66.01</i>	<i>62.98</i>	39.17	<i>67.87</i>	<i>66.42</i>
Brent Spot Average	49.97	29.52	42.97	44.34	61.12	68.91	73.45	<i>78.27</i>	<i>73.00</i>	<i>70.65</i>	<i>69.67</i>	<i>66.98</i>	41.69	<i>70.60</i>	<i>70.05</i>
U.S. Imported Average	43.75	26.24	39.87	40.69	55.27	64.80	68.46	<i>73.48</i>	<i>67.44</i>	<i>64.90</i>	<i>63.54</i>	<i>60.46</i>	37.22	<i>66.18</i>	<i>64.03</i>
U.S. Refiner Average Acquisition Cost	47.48	26.76	40.79	42.09	57.12	66.11	70.12	<i>74.96</i>	<i>68.43</i>	<i>65.91</i>	<i>64.53</i>	<i>61.47</i>	39.73	<i>67.44</i>	<i>65.02</i>
U.S. Liquid Fuels (cents per gallon)															
Refiner Prices for Resale															
Gasoline	153	104	137	133	180	216	232	<i>239</i>	<i>213</i>	<i>213</i>	<i>209</i>	<i>191</i>	133	<i>218</i>	<i>206</i>
Diesel Fuel	160	97	124	133	178	204	219	<i>242</i>	<i>217</i>	<i>212</i>	<i>211</i>	<i>205</i>	129	<i>212</i>	<i>211</i>
Fuel Oil	160	87	113	121	162	180	197	<i>218</i>	<i>206</i>	<i>193</i>	<i>188</i>	<i>191</i>	125	<i>197</i>	<i>196</i>
Refiner Prices to End Users															
Jet Fuel	165	85	116	125	163	182	199	<i>232</i>	<i>213</i>	<i>210</i>	<i>208</i>	<i>203</i>	131	<i>197</i>	<i>208</i>
No. 6 Residual Fuel Oil (a)	177	93	116	119	162	181	194	<i>184</i>	<i>163</i>	<i>160</i>	<i>154</i>	<i>148</i>	126	<i>181</i>	<i>156</i>
Retail Prices Including Taxes															
Gasoline Regular Grade (b)	241	194	218	215	256	297	316	<i>327</i>	<i>294</i>	<i>295</i>	<i>289</i>	<i>274</i>	218	<i>300</i>	<i>288</i>
Gasoline All Grades (b)	251	203	227	224	265	306	325	<i>337</i>	<i>306</i>	<i>307</i>	<i>302</i>	<i>287</i>	227	<i>310</i>	<i>301</i>
On-highway Diesel Fuel	289	243	243	247	290	321	336	<i>362</i>	<i>329</i>	<i>316</i>	<i>317</i>	<i>313</i>	256	<i>328</i>	<i>319</i>
Heating Oil	280	200	214	230	272	283	297	<i>343</i>	<i>331</i>	<i>305</i>	<i>286</i>	<i>287</i>	244	<i>299</i>	<i>309</i>
Natural Gas															
Henry Hub Spot (dollars per thousand cubic feet)	1.98	1.77	2.07	2.63	3.70	3.06	4.53	<i>5.22</i>	<i>4.76</i>	<i>3.97</i>	<i>3.93</i>	<i>3.87</i>	2.11	<i>4.13</i>	<i>4.13</i>
Henry Hub Spot (dollars per million Btu)	1.91	1.71	2.00	2.53	3.56	2.94	4.36	<i>5.02</i>	<i>4.58</i>	<i>3.82</i>	<i>3.78</i>	<i>3.73</i>	2.03	<i>3.97</i>	<i>3.98</i>
U.S. Retail Prices (dollars per thousand cubic feet)															
Industrial Sector	3.56	2.87	2.90	3.81	5.73	4.09	5.10	<i>6.62</i>	<i>6.26</i>	<i>5.19</i>	<i>4.89</i>	<i>5.07</i>	3.32	<i>5.43</i>	<i>5.38</i>
Commercial Sector	7.18	7.61	8.47	7.51	7.54	8.85	10.11	<i>9.78</i>	<i>9.47</i>	<i>9.67</i>	<i>9.73</i>	<i>8.60</i>	7.49	<i>8.70</i>	<i>9.26</i>
Residential Sector	9.44	11.74	17.50	10.53	9.75	13.87	20.36	<i>13.97</i>	<i>12.40</i>	<i>14.57</i>	<i>18.63</i>	<i>11.68</i>	10.76	<i>12.36</i>	<i>12.93</i>
U.S. Electricity															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	1.92	1.91	1.93	1.91	1.91	1.92	2.03	<i>2.03</i>	<i>2.04</i>	<i>2.04</i>	<i>2.03</i>	<i>2.02</i>	1.92	<i>1.98</i>	<i>2.03</i>
Natural Gas	2.39	2.09	2.28	2.87	7.24	3.26	4.36	<i>5.28</i>	<i>5.16</i>	<i>4.05</i>	<i>3.97</i>	<i>4.08</i>	2.40	<i>4.94</i>	<i>4.27</i>
Residual Fuel Oil (c)	12.14	6.66	8.84	8.92	11.28	13.08	14.21	<i>14.17</i>	<i>13.69</i>	<i>13.95</i>	<i>12.99</i>	<i>12.52</i>	9.15	<i>13.21</i>	<i>13.26</i>
Distillate Fuel Oil	13.33	8.49	10.57	10.89	13.54	15.20	16.20	<i>18.48</i>	<i>16.98</i>	<i>16.48</i>	<i>16.28</i>	<i>15.93</i>	10.89	<i>15.61</i>	<i>16.44</i>
Retail Prices (cents per kilowatthour)															
Industrial Sector	6.40	6.63	7.08	6.54	7.09	6.92	7.63	<i>6.98</i>	<i>7.22</i>	<i>7.05</i>	<i>7.70</i>	<i>6.97</i>	6.67	<i>7.17</i>	<i>7.24</i>
Commercial Sector	10.27	10.57	10.92	10.56	10.99	11.07	11.64	<i>11.13</i>	<i>11.51</i>	<i>11.42</i>	<i>11.69</i>	<i>11.02</i>	10.59	<i>11.23</i>	<i>11.42</i>
Residential Sector	12.87	13.19	13.31	13.21	13.10	13.84	14.00	<i>13.82</i>	<i>13.91</i>	<i>14.53</i>	<i>14.51</i>	<i>14.18</i>	13.16	<i>13.69</i>	<i>14.29</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 December 2, 2021.

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 - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Production (million barrels per day) (a)															
OECD	32.88	29.10	29.78	30.49	30.08	30.75	31.10	32.23	32.32	32.41	32.63	33.16	30.56	<i>31.05</i>	<i>32.63</i>
U.S. (50 States)	20.33	17.44	18.29	18.29	17.62	19.05	18.92	19.68	19.69	19.92	20.26	20.53	18.58	<i>18.82</i>	<i>20.10</i>
Canada	5.62	4.88	4.92	5.52	5.62	5.37	5.55	5.79	5.82	5.79	5.82	5.84	5.23	<i>5.58</i>	<i>5.82</i>
Mexico	2.00	1.93	1.91	1.90	1.93	1.95	1.90	1.92	1.94	1.90	1.87	1.83	1.93	<i>1.92</i>	<i>1.89</i>
Other OECD	4.93	4.85	4.66	4.78	4.91	4.38	4.74	4.85	4.87	4.80	4.69	4.96	4.81	<i>4.72</i>	<i>4.83</i>
Non-OECD	67.51	62.86	60.88	61.90	62.51	63.79	65.44	66.54	67.25	68.32	68.93	68.68	63.28	<i>64.58</i>	<i>68.30</i>
OPEC	33.49	30.71	28.64	29.99	30.36	30.76	32.21	33.15	33.78	33.90	33.95	33.98	30.70	<i>31.63</i>	<i>33.90</i>
Crude Oil Portion	28.28	25.65	23.63	24.88	25.08	25.49	26.86	27.73	28.20	28.44	28.44	28.44	25.60	<i>26.30</i>	<i>28.38</i>
Other Liquids (b)	5.21	5.06	5.01	5.11	5.28	5.27	5.35	5.42	5.58	5.46	5.50	5.54	5.10	<i>5.33</i>	<i>5.52</i>
Eurasia	14.71	13.15	12.69	13.11	13.38	13.61	13.58	14.23	14.41	14.61	14.74	14.88	13.41	<i>13.70</i>	<i>14.66</i>
China	4.89	4.85	4.88	4.83	4.99	5.03	5.01	4.99	4.99	5.02	5.02	5.07	4.86	<i>5.01</i>	<i>5.02</i>
Other Non-OECD	14.43	14.15	14.67	13.97	13.78	14.39	14.64	14.17	14.07	14.79	15.23	14.75	14.30	<i>14.25</i>	<i>14.72</i>
Total World Production	100.39	91.96	90.66	92.38	92.59	94.54	96.55	98.77	99.58	100.73	101.56	101.84	93.84	<i>95.63</i>	<i>100.93</i>
Non-OPEC Production	66.90	61.25	62.02	62.39	62.23	63.78	64.34	65.62	65.79	66.83	67.61	67.85	63.14	<i>64.00</i>	<i>67.03</i>
Consumption (million barrels per day) (c)															
OECD	45.44	37.42	42.24	42.79	42.27	43.94	45.43	45.91	45.34	45.17	46.16	46.20	41.98	<i>44.40</i>	<i>45.72</i>
U.S. (50 States)	19.50	16.07	18.45	18.72	18.45	20.03	20.21	20.35	19.79	20.43	20.86	20.80	18.19	<i>19.77</i>	<i>20.47</i>
U.S. Territories	0.11	0.12	0.13	0.12	0.17	0.15	0.16	0.17	0.18	0.16	0.16	0.17	0.12	<i>0.16</i>	<i>0.17</i>
Canada	2.42	1.97	2.25	2.14	2.12	2.16	2.39	2.41	2.34	2.29	2.41	2.39	2.19	<i>2.27</i>	<i>2.36</i>
Europe	13.34	11.01	12.88	12.51	11.90	12.60	13.73	13.42	13.16	13.25	13.56	13.20	12.43	<i>12.92</i>	<i>13.29</i>
Japan	3.78	2.93	3.06	3.53	3.73	3.08	3.08	3.44	3.72	3.04	3.13	3.45	3.33	<i>3.33</i>	<i>3.33</i>
Other OECD	6.30	5.34	5.47	5.77	5.89	5.91	5.86	6.13	6.15	6.00	6.04	6.20	5.72	<i>5.95</i>	<i>6.10</i>
Non-OECD	49.50	47.51	50.50	51.79	51.72	52.13	52.48	53.72	53.95	54.90	55.00	55.09	49.84	<i>52.52</i>	<i>54.74</i>
Eurasia	4.42	4.45	4.80	4.67	4.65	4.73	5.08	4.92	4.83	4.89	5.25	5.12	4.59	<i>4.85</i>	<i>5.02</i>
Europe	0.71	0.69	0.71	0.72	0.74	0.75	0.74	0.76	0.77	0.77	0.77	0.78	0.71	<i>0.75</i>	<i>0.77</i>
China	13.89	14.08	14.65	15.11	15.26	15.47	14.98	15.46	15.84	16.00	15.71	15.98	14.43	<i>15.29</i>	<i>15.88</i>
Other Asia	13.26	11.61	12.54	13.66	13.57	13.12	13.02	13.96	14.18	14.29	13.87	14.25	12.77	<i>13.42</i>	<i>14.15</i>
Other Non-OECD	17.22	16.67	17.80	17.64	17.49	18.07	18.65	18.62	18.33	18.95	19.39	18.95	17.34	<i>18.21</i>	<i>18.91</i>
Total World Consumption	94.94	84.93	92.74	94.59	93.98	96.07	97.91	99.63	99.29	100.06	101.15	101.29	91.81	<i>96.91</i>	<i>100.46</i>
Total Crude Oil and Other Liquids Inventory Net Withdrawals (million barrels per day)															
U.S. (50 States)	-0.49	-1.67	0.53	0.91	0.47	0.51	0.37	0.57	0.09	-0.53	-0.09	0.39	-0.18	<i>0.48</i>	<i>-0.03</i>
Other OECD	-0.51	-1.16	0.04	0.69	0.81	0.13	0.56	0.09	-0.12	-0.04	-0.10	-0.29	-0.23	<i>0.40</i>	<i>-0.14</i>
Other Stock Draws and Balance	-4.45	-4.20	1.52	0.60	0.12	0.88	0.43	0.20	-0.26	-0.09	-0.22	-0.64	-1.62	<i>0.41</i>	<i>-0.30</i>
Total Stock Draw	-5.45	-7.03	2.08	2.20	1.39	1.52	1.36	0.87	-0.29	-0.67	-0.41	-0.54	-2.02	<i>1.28</i>	<i>-0.48</i>
End-of-period Commercial Crude Oil and Other Liquids Inventories (million barrels)															
U.S. Commercial Inventory	1,327	1,458	1,423	1,343	1,302	1,271	1,241	1,208	1,224	1,289	1,297	1,269	1,343	<i>1,208</i>	<i>1,269</i>
OECD Commercial Inventory	2,970	3,206	3,168	3,025	2,911	2,868	2,786	2,745	2,772	2,841	2,858	2,857	3,025	<i>2,745</i>	<i>2,857</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 December 2, 2021.

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 - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
North America	27.94	24.25	25.12	25.70	25.16	26.36	26.37	27.38	27.45	27.61	27.94	28.20	25.75	26.33	27.80
Canada	5.62	4.88	4.92	5.52	5.62	5.37	5.55	5.79	5.82	5.79	5.82	5.84	5.23	5.58	5.82
Mexico	2.00	1.93	1.91	1.90	1.93	1.95	1.90	1.92	1.94	1.90	1.87	1.83	1.93	1.92	1.89
United States	20.33	17.44	18.29	18.29	17.62	19.05	18.92	19.68	19.69	19.92	20.26	20.53	18.58	18.82	20.10
Central and South America	6.01	6.05	6.63	5.89	5.62	6.28	6.67	6.11	5.97	6.73	7.19	6.74	6.15	6.17	6.66
Argentina	0.71	0.62	0.66	0.64	0.65	0.69	0.73	0.71	0.73	0.74	0.77	0.76	0.66	0.69	0.75
Brazil	3.42	3.88	4.27	3.51	3.22	3.89	4.22	3.66	3.42	4.26	4.62	4.05	3.77	3.75	4.09
Colombia	0.90	0.78	0.77	0.78	0.77	0.74	0.76	0.78	0.80	0.71	0.73	0.78	0.81	0.76	0.75
Ecuador	0.54	0.36	0.52	0.51	0.51	0.50	0.49	0.50	0.53	0.53	0.53	0.53	0.48	0.50	0.53
Other Central and S. America	0.44	0.41	0.41	0.45	0.47	0.45	0.48	0.47	0.48	0.48	0.54	0.63	0.43	0.47	0.54
Europe	4.35	4.26	4.07	4.21	4.32	3.84	4.13	4.28	4.30	4.22	4.11	4.39	4.22	4.14	4.25
Norway	2.05	2.00	1.96	2.02	2.11	1.90	2.06	2.14	2.16	2.12	2.10	2.27	2.01	2.05	2.16
United Kingdom	1.16	1.14	0.98	1.05	1.06	0.81	0.94	1.01	1.01	0.99	0.89	1.00	1.08	0.95	0.97
Eurasia	14.71	13.15	12.69	13.11	13.38	13.61	13.58	14.23	14.41	14.61	14.74	14.88	13.41	13.70	14.66
Azerbaijan	0.76	0.69	0.66	0.69	0.75	0.70	0.71	0.72	0.75	0.75	0.74	0.74	0.70	0.72	0.74
Kazakhstan	2.06	1.86	1.71	1.81	1.87	1.86	1.72	1.98	1.99	1.99	1.95	1.98	1.86	1.86	1.98
Russia	11.53	10.24	9.97	10.26	10.42	10.71	10.80	11.17	11.30	11.50	11.68	11.79	10.50	10.78	11.57
Turkmenistan	0.25	0.25	0.25	0.25	0.24	0.24	0.24	0.24	0.23	0.23	0.23	0.23	0.25	0.24	0.23
Other Eurasia	0.11	0.10	0.10	0.10	0.10	0.10	0.11	0.12	0.14	0.14	0.14	0.14	0.11	0.11	0.14
Middle East	3.16	3.12	3.08	3.13	3.15	3.18	3.20	3.23	3.26	3.25	3.25	3.24	3.12	3.19	3.25
Oman	1.01	0.95	0.92	0.95	0.96	0.97	0.98	1.03	1.04	1.04	1.04	1.04	0.96	0.99	1.04
Qatar	1.84	1.87	1.88	1.88	1.89	1.91	1.92	1.92	1.93	1.93	1.93	1.93	1.87	1.91	1.93
Asia and Oceania	9.25	8.99	9.02	8.96	9.19	9.11	9.05	9.02	9.08	9.08	9.06	9.08	9.05	9.09	9.08
Australia	0.48	0.49	0.49	0.48	0.47	0.42	0.49	0.48	0.48	0.48	0.48	0.47	0.49	0.46	0.48
China	4.89	4.85	4.88	4.83	4.99	5.03	5.01	4.99	4.99	5.02	5.02	5.07	4.86	5.01	5.02
India	0.92	0.86	0.88	0.88	0.90	0.90	0.89	0.89	0.90	0.89	0.89	0.89	0.89	0.90	0.89
Indonesia	0.92	0.90	0.88	0.89	0.88	0.85	0.85	0.84	0.83	0.82	0.82	0.81	0.89	0.86	0.82
Malaysia	0.73	0.62	0.64	0.64	0.66	0.62	0.57	0.58	0.62	0.62	0.61	0.60	0.66	0.61	0.61
Vietnam	0.23	0.22	0.21	0.21	0.21	0.21	0.20	0.19	0.18	0.17	0.17	0.16	0.21	0.20	0.17
Africa	1.48	1.43	1.41	1.39	1.40	1.40	1.33	1.36	1.33	1.33	1.33	1.33	1.43	1.37	1.33
Egypt	0.62	0.62	0.60	0.58	0.59	0.60	0.58	0.61	0.56	0.56	0.56	0.56	0.60	0.59	0.56
South Sudan	0.15	0.15	0.17	0.17	0.16	0.16	0.15	0.16	0.18	0.18	0.18	0.18	0.16	0.16	0.18
Total non-OPEC liquids	66.90	61.25	62.02	62.39	62.23	63.78	64.34	65.62	65.79	66.83	67.61	67.85	63.14	64.00	67.03
OPEC non-crude liquids	5.21	5.06	5.01	5.11	5.28	5.27	5.35	5.42	5.58	5.46	5.50	5.54	5.10	5.33	5.52
Non-OPEC + OPEC non-crude	72.11	66.32	67.04	67.50	67.51	69.05	69.69	71.04	71.37	72.29	73.12	73.40	68.24	69.33	72.55
Unplanned non-OPEC Production Outages	0.18	0.92	0.72	0.62	0.61	0.50	0.80	-	-	-	-	-	0.61	-	-

- = 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 December 2, 2021.

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 - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Crude Oil															
Algeria	1.02	0.90	0.84	0.86	0.87	0.88	0.92	-	-	-	-	-	0.90	-	-
Angola	1.35	1.27	1.19	1.13	1.11	1.08	1.11	-	-	-	-	-	1.23	-	-
Congo (Brazzaville)	0.29	0.29	0.28	0.26	0.28	0.27	0.26	-	-	-	-	-	0.28	-	-
Equatorial Guinea	0.13	0.12	0.11	0.11	0.11	0.10	0.10	-	-	-	-	-	0.11	-	-
Gabon	0.19	0.18	0.15	0.17	0.16	0.17	0.18	-	-	-	-	-	0.17	-	-
Iran	2.02	1.97	1.90	1.95	2.18	2.47	2.48	-	-	-	-	-	1.96	-	-
Iraq	4.56	4.16	3.70	3.84	3.94	3.98	4.07	-	-	-	-	-	4.06	-	-
Kuwait	2.77	2.48	2.25	2.30	2.33	2.36	2.45	-	-	-	-	-	2.45	-	-
Libya	0.35	0.08	0.11	0.92	1.18	1.16	1.18	-	-	-	-	-	0.36	-	-
Nigeria	1.72	1.55	1.44	1.44	1.31	1.32	1.28	-	-	-	-	-	1.54	-	-
Saudi Arabia	9.80	9.28	8.77	9.01	8.49	8.53	9.55	-	-	-	-	-	9.21	-	-
United Arab Emirates	3.30	2.88	2.55	2.50	2.61	2.65	2.76	-	-	-	-	-	2.81	-	-
Venezuela	0.77	0.50	0.35	0.40	0.52	0.53	0.53	-	-	-	-	-	0.50	-	-
OPEC Total	28.28	25.65	23.63	24.88	25.08	25.49	26.86	27.73	28.20	28.44	28.44	28.44	25.60	26.30	28.38
Other Liquids (a)	5.21	5.06	5.01	5.11	5.28	5.27	5.35	5.42	5.58	5.46	5.50	5.54	5.10	5.33	5.52
Total OPEC Production.....	33.49	30.71	28.64	29.99	30.36	30.76	32.21	33.15	33.78	33.90	33.95	33.98	30.70	31.63	33.90
Crude Oil Production Capacity															
Middle East	25.61	26.02	26.06	26.22	26.55	26.85	26.86	26.83	26.98	27.18	27.18	27.18	25.98	26.77	27.13
Other	5.82	5.60	5.48	6.33	6.73	6.71	6.73	6.71	6.49	6.42	6.39	6.36	5.81	6.72	6.42
OPEC Total	31.43	31.63	31.54	32.56	33.28	33.56	33.59	33.54	33.47	33.60	33.57	33.54	31.79	33.49	33.55
Surplus Crude Oil Production Capacity															
Middle East	3.15	5.27	6.90	6.62	7.00	6.87	5.56	4.87	4.66	4.59	4.61	4.61	5.49	6.07	4.62
Other	0.00	0.71	1.02	1.06	1.20	1.20	1.18	0.94	0.61	0.56	0.52	0.49	0.70	1.13	0.55
OPEC Total	3.15	5.98	7.92	7.68	8.20	8.07	6.74	5.81	5.27	5.16	5.13	5.10	6.19	7.20	5.16
Unplanned OPEC Production Outages	3.72	4.18	4.35	3.45	2.73	2.38	2.40	-	-	-	-	-	3.92	-	-

(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 December 2, 2021.

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 - December 2021

	2020				2021				2022				2020	2021	2022
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
North America	23.77	19.44	22.21	22.44	22.20	23.83	24.23	<i>24.52</i>	<i>23.79</i>	<i>24.39</i>	<i>24.94</i>	<i>24.86</i>	21.97	<i>23.70</i>	<i>24.50</i>
Canada	2.42	1.97	2.25	2.14	2.12	2.16	2.39	<i>2.41</i>	<i>2.34</i>	<i>2.29</i>	<i>2.41</i>	<i>2.39</i>	2.19	<i>2.27</i>	<i>2.36</i>
Mexico	1.85	1.40	1.50	1.58	1.62	1.63	1.62	<i>1.75</i>	<i>1.65</i>	<i>1.67</i>	<i>1.66</i>	<i>1.67</i>	1.58	<i>1.65</i>	<i>1.66</i>
United States	19.50	16.07	18.45	18.72	18.45	20.03	20.21	<i>20.35</i>	<i>19.79</i>	<i>20.43</i>	<i>20.86</i>	<i>20.80</i>	18.19	<i>19.77</i>	<i>20.47</i>
Central and South America	5.81	5.72	5.86	5.96	6.00	6.14	6.36	<i>6.46</i>	<i>6.29</i>	<i>6.37</i>	<i>6.49</i>	<i>6.51</i>	5.84	<i>6.24</i>	<i>6.41</i>
Brazil	2.70	2.76	2.85	2.85	2.79	2.90	3.02	<i>3.11</i>	<i>2.94</i>	<i>2.95</i>	<i>3.04</i>	<i>3.05</i>	2.79	<i>2.95</i>	<i>2.99</i>
Europe	14.04	11.70	13.59	13.23	12.65	13.34	14.47	<i>14.18</i>	<i>13.93</i>	<i>14.02</i>	<i>14.33</i>	<i>13.98</i>	13.14	<i>13.67</i>	<i>14.07</i>
Eurasia	4.42	4.45	4.80	4.67	4.65	4.73	5.08	<i>4.92</i>	<i>4.83</i>	<i>4.89</i>	<i>5.25</i>	<i>5.12</i>	4.59	<i>4.85</i>	<i>5.02</i>
Russia	3.21	3.29	3.56	3.43	3.42	3.52	3.81	<i>3.64</i>	<i>3.53</i>	<i>3.62</i>	<i>3.92</i>	<i>3.78</i>	3.38	<i>3.60</i>	<i>3.71</i>
Middle East	7.90	7.43	8.43	8.05	7.79	8.20	8.72	<i>8.38</i>	<i>8.28</i>	<i>8.75</i>	<i>9.16</i>	<i>8.50</i>	7.95	<i>8.28</i>	<i>8.67</i>
Asia and Oceania	34.81	32.14	33.77	35.94	36.35	35.46	34.76	<i>36.70</i>	<i>37.71</i>	<i>37.12</i>	<i>36.54</i>	<i>37.69</i>	34.17	<i>35.82</i>	<i>37.26</i>
China	13.89	14.08	14.65	15.11	15.26	15.47	14.98	<i>15.46</i>	<i>15.84</i>	<i>16.00</i>	<i>15.71</i>	<i>15.98</i>	14.43	<i>15.29</i>	<i>15.88</i>
Japan	3.78	2.93	3.06	3.53	3.73	3.08	3.08	<i>3.44</i>	<i>3.72</i>	<i>3.04</i>	<i>3.13</i>	<i>3.45</i>	3.33	<i>3.33</i>	<i>3.33</i>
India	4.83	3.76	4.14	5.05	4.94	4.37	4.45	<i>4.98</i>	<i>5.14</i>	<i>5.19</i>	<i>4.85</i>	<i>5.14</i>	4.45	<i>4.68</i>	<i>5.08</i>
Africa	4.19	4.06	4.08	4.30	4.35	4.37	4.27	<i>4.46</i>	<i>4.47</i>	<i>4.52</i>	<i>4.44</i>	<i>4.63</i>	4.16	<i>4.36</i>	<i>4.52</i>
Total OECD Liquid Fuels Consumption	45.44	37.42	42.24	42.79	42.27	43.94	45.43	<i>45.91</i>	<i>45.34</i>	<i>45.17</i>	<i>46.16</i>	<i>46.20</i>	41.98	<i>44.40</i>	<i>45.72</i>
Total non-OECD Liquid Fuels Consumption	49.50	47.51	50.50	51.79	51.72	52.13	52.48	<i>53.72</i>	<i>53.95</i>	<i>54.90</i>	<i>55.00</i>	<i>55.09</i>	49.84	<i>52.52</i>	<i>54.74</i>
Total World Liquid Fuels Consumption	94.94	84.93	92.74	94.59	93.98	96.07	97.91	<i>99.63</i>	<i>99.29</i>	<i>100.06</i>	<i>101.15</i>	<i>101.29</i>	91.81	<i>96.91</i>	<i>100.46</i>
Real Gross Domestic Product (a)															
World Index, 2015 Q1 = 100	112.6	105.3	113.2	115.4	116.2	117.3	118.5	<i>120.1</i>	<i>121.6</i>	<i>123.0</i>	<i>124.2</i>	<i>125.4</i>	111.6	<i>118.0</i>	<i>123.5</i>
Percent change from prior year	-1.4	-8.8	-2.4	-0.6	3.2	11.4	4.7	<i>4.1</i>	<i>4.6</i>	<i>4.8</i>	<i>4.8</i>	<i>4.4</i>	-3.3	<i>5.8</i>	<i>4.7</i>
OECD Index, 2015 = 100	103.8	109.2	113.6	115.4	116.2	117.3	118.5	<i>120.1</i>	<i>121.6</i>	<i>123.0</i>	<i>124.2</i>	<i>125.4</i>	103.8	<i>109.2</i>	<i>113.6</i>
Percent change from prior year	-4.7	5.2	4.1	0.0	3.2	11.4	4.7	<i>4.1</i>	<i>4.6</i>	<i>4.8</i>	<i>4.8</i>	<i>4.4</i>	-4.7	<i>5.2</i>	<i>4.1</i>
Non-OECD Index, 2015 = 100	116.1	123.2	129.5	135.4	135.4	135.4	135.4	<i>135.4</i>	<i>135.4</i>	<i>135.4</i>	<i>135.4</i>	<i>135.4</i>	116.1	<i>123.2</i>	<i>129.5</i>
Percent change from prior year	-2.2	6.1	5.1	4.3	4.3	4.3	4.3	<i>4.3</i>	<i>4.3</i>	<i>4.3</i>	<i>4.3</i>	<i>4.3</i>	-2.2	<i>6.1</i>	<i>5.1</i>
Nominal U.S. Dollar Index (b)															
Index, 2015 Q1 = 100	111.7	115.9	111.5	108.3	106.8	106.3	107.7	<i>109.3</i>	<i>109.3</i>	<i>109.4</i>	<i>109.2</i>	<i>108.9</i>	111.9	<i>107.5</i>	<i>109.2</i>
Percent change from prior year	2.8	5.8	0.9	-1.9	-4.4	-8.3	-3.4	<i>0.9</i>	<i>2.4</i>	<i>2.9</i>	<i>1.3</i>	<i>-0.4</i>	1.9	<i>-3.9</i>	<i>1.6</i>

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

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

- = no data available

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

Notes: EIA completed modeling and analysis for this report on December 2, 2021.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 4b. U.S. Hydrocarbon Gas Liquids (HGL) and Petroleum Refinery Balances (million barrels per day, except inventories and utilization factor)
 U.S. Energy Information Administration | Short-Term Energy Outlook - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
HGL Production															
Natural Gas Processing Plants															
Ethane	1.95	1.92	2.14	2.05	1.87	2.19	2.18	2.30	2.31	2.43	2.49	2.56	2.02	2.14	2.45
Propane	1.74	1.61	1.68	1.70	1.62	1.74	1.75	1.79	1.81	1.80	1.81	1.83	1.68	1.73	1.81
Butanes	0.92	0.86	0.90	0.89	0.85	0.92	0.93	0.96	0.96	0.96	0.96	0.97	0.89	0.91	0.96
Natural Gasoline (Pentanes Plus)	0.57	0.57	0.62	0.58	0.53	0.61	0.65	0.61	0.59	0.62	0.64	0.62	0.58	0.60	0.62
Refinery and Blender Net Production															
Ethane/Ethylene	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.01
Propane	0.29	0.24	0.27	0.27	0.25	0.29	0.28	0.32	0.31	0.31	0.32	0.31	0.26	0.29	0.31
Propylene (refinery-grade)	0.25	0.26	0.26	0.29	0.27	0.31	0.29	0.29	0.28	0.29	0.28	0.28	0.26	0.29	0.28
Butanes/Butylenes	-0.08	0.18	0.13	-0.19	-0.09	0.24	0.18	-0.19	-0.08	0.26	0.19	-0.20	0.01	0.04	0.04
Renewable Fuels and Oxygenate Plant Net Production															
Natural Gasoline (Pentanes Plus)	-0.02	-0.01	-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	-0.30	-0.24	-0.26	-0.27	-0.35	-0.39	-0.41	-0.38	-0.42	-0.44	-0.45	-0.46	-0.27	-0.38	-0.44
Propane/Propylene	-1.08	-1.09	-1.06	-1.31	-1.11	-1.23	-1.19	-1.26	-1.20	-1.24	-1.25	-1.21	-1.14	-1.20	-1.22
Butanes/Butylenes	-0.30	-0.31	-0.34	-0.34	-0.35	-0.40	-0.38	-0.36	-0.40	-0.44	-0.43	-0.38	-0.32	-0.37	-0.41
Natural Gasoline (Pentanes Plus)	-0.27	-0.19	-0.16	-0.14	-0.22	-0.21	-0.18	-0.19	-0.21	-0.19	-0.19	-0.18	-0.19	-0.20	-0.19
HGL Refinery and Blender Net Inputs															
Butanes/Butylenes	0.46	0.25	0.32	0.47	0.39	0.29	0.31	0.49	0.40	0.29	0.33	0.51	0.38	0.37	0.38
Natural Gasoline (Pentanes Plus)	0.15	0.10	0.15	0.13	0.14	0.14	0.16	0.16	0.16	0.18	0.18	0.18	0.13	0.15	0.18
HGL Consumption															
Ethane/Ethylene	1.71	1.68	1.67	1.81	1.54	1.83	1.80	1.86	1.98	2.00	2.05	2.09	1.72	1.76	2.03
Propane	1.14	0.58	0.61	0.97	1.09	0.65	0.66	0.97	1.12	0.56	0.56	1.03	0.82	0.84	0.82
Propylene (refinery-grade)	0.27	0.27	0.27	0.30	0.29	0.32	0.30	0.30	0.30	0.30	0.30	0.30	0.28	0.30	0.30
Butanes/Butylenes	0.17	0.20	0.19	0.23	0.22	0.29	0.25	0.21	0.19	0.23	0.21	0.20	0.20	0.24	0.21
Natural Gasoline (Pentanes Plus)	0.09	0.13	0.26	0.36	0.26	0.24	0.30	0.26	0.23	0.22	0.24	0.25	0.21	0.26	0.23
HGL Inventories (million barrels)															
Ethane	53.2	50.6	62.5	74.8	65.8	67.4	64.6	68.6	63.1	61.7	60.2	62.3	60.3	66.6	61.8
Propane	60.8	75.8	100.3	69.9	39.3	53.2	68.6	56.5	36.7	63.4	90.7	80.1	69.9	56.5	80.1
Propylene (at refineries only)	1.5	1.5	1.5	1.5	1.1	1.2	1.3	1.5	1.4	1.7	1.9	1.8	1.5	1.5	1.8
Butanes/Butylenes	44.1	69.9	86.0	54.6	37.2	53.9	69.4	42.6	32.5	56.8	74.5	45.3	54.6	42.6	45.3
Natural Gasoline (Pentanes Plus)	24.4	36.0	38.7	32.6	22.8	22.3	22.3	21.1	18.5	19.7	20.6	19.9	32.6	21.1	19.9
Refinery and Blender Net Inputs															
Crude Oil	15.77	13.16	14.02	13.90	13.81	15.65	15.60	15.69	15.47	16.42	17.05	16.14	14.21	15.19	16.27
Hydrocarbon Gas Liquids	0.61	0.35	0.47	0.60	0.53	0.43	0.47	0.65	0.56	0.47	0.51	0.69	0.51	0.52	0.56
Other Hydrocarbons/Oxygenates	1.12	0.95	1.11	1.08	1.05	1.19	1.20	1.22	1.18	1.29	1.32	1.29	1.06	1.16	1.27
Unfinished Oils	0.06	0.22	0.45	0.19	-0.08	0.22	0.31	0.33	0.09	0.28	0.31	0.27	0.23	0.20	0.24
Motor Gasoline Blend Components	0.41	0.49	0.85	0.46	0.71	0.92	0.81	0.24	0.56	0.81	0.65	0.30	0.55	0.67	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	17.98	15.16	16.90	16.22	16.01	18.41	18.39	18.13	17.86	19.27	19.84	18.69	16.57	17.74	18.92
Refinery Processing Gain	1.02	0.82	0.93	0.92	0.84	0.97	0.97	1.04	1.07	1.05	1.08	1.10	0.92	0.96	1.08
Refinery and Blender Net Production															
Hydrocarbon Gas Liquids	0.47	0.69	0.67	0.36	0.44	0.85	0.76	0.42	0.51	0.86	0.79	0.40	0.55	0.62	0.64
Finished Motor Gasoline	9.31	7.53	9.14	8.98	8.74	9.82	9.83	9.74	9.50	9.96	10.12	9.92	8.74	9.54	9.88
Jet Fuel	1.63	0.62	0.83	1.00	1.10	1.32	1.41	1.42	1.43	1.58	1.71	1.60	1.02	1.31	1.58
Distillate Fuel	4.95	4.83	4.72	4.45	4.29	4.77	4.72	4.89	4.81	5.13	5.32	5.12	4.74	4.67	5.10
Residual Fuel	0.24	0.17	0.19	0.15	0.19	0.20	0.21	0.24	0.28	0.22	0.28	0.23	0.19	0.21	0.25
Other Oils (a)	2.41	2.14	2.28	2.19	2.09	2.42	2.44	2.45	2.40	2.57	2.70	2.51	2.26	2.35	2.55
Total Refinery and Blender Net Production	19.00	15.98	17.84	17.14	16.86	19.38	19.36	19.17	18.93	20.32	20.93	19.79	17.49	18.70	20.00
Refinery Distillation Inputs	16.37	13.65	14.56	14.32	14.25	16.17	16.22	16.09	15.78	16.63	17.26	16.41	14.72	15.69	16.53
Refinery Operable Distillation Capacity	18.98	18.75	18.55	18.39	18.11	18.13	18.13	18.13	18.13	18.13	18.13	18.13	18.66	18.12	18.13
Refinery Distillation Utilization Factor	0.86	0.73	0.78	0.78	0.79	0.89	0.89	0.89	0.87	0.92	0.95	0.91	0.79	0.87	0.91

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

- = no data available

Notes: EIA completed modeling and analysis for this report on December 2, 2021.

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 - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Prices (cents per gallon)															
Refiner Wholesale Price	153	104	137	133	180	216	232	239	213	213	209	191	133	218	206
Gasoline Regular Grade Retail Prices Including Taxes															
PADD 1	236	191	211	212	252	287	304	322	285	282	282	265	214	292	279
PADD 2	226	179	207	202	247	288	304	308	270	281	274	254	204	288	270
PADD 3	210	162	186	183	228	267	282	294	263	261	257	240	187	270	255
PADD 4	247	200	233	221	247	311	360	346	301	301	298	278	226	318	294
PADD 5	311	258	283	278	312	366	391	403	376	372	356	356	284	370	365
U.S. Average	241	194	218	215	256	297	316	327	294	295	289	274	218	300	288
Gasoline All Grades Including Taxes	251	203	227	224	265	306	325	337	306	307	302	287	227	310	301
End-of-period Inventories (million barrels)															
Total Gasoline Inventories															
PADD 1	71.0	73.1	61.8	68.5	65.1	69.9	59.0	58.7	65.0	68.1	63.1	68.6	68.5	58.7	68.6
PADD 2	60.2	52.7	46.2	50.9	50.7	50.6	46.9	48.3	53.0	52.1	50.1	50.3	50.9	48.3	50.3
PADD 3	85.8	91.3	80.4	84.0	81.9	81.6	82.9	85.4	85.3	88.9	83.7	89.9	84.0	85.4	89.9
PADD 4	9.2	7.7	7.6	8.7	8.6	6.2	7.6	7.8	7.8	7.9	7.5	8.2	8.7	7.8	8.2
PADD 5	35.6	29.7	31.5	31.4	31.4	29.0	30.6	29.3	29.3	29.2	29.4	31.6	31.4	29.3	31.6
U.S. Total	261.8	254.5	227.6	243.4	237.6	237.2	227.0	229.6	240.6	246.2	233.8	248.5	243.4	229.6	248.5
Finished Gasoline Inventories															
U.S. Total	22.6	23.5	22.5	25.4	20.3	18.6	18.5	24.0	24.0	23.9	23.1	26.1	25.4	24.0	26.1
Gasoline Blending Components Inventories															
U.S. Total	239.2	231.0	205.0	218.0	217.4	218.6	208.5	205.6	216.6	222.3	210.6	222.5	218.0	205.6	222.5

- = no data available

Notes: EIA completed modeling and analysis for this report on December 2, 2021.

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 - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Supply (billion cubic feet per day)															
Total Marketed Production	103.02	96.83	97.29	98.53	97.65	101.12	101.99	<i>103.72</i>	<i>103.32</i>	<i>103.46</i>	<i>104.27</i>	<i>105.48</i>	98.91	<i>101.14</i>	<i>104.14</i>
Alaska	0.96	0.88	0.88	0.98	1.02	0.95	0.90	<i>0.90</i>	<i>0.92</i>	<i>0.78</i>	<i>0.74</i>	<i>0.87</i>	0.92	<i>0.94</i>	<i>0.82</i>
Federal GOM (a)	2.80	2.28	1.75	1.81	2.26	2.25	1.81	<i>2.32</i>	<i>2.33</i>	<i>2.26</i>	<i>2.16</i>	<i>2.14</i>	2.16	<i>2.16</i>	<i>2.22</i>
Lower 48 States (excl GOM)	99.25	93.68	94.67	95.75	94.37	97.92	99.28	<i>100.50</i>	<i>100.07</i>	<i>100.42</i>	<i>101.37</i>	<i>102.47</i>	95.83	<i>98.04</i>	<i>101.09</i>
Total Dry Gas Production	95.29	89.57	89.99	91.14	90.62	93.20	94.01	<i>95.59</i>	<i>95.22</i>	<i>95.35</i>	<i>96.10</i>	<i>97.21</i>	91.49	<i>93.37</i>	<i>95.97</i>
LNG Gross Imports	0.24	0.12	0.09	0.09	0.15	0.02	0.03	<i>0.20</i>	<i>0.32</i>	<i>0.18</i>	<i>0.18</i>	<i>0.20</i>	0.13	<i>0.10</i>	<i>0.22</i>
LNG Gross Exports	7.92	5.52	3.91	8.78	9.27	9.81	9.60	<i>10.50</i>	<i>11.14</i>	<i>11.26</i>	<i>11.55</i>	<i>12.01</i>	6.53	<i>9.80</i>	<i>11.49</i>
Pipeline Gross Imports	7.60	6.08	6.39	7.27	8.68	6.81	7.24	<i>6.88</i>	<i>7.35</i>	<i>6.35</i>	<i>6.38</i>	<i>6.72</i>	6.84	<i>7.40</i>	<i>6.70</i>
Pipeline Gross Exports	8.15	7.17	8.09	8.21	8.31	8.67	8.49	<i>8.86</i>	<i>9.00</i>	<i>8.49</i>	<i>9.29</i>	<i>9.33</i>	7.91	<i>8.58</i>	<i>9.03</i>
Supplemental Gaseous Fuels	0.18	0.17	0.17	0.17	0.18	0.15	0.15	<i>0.17</i>	<i>0.17</i>	<i>0.17</i>	<i>0.17</i>	<i>0.17</i>	0.17	<i>0.16</i>	<i>0.17</i>
Net Inventory Withdrawals	12.74	-12.24	-7.68	5.36	17.19	-9.12	-7.87	<i>3.73</i>	<i>14.47</i>	<i>-10.21</i>	<i>-7.86</i>	<i>4.89</i>	-0.46	<i>0.92</i>	<i>0.27</i>
Total Supply	99.98	71.00	76.96	87.05	99.23	72.57	75.48	<i>87.21</i>	<i>97.37</i>	<i>72.09</i>	<i>74.12</i>	<i>87.84</i>	83.74	<i>83.56</i>	<i>82.81</i>
Balancing Item (b)	-0.09	-0.18	-0.80	-0.84	0.16	-0.62	-0.43	<i>0.47</i>	<i>0.09</i>	<i>-0.84</i>	<i>0.87</i>	<i>1.04</i>	-0.48	<i>-0.11</i>	<i>0.30</i>
Total Primary Supply	99.89	70.83	76.16	86.21	99.39	71.94	75.05	<i>87.67</i>	<i>97.47</i>	<i>71.25</i>	<i>74.99</i>	<i>88.88</i>	83.26	<i>83.46</i>	<i>83.10</i>
Consumption (billion cubic feet per day)															
Residential	22.95	8.25	3.84	16.10	25.67	7.50	3.62	<i>15.98</i>	<i>24.42</i>	<i>7.77</i>	<i>3.85</i>	<i>17.41</i>	12.77	<i>13.14</i>	<i>13.32</i>
Commercial	14.04	5.85	4.39	10.40	14.87	6.24	4.68	<i>10.64</i>	<i>14.58</i>	<i>6.64</i>	<i>5.23</i>	<i>11.53</i>	8.66	<i>9.08</i>	<i>9.47</i>
Industrial	24.31	20.32	20.92	23.53	23.81	21.47	21.12	<i>24.01</i>	<i>24.78</i>	<i>22.51</i>	<i>21.64</i>	<i>24.56</i>	22.27	<i>22.60</i>	<i>23.37</i>
Electric Power (c)	30.00	29.16	39.50	28.28	26.75	29.17	37.93	<i>28.79</i>	<i>25.11</i>	<i>26.64</i>	<i>36.42</i>	<i>26.98</i>	31.75	<i>30.69</i>	<i>28.81</i>
Lease and Plant Fuel	5.14	4.83	4.85	4.91	4.87	5.04	5.08	<i>5.17</i>	<i>5.15</i>	<i>5.16</i>	<i>5.20</i>	<i>5.26</i>	4.93	<i>5.04</i>	<i>5.19</i>
Pipeline and Distribution Use	3.31	2.32	2.53	2.85	3.28	2.38	2.48	<i>2.93</i>	<i>3.28</i>	<i>2.36</i>	<i>2.49</i>	<i>2.98</i>	2.75	<i>2.76</i>	<i>2.78</i>
Vehicle Use	0.13	0.10	0.13	0.13	0.14	0.15	0.15	<i>0.15</i>	<i>0.16</i>	<i>0.16</i>	<i>0.16</i>	<i>0.16</i>	0.13	<i>0.15</i>	<i>0.16</i>
Total Consumption	99.89	70.83	76.16	86.21	99.39	71.94	75.05	<i>87.67</i>	<i>97.47</i>	<i>71.25</i>	<i>74.99</i>	<i>88.88</i>	83.26	<i>83.46</i>	<i>83.10</i>
End-of-period Inventories (billion cubic feet)															
Working Gas Inventory	2,029	3,133	3,840	3,341	1,801	2,583	3,305	<i>2,962</i>	<i>1,659</i>	<i>2,588</i>	<i>3,311</i>	<i>2,862</i>	3,341	<i>2,962</i>	<i>2,862</i>
East Region (d)	385	655	890	763	313	515	804	<i>709</i>	<i>265</i>	<i>508</i>	<i>716</i>	<i>517</i>	763	<i>709</i>	<i>517</i>
Midwest Region (d)	471	747	1,053	918	395	630	966	<i>830</i>	<i>346</i>	<i>578</i>	<i>918</i>	<i>804</i>	918	<i>830</i>	<i>804</i>
South Central Region (d)	857	1,221	1,313	1,155	760	991	1,051	<i>1,028</i>	<i>778</i>	<i>1,047</i>	<i>1,102</i>	<i>1,004</i>	1,155	<i>1,028</i>	<i>1,004</i>
Mountain Region (d)	92	177	235	195	113	175	205	<i>155</i>	<i>93</i>	<i>146</i>	<i>216</i>	<i>199</i>	195	<i>155</i>	<i>199</i>
Pacific Region (d)	200	308	318	282	197	246	248	<i>210</i>	<i>149</i>	<i>281</i>	<i>332</i>	<i>309</i>	282	<i>210</i>	<i>309</i>
Alaska	23	25	31	28	23	27	30	<i>29</i>	<i>29</i>	<i>29</i>	<i>29</i>	<i>29</i>	28	<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 December 2, 2021.

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 - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Wholesale/Spot															
Henry Hub Spot Price	1.98	1.77	2.07	2.63	3.70	3.06	4.53	5.22	4.76	3.97	3.93	3.87	2.11	4.13	4.13
Residential Retail															
New England	14.05	14.74	18.47	14.90	14.66	16.24	20.41	16.38	15.52	16.00	18.40	14.15	14.73	15.76	15.37
Middle Atlantic	10.77	11.84	17.83	11.77	10.43	13.49	19.81	13.88	12.30	13.99	18.09	11.95	11.76	12.36	12.86
E. N. Central	6.99	9.47	18.18	8.02	7.41	12.69	22.36	13.17	11.16	13.24	18.08	9.46	8.38	10.39	11.30
W. N. Central	7.22	10.02	17.42	8.67	7.49	11.66	20.31	12.65	10.66	13.08	18.50	10.23	8.69	10.03	11.31
S. Atlantic	11.86	15.14	23.48	13.82	11.95	18.04	27.38	16.54	14.26	18.59	24.03	13.51	13.88	15.13	15.38
E. S. Central	9.67	13.22	20.81	10.61	9.35	14.78	22.94	15.57	12.37	16.80	23.27	14.24	11.13	12.03	14.47
W. S. Central	8.48	14.16	20.70	11.55	9.23	15.85	23.76	14.70	11.00	16.38	21.59	12.25	11.32	12.65	13.15
Mountain	7.53	9.35	12.50	8.09	7.90	10.64	15.58	11.00	10.09	11.52	14.87	9.38	8.40	9.71	10.45
Pacific	13.10	13.44	14.16	13.39	14.20	15.01	15.90	15.20	15.21	15.71	16.24	15.03	13.38	14.84	15.37
U.S. Average	9.44	11.74	17.50	10.53	9.75	13.87	20.36	13.97	12.40	14.57	18.63	11.68	10.76	12.36	12.93
Commercial Retail															
New England	10.06	10.49	11.04	10.20	10.39	11.13	12.24	12.13	12.26	12.00	11.32	10.90	10.27	11.23	11.68
Middle Atlantic	7.87	7.01	6.73	7.44	7.92	8.00	7.96	8.94	9.33	8.95	8.24	8.54	7.45	8.25	8.88
E. N. Central	5.73	6.56	8.77	6.19	6.11	8.60	11.03	9.34	8.75	9.28	9.88	7.48	6.23	7.83	8.49
W. N. Central	5.97	6.59	8.20	6.56	6.32	7.71	9.94	9.15	8.80	9.01	9.88	7.82	6.41	7.64	8.59
S. Atlantic	8.51	9.21	9.54	8.86	8.69	9.84	10.35	10.50	10.29	10.87	10.76	9.42	8.86	9.62	10.18
E. S. Central	8.36	9.18	10.23	8.67	8.33	9.90	11.95	11.15	10.34	10.97	11.09	9.68	8.79	9.81	10.30
W. S. Central	6.02	7.20	8.13	7.45	6.91	8.57	10.12	10.13	9.05	9.23	9.22	8.18	6.93	8.52	8.87
Mountain	6.07	6.68	7.38	6.38	6.50	7.76	9.26	8.66	8.47	8.75	9.39	8.03	6.40	7.64	8.47
Pacific	9.48	9.37	9.52	9.63	10.46	10.31	11.31	10.97	10.82	10.49	10.71	10.13	9.51	10.72	10.53
U.S. Average	7.18	7.61	8.47	7.51	7.54	8.85	10.11	9.78	9.47	9.67	9.73	8.60	7.49	8.70	9.26
Industrial Retail															
New England	8.18	7.43	6.17	7.73	8.59	8.08	7.85	9.60	9.99	9.19	7.86	8.61	7.56	8.70	9.07
Middle Atlantic	7.40	6.84	7.49	7.78	7.66	7.36	7.90	9.36	9.58	8.87	8.36	8.62	7.40	8.20	9.06
E. N. Central	4.85	4.52	4.15	5.12	5.43	8.14	8.48	7.98	7.73	7.07	6.57	6.33	4.77	6.98	7.06
W. N. Central	4.01	3.32	3.15	4.15	5.13	4.34	5.25	6.80	6.86	5.75	5.32	5.64	3.71	5.43	5.94
S. Atlantic	4.20	3.73	3.76	4.65	5.12	4.75	6.01	7.34	6.97	5.98	5.61	5.72	4.11	5.79	6.11
E. S. Central	4.03	3.34	3.37	4.15	4.72	4.28	5.37	7.04	6.63	5.69	5.21	5.40	3.76	5.34	5.77
W. S. Central	2.20	1.94	2.20	2.91	5.75	3.20	4.36	5.61	4.89	4.23	4.12	4.02	2.33	4.75	4.31
Mountain	4.36	4.54	4.57	4.85	4.98	5.31	6.66	7.21	7.26	6.86	6.79	6.44	4.58	5.96	6.85
Pacific	7.31	6.27	6.05	7.06	8.28	7.24	8.88	10.24	9.32	8.16	7.95	7.74	6.74	8.91	8.32
U.S. Average	3.56	2.87	2.90	3.81	5.73	4.09	5.10	6.62	6.26	5.19	4.89	5.07	3.32	5.43	5.38

- = no data available

Notes: EIA completed modeling and analysis for this report on December 2, 2021.

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 - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Supply (million short tons)															
Production	149.2	116.2	135.9	134.1	140.3	142.7	153.3	146.6	153.5	149.3	159.6	158.2	535.3	583.0	620.7
Appalachia	39.8	29.5	33.9	35.5	40.8	39.5	40.1	41.2	42.3	41.6	39.8	41.2	138.7	161.6	165.0
Interior	25.8	20.0	23.2	21.8	25.0	23.3	25.7	24.9	25.3	24.0	26.2	26.6	90.7	98.8	102.1
Western	83.6	66.7	78.8	76.8	74.5	80.0	87.5	80.5	85.9	83.6	93.6	90.4	305.9	322.5	353.5
Primary Inventory Withdrawals	0.5	1.3	4.0	1.9	-4.5	2.1	2.6	-2.0	-1.3	-2.2	-0.8	-5.2	7.7	-1.8	-9.6
Imports	1.3	1.1	1.3	1.3	1.1	1.5	1.1	0.8	0.8	0.9	1.1	1.1	5.1	4.6	3.9
Exports	20.0	14.8	15.3	19.1	20.7	22.1	20.7	21.2	26.4	18.2	19.3	25.4	69.1	84.8	89.2
Metallurgical Coal	11.7	9.0	10.2	11.3	10.3	11.7	11.4	12.5	14.4	10.7	12.2	13.6	42.1	46.0	51.0
Steam Coal	8.3	5.8	5.1	7.8	10.4	10.4	9.3	8.7	11.9	7.5	7.0	11.8	27.0	38.8	38.3
Total Primary Supply	131.0	103.9	125.9	118.3	116.2	124.2	136.4	124.2	126.6	129.8	140.6	128.8	479.0	500.9	525.7
Secondary Inventory Withdrawals	-16.6	-5.1	21.5	-3.8	22.3	0.2	29.3	-1.9	-1.8	-9.5	19.7	1.9	-4.1	49.9	10.3
Waste Coal (a)	1.9	1.5	2.0	2.3	2.0	2.0	2.0	2.0	1.8	1.8	1.8	1.8	7.7	8.0	7.4
Total Supply	116.2	100.3	149.3	116.8	140.5	126.5	167.7	124.3	126.7	122.1	162.1	132.5	482.6	558.9	543.4
Consumption (million short tons)															
Coke Plants	4.3	3.5	3.2	3.5	4.4	4.5	4.1	4.6	5.5	4.7	4.4	4.9	14.4	17.5	19.6
Electric Power Sector (b)	98.0	87.1	139.0	111.7	127.9	113.8	157.0	110.9	114.0	110.5	150.8	120.5	435.8	509.6	495.7
Retail and Other Industry	7.4	5.8	6.1	7.2	6.8	6.3	6.7	7.1	7.2	6.9	6.9	7.1	26.5	27.0	28.1
Residential and Commercial	0.3	0.1	0.1	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.8	0.9	0.8
Other Industrial	7.1	5.6	6.0	7.0	6.6	6.2	6.5	6.9	7.0	6.7	6.7	6.9	25.7	26.2	27.3
Total Consumption	109.6	96.3	148.3	122.4	139.2	124.6	167.8	122.7	126.7	122.1	162.1	132.5	476.7	554.2	543.4
Discrepancy (c)	6.6	3.9	1.0	-5.7	1.3	1.9	-0.1	1.6	0.0	0.0	0.0	0.0	5.9	4.7	0.0
End-of-period Inventories (million short tons)															
Primary Inventories (d)	30.8	29.5	25.5	23.6	28.1	26.1	23.4	25.5	26.8	29.0	29.8	35.0	23.6	25.5	35.0
Secondary Inventories	150.7	155.8	134.3	138.1	115.8	115.6	86.2	88.1	89.9	99.4	79.7	77.8	138.1	88.1	77.8
Electric Power Sector	145.3	150.5	129.2	133.3	111.5	110.9	80.4	82.6	84.5	93.7	73.9	72.2	133.3	82.6	72.2
Retail and General Industry	3.0	3.0	2.9	2.8	2.6	2.6	3.6	3.4	3.6	3.5	3.5	3.3	2.8	3.4	3.3
Coke Plants	2.1	2.0	2.0	1.7	1.5	1.9	2.1	2.0	1.6	2.0	2.2	2.1	1.7	2.0	2.1
Commercial & Institutional	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2
Coal Market Indicators															
Coal Miner Productivity															
(Tons per hour)	6.37	6.37	6.37	6.37	6.32	6.32	6.32	6.32	6.30	6.30	6.30	6.30	6.37	6.32	6.30
Total Raw Steel Production															
(Million short tons per day)	0.268	0.174	0.197	0.224	0.246	0.258	0.267	0.276	0.311	0.287	0.284	0.295	0.216	0.262	0.294
Cost of Coal to Electric Utilities															
(Dollars per million Btu)	1.92	1.91	1.93	1.91	1.91	1.92	2.03	2.03	2.04	2.04	2.03	2.02	1.92	1.98	2.03

(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 December 2, 2021.

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 - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Electricity Supply (billion kilowatthours)															
Electricity Generation	971	936	1,141	959	991	985	1,167	990	971	992	1,161	1,001	4,007	4,132	4,126
Electric Power Sector (a)	930	899	1,101	921	954	948	1,126	951	933	955	1,120	962	3,851	3,980	3,970
Industrial Sector (b)	38	34	36	35	34	33	37	35	35	34	37	36	143	139	142
Commercial Sector (b)	3	3	4	3	3	3	4	3	3	3	4	3	13	13	14
Net Imports	10	11	15	12	12	13	15	11	12	13	15	12	47	51	51
Total Supply	981	947	1,156	971	1,003	998	1,181	1,001	983	1,005	1,176	1,013	4,054	4,183	4,176
Losses and Unaccounted for (c)	44	57	50	47	57	67	56	61	41	64	53	51	199	242	209
Electricity Consumption (billion kilowatthours unless noted)															
Retail Sales	900	857	1,071	889	913	898	1,089	915	909	908	1,086	927	3,718	3,815	3,830
Residential Sector	341	335	454	335	379	328	446	339	360	326	435	343	1,465	1,492	1,464
Commercial Sector	317	295	363	312	304	321	377	321	310	328	379	325	1,287	1,324	1,342
Industrial Sector	240	226	252	241	229	247	264	253	237	253	270	257	959	992	1,017
Transportation Sector	2	1	2	2	2	1	2	2	2	2	2	2	7	6	6
Direct Use (d)	36	33	35	34	33	32	36	34	34	33	37	34	138	135	138
Total Consumption	936	890	1,106	923	946	931	1,125	940	942	941	1,123	962	3,856	3,941	3,967
Average residential electricity usage per customer (kWh)	2,500	2,457	3,329	2,457	2,751	2,387	3,239	2,441	2,585	2,339	3,126	2,466	10,743	10,819	10,516
End-of-period Fuel Inventories Held by Electric Power Sector															
Coal (mmst)	145.3	150.5	129.2	133.3	111.5	110.9	80.4	82.6	84.5	93.7	73.9	72.2	133.3	82.6	72.2
Residual Fuel (mmb)	8.3	8.5	8.2	8.3	8.0	7.4	7.1	8.1	7.9	7.8	7.8	8.1	8.3	8.1	8.1
Distillate Fuel (mmb)	16.7	16.9	17.5	17.1	16.0	15.5	15.4	15.8	15.7	15.6	15.6	15.9	17.1	15.8	15.9
Prices															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	1.92	1.91	1.93	1.91	1.91	1.92	2.03	2.03	2.04	2.04	2.03	2.02	1.92	1.98	2.03
Natural Gas	2.39	2.09	2.28	2.87	7.24	3.26	4.36	5.28	5.16	4.05	3.97	4.08	2.40	4.94	4.27
Residual Fuel Oil	12.14	6.66	8.84	8.92	11.28	13.08	14.21	14.17	13.69	13.95	12.99	12.52	9.15	13.21	13.26
Distillate Fuel Oil	13.33	8.49	10.57	10.89	13.54	15.20	16.20	18.48	16.98	16.48	16.28	15.93	10.89	15.61	16.44
Retail Prices (cents per kilowatthour)															
Residential Sector	12.87	13.19	13.31	13.21	13.10	13.84	14.00	13.82	13.91	14.53	14.51	14.18	13.16	13.69	14.29
Commercial Sector	10.27	10.57	10.92	10.56	10.99	11.07	11.64	11.13	11.51	11.42	11.69	11.02	10.59	11.23	11.42
Industrial Sector	6.40	6.63	7.08	6.54	7.09	6.92	7.63	6.98	7.22	7.05	7.70	6.97	6.67	7.17	7.24
Wholesale Electricity Prices (dollars per megawatthour)															
ERCOT North hub	23.41	24.03	34.12	26.41	616.34	39.74	52.31	50.81	280.28	131.44	272.15	242.23	26.99	189.80	231.53
CAISO SP15 zone	28.64	19.21	61.94	42.80	44.74	36.90	72.02	44.18	12.62	27.40	34.15	29.74	38.15	49.46	25.98
ISO-NE Internal hub	24.61	20.25	27.20	34.03	55.26	33.67	52.57	63.02	60.70	58.81	61.20	54.44	26.52	51.13	58.79
NYISO Hudson Valley zone	21.82	18.13	24.38	27.05	44.74	31.85	50.42	61.01	57.46	52.91	56.40	50.72	22.85	47.01	54.38
PJM Western hub	22.47	20.79	28.24	26.44	35.09	33.71	51.32	62.76	47.03	43.16	49.69	41.11	24.49	45.72	45.25
Midcontinent ISO Illinois hub	24.43	23.00	29.35	24.94	44.97	33.82	49.36	58.74	46.28	43.12	48.76	39.75	25.43	46.72	44.48
SPP ISO South hub	20.06	19.54	26.27	24.34	250.31	30.86	48.63	49.63	43.65	42.61	50.80	38.28	22.55	94.86	43.83
SERC index, Into Southern	23.58	18.23	23.47	25.21	41.10	32.93	44.18	51.81	45.08	41.84	45.04	38.95	22.62	42.51	42.73
FRCC index, Florida Reliability	26.24	18.53	23.75	25.39	27.73	32.17	42.76	48.65	43.25	38.79	39.40	37.10	23.48	37.83	39.64
Northwest index, Mid-Columbia	22.77	14.49	33.56	31.00	34.56	51.51	91.61	43.45	11.14	24.76	28.43	26.73	25.46	55.28	22.76
Southwest index, Palo Verde	22.07	19.60	80.81	36.10	41.72	46.57	79.86	39.49	9.99	24.54	31.75	27.64	39.64	51.91	23.48

Notes: EIA completed modeling and analysis for this report on December 2, 2021.

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 Retail Sales (billion kilowatthours)

U.S. Energy Information Administration | Short-Term Energy Outlook - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Residential Sector															
New England	11.7	11.0	14.6	11.0	12.9	10.8	14.0	11.2	12.2	10.3	13.2	11.2	48.3	48.9	46.8
Middle Atlantic	32.2	30.6	43.6	30.9	36.0	30.3	41.9	31.8	36.3	30.3	39.6	32.0	137.2	140.0	138.2
E. N. Central	46.4	43.8	56.6	43.5	50.1	43.1	56.3	44.8	47.6	41.7	52.7	45.3	190.3	194.3	187.3
W. N. Central	27.8	24.0	30.2	24.7	29.9	23.7	31.0	25.5	31.4	24.7	32.6	28.2	106.7	110.1	116.9
S. Atlantic	84.7	86.8	115.4	85.8	95.2	85.1	111.5	87.7	90.0	84.7	109.5	87.5	372.7	379.4	371.7
E. S. Central	28.4	25.6	36.4	26.0	33.5	25.3	35.8	27.0	31.4	25.8	36.2	27.1	116.3	121.5	120.4
W. S. Central	49.2	53.1	76.8	48.9	56.8	50.0	76.1	49.6	49.8	50.7	76.3	48.9	228.1	232.5	225.8
Mountain	22.6	25.8	36.2	24.1	23.7	26.9	35.2	23.2	23.0	25.3	34.5	24.2	108.6	109.0	107.0
Pacific contiguous	36.6	33.2	42.9	38.7	39.0	32.2	43.0	37.0	36.8	31.1	39.5	37.6	151.4	151.2	144.9
AK and HI	1.3	1.1	1.2	1.4	1.3	1.1	1.2	1.3	1.3	1.1	1.2	1.3	4.9	5.0	4.9
Total	340.8	335.0	453.9	334.9	378.5	328.5	445.8	339.2	359.8	325.7	435.2	343.2	1,464.6	1,492.0	1,463.9
Commercial Sector															
New England	12.3	10.6	13.2	11.4	11.7	11.7	13.5	11.7	11.7	11.6	13.3	11.7	47.5	48.7	48.2
Middle Atlantic	36.0	31.2	39.1	33.4	34.6	33.2	39.7	34.8	35.6	34.0	39.8	35.5	139.7	142.4	144.8
E. N. Central	42.9	38.1	47.0	40.7	41.7	42.1	48.9	42.2	42.4	42.7	48.6	42.7	168.6	174.9	176.4
W. N. Central	24.8	21.7	26.4	23.4	24.0	23.7	27.6	24.3	24.9	24.3	28.2	25.1	96.3	99.6	102.4
S. Atlantic	72.4	70.2	86.1	72.7	70.8	77.3	89.6	74.6	71.7	78.8	90.3	75.0	301.4	312.3	315.8
E. S. Central	20.7	19.5	25.4	20.5	20.7	21.5	26.0	21.2	20.9	22.0	26.3	21.3	86.0	89.3	90.4
W. S. Central	46.4	46.3	57.2	47.5	42.4	50.5	58.7	49.5	43.2	52.9	60.6	50.5	197.4	201.0	207.2
Mountain	22.5	22.3	27.6	22.9	21.9	24.8	28.8	23.4	22.5	24.6	28.8	23.8	95.3	98.9	99.8
Pacific contiguous	37.6	34.3	40.2	38.0	35.2	35.3	43.1	38.5	35.8	35.7	42.2	38.3	150.1	152.1	152.0
AK and HI	1.4	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	5.2	5.3	5.4
Total	316.9	295.3	363.4	311.8	304.3	321.5	377.2	321.5	309.8	327.9	379.3	325.4	1,287.4	1,324.4	1,342.5
Industrial Sector															
New England	3.9	3.7	4.1	3.9	3.8	4.0	4.2	4.0	3.8	4.0	4.2	4.0	15.6	15.9	16.0
Middle Atlantic	18.4	16.6	19.0	18.0	17.6	17.9	19.4	18.9	18.3	18.4	19.9	19.2	72.0	73.8	75.8
E. N. Central	46.1	39.7	46.8	44.7	44.5	46.4	48.6	47.5	46.8	47.2	49.8	48.5	177.3	187.0	192.3
W. N. Central	23.1	21.5	24.5	23.4	23.0	24.2	26.0	24.9	24.7	25.4	27.0	25.5	92.5	98.1	102.7
S. Atlantic	33.9	32.0	35.2	34.6	33.4	35.9	38.3	36.0	34.4	36.5	39.0	36.6	135.6	143.6	146.4
E. S. Central	24.1	22.1	24.3	23.8	23.7	24.9	26.1	24.9	24.7	25.3	26.4	25.0	94.3	99.6	101.4
W. S. Central	49.1	47.5	50.7	51.3	44.1	49.7	54.3	53.8	45.6	51.8	56.1	55.0	198.5	201.9	208.6
Mountain	20.1	20.3	22.7	19.9	19.2	21.6	23.2	20.1	19.2	21.6	23.4	20.4	83.0	84.1	84.6
Pacific contiguous	20.7	21.1	23.6	20.4	18.2	20.9	23.1	21.6	18.8	21.4	23.2	21.4	85.7	83.8	84.8
AK and HI	1.2	1.1	1.2	1.2	1.1	1.2	1.2	1.2	1.1	1.1	1.2	1.2	4.6	4.6	4.6
Total	240.4	225.5	252.1	241.0	228.5	246.7	264.4	252.8	237.3	252.8	270.2	256.9	959.1	992.4	1,017.2
Total All Sectors (a)															
New England	28.0	25.3	32.1	26.5	28.5	26.6	31.7	27.1	27.8	25.9	30.7	27.0	111.8	114.0	111.5
Middle Atlantic	87.5	79.1	102.5	83.1	89.1	82.2	101.8	86.2	91.0	83.5	100.1	87.4	352.1	359.4	362.0
E. N. Central	135.6	121.7	150.5	129.0	136.4	131.7	154.0	134.6	137.0	131.7	151.2	136.6	536.7	556.7	556.6
W. N. Central	75.7	67.2	81.1	71.6	77.0	71.6	84.6	74.7	80.9	74.4	87.8	78.9	295.6	307.9	322.0
S. Atlantic	191.3	189.3	237.0	193.4	199.7	198.6	239.6	198.6	196.3	200.3	239.0	199.4	810.9	836.5	835.0
E. S. Central	73.2	67.2	86.1	70.2	77.8	71.8	87.8	73.1	76.9	73.1	88.8	73.4	296.7	310.5	312.2
W. S. Central	144.8	146.9	184.7	147.7	143.4	150.2	189.2	152.9	138.7	155.5	193.1	154.5	624.1	635.6	641.8
Mountain	65.2	68.5	86.5	66.9	64.9	73.3	87.3	66.8	64.7	71.5	86.9	68.5	287.1	292.2	291.6
Pacific contiguous	95.1	88.7	107.0	97.2	92.5	88.6	109.3	97.3	91.5	88.3	105.1	97.5	387.9	387.8	382.4
AK and HI	3.8	3.4	3.6	3.9	3.7	3.6	3.7	3.8	3.6	3.6	3.8	3.9	14.7	14.8	14.9
Total	900.1	857.2	1,071.0	889.5	913.0	898.2	1,089.0	915.1	908.6	907.9	1,086.3	927.1	3,717.7	3,815.2	3,829.9

(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 December 2, 2021.

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 Retail Electricity Prices (Cents per Kilowatthour)
 U.S. Energy Information Administration | Short-Term Energy Outlook - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Residential Sector															
New England	21.83	21.37	21.00	20.84	21.39	21.36	21.45	22.43	23.77	24.15	24.38	25.28	21.25	21.64	24.38
Middle Atlantic	15.49	15.97	16.19	16.00	15.63	16.52	16.94	17.03	16.74	17.54	17.71	17.34	15.93	16.53	17.33
E. N. Central	13.21	13.81	13.43	13.82	13.39	14.50	14.16	14.42	14.11	15.22	14.82	14.81	13.56	14.10	14.72
W. N. Central	10.96	12.55	12.86	11.42	10.89	12.77	13.29	11.91	10.87	12.35	12.35	11.11	11.96	12.20	11.66
S. Atlantic	11.70	11.71	11.95	11.74	11.66	12.34	12.49	12.37	12.55	13.14	13.16	12.70	11.79	12.22	12.90
E. S. Central	11.24	11.51	11.24	11.41	11.20	12.24	12.00	11.98	11.86	12.63	12.22	12.10	11.34	11.83	12.18
W. S. Central	10.93	11.31	11.19	11.26	11.85	11.70	11.81	12.22	13.13	12.51	12.63	13.10	11.18	11.88	12.82
Mountain	11.32	11.94	12.05	11.53	11.53	12.09	12.33	11.85	11.88	12.32	12.34	11.66	11.76	11.99	12.08
Pacific	15.70	16.18	17.76	16.81	16.75	18.15	19.43	16.69	17.03	19.07	20.28	17.21	16.67	17.80	18.40
U.S. Average	12.87	13.19	13.31	13.21	13.10	13.84	14.00	13.82	13.91	14.53	14.51	14.18	13.16	13.69	14.29
Commercial Sector															
New England	16.18	15.60	15.91	15.60	16.32	15.97	16.80	17.10	17.87	17.43	18.21	18.28	15.84	16.55	17.96
Middle Atlantic	11.68	12.52	13.21	12.40	12.53	13.24	14.79	13.49	13.37	13.98	15.18	13.69	12.47	13.56	14.09
E. N. Central	10.01	10.45	10.27	10.36	10.40	10.70	10.68	10.95	11.07	11.30	11.09	11.08	10.27	10.68	11.13
W. N. Central	9.06	10.12	10.32	9.09	9.10	10.19	10.83	9.69	9.13	9.72	9.86	8.91	9.65	9.98	9.42
S. Atlantic	9.15	8.95	9.01	9.12	9.29	9.19	9.53	9.74	10.01	9.75	9.89	9.87	9.06	9.44	9.88
E. S. Central	10.78	10.85	10.63	10.70	10.98	11.24	11.27	11.31	11.55	11.65	11.56	11.48	10.73	11.21	11.56
W. S. Central	7.78	7.81	7.83	7.87	10.39	8.90	8.55	7.79	10.08	8.67	8.15	7.22	7.82	8.84	8.46
Mountain	8.88	9.69	9.96	9.17	9.11	9.76	10.20	9.38	9.25	9.76	9.99	9.05	9.45	9.65	9.54
Pacific	13.35	14.71	17.08	14.96	14.52	16.00	18.08	15.84	15.33	16.54	17.94	15.35	15.07	16.21	16.34
U.S. Average	10.27	10.57	10.92	10.56	10.99	11.07	11.64	11.13	11.51	11.42	11.69	11.02	10.59	11.23	11.42
Industrial Sector															
New England	13.05	12.91	12.98	12.60	13.49	12.98	13.68	13.38	14.14	13.48	14.15	13.75	12.89	13.38	13.88
Middle Atlantic	6.40	6.38	6.44	6.29	6.52	6.60	7.25	6.74	6.56	6.63	7.09	6.38	6.38	6.79	6.67
E. N. Central	6.62	6.87	6.87	6.74	6.97	6.96	7.39	7.27	7.14	7.13	7.44	7.14	6.78	7.16	7.21
W. N. Central	6.87	7.22	7.76	6.55	6.97	7.30	8.00	6.84	7.01	7.46	8.10	6.84	7.11	7.29	7.37
S. Atlantic	6.06	6.17	6.58	6.18	6.24	6.31	7.05	6.55	6.46	6.42	7.01	6.40	6.25	6.55	6.58
E. S. Central	5.47	5.52	5.70	5.52	5.75	5.86	6.27	5.91	5.85	5.95	6.27	5.79	5.55	5.95	5.97
W. S. Central	5.03	4.97	5.21	5.02	7.23	5.45	6.00	5.58	7.42	5.60	6.32	5.79	5.06	6.02	6.24
Mountain	5.79	6.20	6.94	5.99	6.27	6.63	7.39	6.19	6.16	6.59	7.27	6.21	6.25	6.66	6.59
Pacific	8.65	9.96	11.88	10.51	9.69	10.72	12.62	10.88	9.66	10.91	12.71	11.14	10.30	11.06	11.19
U.S. Average	6.40	6.63	7.08	6.54	7.09	6.92	7.63	6.98	7.22	7.05	7.70	6.97	6.67	7.17	7.24
All Sectors (a)															
New England	18.08	17.68	17.83	17.31	18.21	17.68	18.40	18.72	19.92	19.47	20.27	20.46	17.73	18.26	20.04
Middle Atlantic	11.96	12.56	13.21	12.40	12.58	12.98	14.21	13.30	13.33	13.64	14.57	13.42	12.56	13.31	13.77
E. N. Central	9.95	10.49	10.40	10.27	10.38	10.62	10.91	10.80	10.78	11.04	11.18	10.91	10.28	10.69	10.98
W. N. Central	9.09	10.06	10.49	9.07	9.16	10.07	10.86	9.49	9.16	9.82	10.24	9.03	9.69	9.92	9.58
S. Atlantic	9.73	9.75	10.08	9.75	9.91	10.02	10.51	10.32	10.55	10.58	10.92	10.47	9.84	10.20	10.64
E. S. Central	9.21	9.34	9.49	9.21	9.48	9.72	10.08	9.72	9.85	10.02	10.26	9.77	9.32	9.76	9.99
W. S. Central	7.92	8.16	8.50	8.00	9.99	8.69	9.13	8.45	10.30	8.90	9.39	8.57	8.17	9.06	9.27
Mountain	8.77	9.50	10.04	9.07	9.16	9.69	10.31	9.28	9.27	9.71	10.19	9.13	9.40	9.67	9.62
Pacific	13.22	14.12	16.20	14.75	14.50	15.52	17.45	15.05	14.84	16.05	17.65	15.13	14.63	15.71	15.97
U.S. Average	10.22	10.56	11.03	10.47	10.89	10.94	11.63	10.98	11.34	11.32	11.83	11.07	10.59	11.13	11.41

(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 December 2, 2021.

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

Prices are not adjusted for inflation.

Regions refer to U.S. Census divisions.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 7d part 2. U.S. Regional Electricity Generation, Electric Power Sector (billion kilowatthours), continued from Table 7d part 1
 U.S. Energy Information Administration | Short-Term Energy Outlook - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Midwest (MISO)															
Natural Gas	46.2	45.5	52.6	38.5	35.5	41.0	50.1	43.7	36.3	36.4	49.5	35.2	182.8	170.3	157.4
Coal	51.2	41.1	68.4	57.7	69.7	60.1	83.2	60.4	66.6	63.0	78.4	66.2	218.4	273.4	274.2
Nuclear	26.6	22.9	24.4	21.2	23.6	22.6	25.2	24.1	22.9	22.2	23.8	23.1	95.1	95.4	92.0
Conventional hydropower	2.9	3.2	2.6	2.5	2.8	2.7	2.5	2.2	2.4	2.8	2.3	2.1	11.1	10.2	9.6
Nonhydro renewables (d)	19.8	19.6	16.1	23.7	24.1	23.1	18.5	27.8	26.3	25.0	19.9	28.8	79.2	93.5	100.0
Other energy sources (e)	1.4	1.3	1.3	1.3	1.8	1.3	1.7	1.2	1.7	1.4	1.5	1.1	5.3	5.9	5.7
Total generation	148.2	133.5	165.4	144.8	157.5	150.9	181.2	159.3	156.1	150.8	175.4	156.5	591.8	648.8	638.9
Net energy for load (f)	154.0	142.3	172.4	149.7	159.1	154.0	180.7	157.8	153.2	155.7	178.5	159.7	618.4	651.6	647.1
Central (Southwest Power Pool)															
Natural Gas	17.6	15.7	22.5	13.1	12.7	14.3	18.7	10.8	11.0	13.8	21.2	11.7	68.9	56.5	57.7
Coal	14.7	14.1	24.3	17.8	21.8	19.8	31.3	19.2	21.8	17.1	27.1	19.7	70.8	92.1	85.6
Nuclear	4.4	4.4	4.2	3.8	4.1	2.8	4.2	4.3	4.3	4.3	4.0	2.5	16.8	15.5	15.2
Conventional hydropower	5.1	5.3	3.5	3.0	4.2	3.9	3.6	2.9	3.4	4.1	3.7	3.0	16.8	14.6	14.2
Nonhydro renewables (d)	21.3	22.4	17.5	23.4	22.9	23.8	20.5	27.8	28.9	26.3	21.8	30.1	84.7	95.1	107.2
Other energy sources (e)	0.3	0.2	0.2	0.3	0.3	0.1	0.1	0.3	0.2	0.1	0.1	0.3	0.9	0.8	0.7
Total generation	63.3	62.0	72.2	61.4	66.0	64.7	78.4	65.4	69.6	65.8	78.0	67.3	258.9	274.5	280.6
Net energy for load (f)	62.1	63.1	75.2	61.2	64.7	66.5	76.6	63.4	65.1	65.6	79.9	66.5	261.6	271.2	277.1
Texas (ERCOT)															
Natural Gas	37.5	41.7	59.6	35.3	33.2	39.6	57.2	35.7	27.8	30.1	46.5	26.5	174.1	165.8	130.9
Coal	12.6	15.3	19.7	17.2	16.3	18.5	22.7	16.8	10.0	18.9	24.8	17.3	64.8	74.3	71.0
Nuclear	10.4	9.7	11.0	10.3	10.5	9.8	11.0	8.9	10.7	10.0	10.6	10.8	41.4	40.2	42.1
Conventional hydropower	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.6	0.6	0.6
Nonhydro renewables (d)	21.9	24.6	20.5	23.6	25.2	27.8	23.7	30.3	35.4	38.3	31.5	35.0	90.7	107.0	140.3
Other energy sources (e)	0.4	0.3	0.4	0.4	0.2	0.3	0.4	0.4	0.3	0.3	0.4	0.4	1.5	1.3	1.4
Total generation	83.1	91.8	111.3	87.0	85.6	96.2	115.2	92.2	84.4	97.9	114.0	90.1	373.2	389.2	386.4
Net energy for load (f)	83.1	91.8	111.3	87.0	85.6	96.2	115.2	92.2	84.4	97.9	114.0	90.1	373.2	389.2	386.4
Northwest															
Natural Gas	24.5	16.9	27.7	22.3	20.9	20.1	28.2	25.7	19.1	16.5	28.5	24.1	91.4	95.0	88.2
Coal	24.6	17.9	26.9	25.1	22.5	19.1	26.6	24.8	22.2	14.1	25.1	25.1	94.5	93.1	86.4
Nuclear	2.4	2.0	2.4	2.5	2.5	1.2	2.5	2.5	2.4	2.4	2.4	2.4	9.4	8.7	9.6
Conventional hydropower	33.1	37.8	32.5	29.2	33.8	31.0	25.7	27.1	33.5	39.9	30.8	27.9	132.6	117.7	132.0
Nonhydro renewables (d)	14.5	14.4	13.4	14.6	15.9	17.0	15.2	15.9	17.1	17.4	16.3	17.1	56.9	64.0	67.8
Other energy sources (e)	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.4	0.7	0.8
Total generation	99.2	89.2	103.0	93.8	95.8	88.7	98.5	96.3	94.3	90.5	103.3	96.8	385.2	379.2	384.8
Net energy for load (f)	91.3	81.5	94.6	87.5	89.6	84.5	96.9	91.1	89.2	86.0	96.7	91.9	354.9	362.1	363.7
Southwest															
Natural Gas	11.8	14.6	20.1	14.7	10.9	15.7	20.1	11.5	9.6	12.6	18.2	11.4	61.1	58.2	51.8
Coal	5.8	5.9	9.4	7.2	5.5	5.6	8.3	6.0	3.9	4.6	6.6	5.2	28.3	25.4	20.4
Nuclear	8.3	7.6	8.7	7.0	8.5	7.1	8.6	7.6	8.4	7.5	8.6	7.5	31.6	31.8	32.1
Conventional hydropower	2.6	4.0	3.8	2.5	2.5	3.2	3.2	2.2	2.6	3.8	3.8	2.5	12.8	11.1	12.7
Nonhydro renewables (d)	2.7	3.3	2.6	2.4	3.1	3.9	3.2	4.4	5.4	5.8	4.5	5.6	11.1	14.7	21.3
Other energy sources (e)	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.2
Total generation	31.1	35.5	44.7	33.7	30.4	35.7	43.4	31.7	30.0	34.4	41.7	32.2	145.0	141.2	138.4
Net energy for load (f)	20.5	24.4	34.3	20.5	19.7	25.7	31.8	20.7	18.7	24.2	31.8	21.1	99.7	97.9	95.9
California															
Natural Gas	17.0	12.7	26.5	23.7	16.5	17.5	28.8	21.0	12.4	12.6	26.1	21.2	80.0	83.8	72.3
Coal	1.4	1.2	2.1	2.0	1.8	1.4	3.0	2.1	1.7	1.2	2.1	2.2	6.7	8.3	7.3
Nuclear	4.8	4.9	4.5	2.1	2.9	4.2	5.0	4.3	4.5	3.8	4.4	3.9	16.3	16.4	16.6
Conventional hydropower	3.2	5.4	5.3	2.7	2.0	3.2	3.7	3.9	4.9	7.7	6.9	3.9	16.6	12.7	23.4
Nonhydro renewables (d)	13.1	19.5	18.9	12.8	15.5	21.2	19.2	13.4	16.2	22.2	20.3	14.6	64.4	69.2	73.2
Other energy sources (e)	0.0	0.1	0.1	0.1	0.0	-0.1	0.0	0.2	0.1	-0.1	-0.1	0.3	0.2	0.1	0.1
Total generation	39.5	43.7	57.5	43.5	38.7	47.4	59.6	44.9	39.8	47.4	59.7	46.2	184.2	190.6	193.0
Net energy for load (f)	58.5	59.7	76.6	60.6	56.3	63.6	77.1	61.1	56.2	62.1	76.2	62.1	255.4	258.0	256.6

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

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

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

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

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

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

Notes: EIA completed modeling and analysis for this report on December 2, 2021.

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

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

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

Table 8a. U.S. Renewable Energy Consumption (Quadrillion Btu)
 U.S. Energy Information Administration | Short-Term Energy Outlook - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Electric Power Sector															
Geothermal	0.033	0.034	0.034	0.035	0.034	0.035	0.035	<i>0.034</i>	<i>0.034</i>	<i>0.034</i>	<i>0.035</i>	<i>0.035</i>	0.135	<i>0.137</i>	<i>0.137</i>
Hydroelectric Power (a)	0.668	0.724	0.629	0.561	0.617	0.599	0.541	<i>0.555</i>	<i>0.642</i>	<i>0.721</i>	<i>0.592</i>	<i>0.537</i>	2.581	<i>2.312</i>	<i>2.491</i>
Solar (b)	0.148	0.246	0.250	0.162	0.193	0.316	0.314	<i>0.210</i>	<i>0.258</i>	<i>0.412</i>	<i>0.410</i>	<i>0.270</i>	0.806	<i>1.033</i>	<i>1.350</i>
Waste Biomass (c)	0.064	0.060	0.060	0.059	0.060	0.059	0.059	<i>0.059</i>	<i>0.059</i>	<i>0.058</i>	<i>0.059</i>	<i>0.058</i>	0.242	<i>0.237</i>	<i>0.234</i>
Wood Biomass	0.049	0.041	0.049	0.046	0.051	0.046	0.054	<i>0.041</i>	<i>0.044</i>	<i>0.040</i>	<i>0.049</i>	<i>0.041</i>	0.185	<i>0.192</i>	<i>0.174</i>
Wind	0.787	0.803	0.627	0.852	0.883	0.875	0.699	<i>1.002</i>	<i>1.049</i>	<i>0.982</i>	<i>0.759</i>	<i>1.063</i>	3.069	<i>3.458</i>	<i>3.852</i>
Subtotal	1.749	1.908	1.648	1.715	1.838	1.928	1.702	<i>1.901</i>	<i>2.086</i>	<i>2.245</i>	<i>1.904</i>	<i>2.005</i>	7.020	<i>7.369</i>	<i>8.240</i>
Industrial Sector															
Biofuel Losses and Co-products (d)	0.197	0.135	0.179	0.189	0.169	0.188	0.188	<i>0.191</i>	<i>0.184</i>	<i>0.193</i>	<i>0.198</i>	<i>0.197</i>	0.699	<i>0.736</i>	<i>0.771</i>
Geothermal	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	0.004	<i>0.004</i>	<i>0.004</i>
Hydroelectric Power (a)	0.003	0.002	0.002	0.002	0.002	0.002	0.002	<i>0.002</i>	<i>0.003</i>	<i>0.002</i>	<i>0.002</i>	<i>0.002</i>	0.009	<i>0.009</i>	<i>0.009</i>
Solar (b)	0.006	0.010	0.010	0.007	0.007	0.011	0.011	<i>0.008</i>	<i>0.008</i>	<i>0.012</i>	<i>0.012</i>	<i>0.008</i>	0.033	<i>0.036</i>	<i>0.040</i>
Waste Biomass (c)	0.041	0.039	0.036	0.041	0.041	0.039	0.037	<i>0.040</i>	<i>0.039</i>	<i>0.038</i>	<i>0.038</i>	<i>0.039</i>	0.156	<i>0.156</i>	<i>0.154</i>
Wood Biomass	0.349	0.340	0.336	0.352	0.338	0.344	0.351	<i>0.364</i>	<i>0.352</i>	<i>0.351</i>	<i>0.366</i>	<i>0.371</i>	1.376	<i>1.397</i>	<i>1.440</i>
Subtotal	0.594	0.521	0.558	0.588	0.555	0.579	0.583	<i>0.602</i>	<i>0.583</i>	<i>0.590</i>	<i>0.609</i>	<i>0.614</i>	2.262	<i>2.319</i>	<i>2.397</i>
Commercial Sector															
Geothermal	0.006	0.006	0.006	0.006	0.006	0.006	0.006	<i>0.006</i>	<i>0.006</i>	<i>0.006</i>	<i>0.006</i>	<i>0.006</i>	0.024	<i>0.024</i>	<i>0.024</i>
Solar (b)	0.025	0.036	0.036	0.025	0.029	0.043	0.043	<i>0.030</i>	<i>0.034</i>	<i>0.049</i>	<i>0.049</i>	<i>0.034</i>	0.122	<i>0.144</i>	<i>0.165</i>
Waste Biomass (c)	0.010	0.008	0.009	0.009	0.009	0.008	0.009	<i>0.009</i>	<i>0.009</i>	<i>0.008</i>	<i>0.009</i>	<i>0.009</i>	0.036	<i>0.035</i>	<i>0.035</i>
Wood Biomass	0.021	0.021	0.021	0.021	0.020	0.020	0.021	<i>0.021</i>	<i>0.020</i>	<i>0.020</i>	<i>0.021</i>	<i>0.020</i>	0.083	<i>0.082</i>	<i>0.082</i>
Subtotal	0.068	0.077	0.078	0.066	0.070	0.084	0.086	<i>0.071</i>	<i>0.075</i>	<i>0.090</i>	<i>0.092</i>	<i>0.076</i>	0.289	<i>0.312</i>	<i>0.333</i>
Residential Sector															
Geothermal	0.010	0.010	0.010	0.010	0.010	0.010	0.010	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	0.040	<i>0.040</i>	<i>0.040</i>
Solar (e)	0.058	0.086	0.086	0.061	0.066	0.101	0.099	<i>0.069</i>	<i>0.077</i>	<i>0.118</i>	<i>0.119</i>	<i>0.081</i>	0.291	<i>0.335</i>	<i>0.395</i>
Wood Biomass	0.114	0.114	0.115	0.115	0.112	0.113	0.115	<i>0.115</i>	<i>0.112</i>	<i>0.113</i>	<i>0.115</i>	<i>0.115</i>	0.458	<i>0.455</i>	<i>0.455</i>
Subtotal	0.181	0.210	0.211	0.186	0.188	0.224	0.224	<i>0.194</i>	<i>0.198</i>	<i>0.241</i>	<i>0.243</i>	<i>0.206</i>	0.788	<i>0.829</i>	<i>0.890</i>
Transportation Sector															
Biomass-based Diesel (f)	0.062	0.067	0.073	0.074	0.056	0.070	0.062	<i>0.069</i>	<i>0.071</i>	<i>0.079</i>	<i>0.086</i>	<i>0.091</i>	0.276	<i>0.258</i>	<i>0.327</i>
Ethanol (f)	0.258	0.222	0.266	0.259	0.244	0.283	0.287	<i>0.275</i>	<i>0.256</i>	<i>0.288</i>	<i>0.292</i>	<i>0.285</i>	1.006	<i>1.089</i>	<i>1.121</i>
Subtotal	0.320	0.289	0.340	0.333	0.300	0.353	0.348	<i>0.344</i>	<i>0.327</i>	<i>0.367</i>	<i>0.378</i>	<i>0.376</i>	1.282	<i>1.344</i>	<i>1.447</i>
All Sectors Total															
Biomass-based Diesel (f)	0.062	0.067	0.073	0.074	0.056	0.070	0.062	<i>0.069</i>	<i>0.071</i>	<i>0.079</i>	<i>0.086</i>	<i>0.091</i>	0.276	<i>0.258</i>	<i>0.327</i>
Biofuel Losses and Co-products (d)	0.197	0.135	0.179	0.189	0.169	0.188	0.188	<i>0.191</i>	<i>0.184</i>	<i>0.193</i>	<i>0.198</i>	<i>0.197</i>	0.699	<i>0.736</i>	<i>0.771</i>
Ethanol (f)	0.268	0.231	0.277	0.269	0.253	0.293	0.298	<i>0.296</i>	<i>0.266</i>	<i>0.299</i>	<i>0.303</i>	<i>0.296</i>	1.045	<i>1.141</i>	<i>1.164</i>
Geothermal	0.052	0.054	0.054	0.055	0.051	0.052	0.052	<i>0.051</i>	<i>0.051</i>	<i>0.051</i>	<i>0.052</i>	<i>0.052</i>	0.214	<i>0.207</i>	<i>0.205</i>
Hydroelectric Power (a)	0.671	0.727	0.632	0.563	0.620	0.601	0.543	<i>0.557</i>	<i>0.645</i>	<i>0.724</i>	<i>0.595</i>	<i>0.540</i>	2.592	<i>2.322</i>	<i>2.503</i>
Solar (b)(e)	0.238	0.374	0.377	0.257	0.292	0.467	0.452	<i>0.316</i>	<i>0.377</i>	<i>0.590</i>	<i>0.589</i>	<i>0.394</i>	1.246	<i>1.528</i>	<i>1.950</i>
Waste Biomass (c)	0.113	0.105	0.104	0.108	0.108	0.104	0.104	<i>0.108</i>	<i>0.107</i>	<i>0.105</i>	<i>0.105</i>	<i>0.106</i>	0.430	<i>0.424</i>	<i>0.423</i>
Wood Biomass	0.532	0.517	0.519	0.533	0.520	0.523	0.538	<i>0.540</i>	<i>0.529</i>	<i>0.524</i>	<i>0.551</i>	<i>0.547</i>	2.101	<i>2.121</i>	<i>2.151</i>
Wind	0.787	0.803	0.627	0.852	0.883	0.875	0.699	<i>1.002</i>	<i>1.049</i>	<i>0.982</i>	<i>0.759</i>	<i>1.063</i>	3.069	<i>3.458</i>	<i>3.852</i>
Total Consumption	2.912	3.004	2.834	2.890	2.951	3.168	2.919	<i>3.112</i>	<i>3.269</i>	<i>3.534</i>	<i>3.226</i>	<i>3.278</i>	11.640	<i>12.150</i>	<i>13.306</i>

- (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)
- (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) Solar consumption in the residential sector includes energy from small-scale (<1 MW) solar photovoltaic systems. Also includes solar heating consumption in all sectors.
- (f) Fuel ethanol and biomass-based diesel consumption in the transportation sector includes production, stock change, and imports less exports. Some biomass-based diesel may be consumed in

- = no data available

Notes: EIA completed modeling and analysis for this report on December 2, 2021.

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*

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 - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Renewable Energy Electric Generating Capacity (megawatts, end of period)															
Electric Power Sector (a)															
Biomass	6,347	6,346	6,296	6,295	6,285	6,141	6,141	6,154	6,155	6,190	6,190	6,190	6,295	6,154	6,190
Waste	3,867	3,865	3,791	3,790	3,781	3,779	3,779	3,793	3,793	3,829	3,829	3,829	3,790	3,793	3,829
Wood	2,480	2,480	2,505	2,505	2,505	2,362	2,362	2,362	2,362	2,362	2,362	2,362	2,505	2,362	2,362
Conventional Hydroelectric	78,527	78,521	78,668	78,670	78,673	78,745	78,747	78,766	78,787	78,797	78,838	78,841	78,670	78,766	78,841
Geothermal	2,466	2,483	2,483	2,483	2,483	2,483	2,483	2,500	2,500	2,500	2,500	2,525	2,483	2,500	2,525
Large-Scale Solar (b)	38,887	40,985	42,786	47,413	50,293	52,267	55,281	63,653	66,731	70,845	74,004	84,566	47,413	63,653	84,566
Wind	106,055	107,549	109,076	118,045	120,930	124,472	126,426	135,275	136,465	138,404	138,404	142,410	118,045	135,275	142,410
Other Sectors (c)															
Biomass	6,295	6,296	6,292	6,302	6,280	6,284	6,289	6,289	6,289	6,289	6,281	6,281	6,302	6,289	6,281
Waste	770	771	767	777	775	778	778	778	778	778	778	778	777	778	778
Wood	5,525	5,525	5,525	5,525	5,505	5,505	5,510	5,510	5,510	5,510	5,503	5,503	5,525	5,510	5,503
Conventional Hydroelectric	279	279	279	279	279	279	277	277	279	279	279	279	279	277	279
Large-Scale Solar (b)	443	456	462	468	474	474	489	535	535	541	543	552	468	535	552
Small-Scale Solar (d)	24,351	25,248	26,252	27,585	28,760	30,243	31,438	32,718	34,003	35,271	36,518	37,736	27,585	32,718	37,736
Residential Sector	15,064	15,682	16,364	17,163	17,959	19,039	19,974	20,907	21,798	22,659	23,485	24,268	17,163	20,907	24,268
Commercial Sector	7,426	7,641	7,909	8,376	8,720	9,074	9,294	9,586	9,922	10,271	10,633	11,008	8,376	9,586	11,008
Industrial Sector	1,861	1,925	1,979	2,045	2,080	2,130	2,170	2,225	2,283	2,341	2,400	2,460	2,045	2,225	2,460
Wind	111	337	346	346	346	346	346	346	346	346	346	346	346	346	346
Renewable Electricity Generation (billion kilowatthours)															
Electric Power Sector (a)															
Biomass	7.0	6.4	6.9	6.6	7.2	6.8	7.2	6.4	6.6	6.3	6.9	6.4	26.8	27.6	26.2
Waste	4.1	3.9	3.9	3.8	4.0	3.9	3.9	3.9	3.9	3.8	3.9	3.8	15.6	15.6	15.4
Wood	3.0	2.5	3.0	2.8	3.2	2.8	3.4	2.5	2.8	2.5	3.0	2.6	11.2	12.0	10.8
Conventional Hydroelectric	73.8	80.8	68.5	61.0	68.7	65.8	60.8	61.0	70.5	79.2	65.0	59.0	284.1	256.2	273.7
Geothermal	3.7	3.9	3.8	4.0	3.8	3.9	4.0	3.9	3.9	3.8	4.0	4.0	15.4	15.6	15.7
Large-Scale Solar (b)	16.2	27.0	27.4	17.8	21.2	34.7	34.5	23.1	28.4	45.2	45.0	29.7	88.5	113.5	148.3
Wind	86.5	88.2	68.9	93.6	96.9	96.1	76.8	110.0	115.2	107.8	83.4	116.7	337.2	379.8	423.2
Other Sectors (c)															
Biomass	7.4	6.8	6.8	6.9	6.9	6.8	7.1	6.9	6.9	6.8	7.1	6.9	27.9	27.7	27.7
Waste	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	2.9	2.7	2.7
Wood	6.7	6.1	6.1	6.2	6.2	6.1	6.4	6.2	6.2	6.1	6.4	6.2	25.0	24.9	24.9
Conventional Hydroelectric	0.4	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2	1.2	1.1	1.1
Large-Scale Solar (b)	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.7	0.8	0.9
Small-Scale Solar (d)	8.4	12.4	12.3	8.5	9.7	14.7	14.5	9.9	11.3	17.2	17.3	11.8	41.5	48.9	57.6
Residential Sector	5.0	7.5	7.5	5.2	5.9	9.1	8.9	6.0	6.9	10.8	10.9	7.4	25.2	29.9	36.0
Commercial Sector	2.7	3.8	3.8	2.6	3.1	4.5	4.5	3.1	3.5	5.1	5.1	3.5	12.9	15.2	17.3
Industrial Sector	0.7	1.0	1.0	0.7	0.8	1.1	1.1	0.8	0.9	1.3	1.3	0.9	3.5	3.9	4.3
Wind	0.1	0.1	0.2	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.8	1.0	0.9

(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 December 2, 2021.

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 - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Macroeconomic															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR)	18,952	17,258	18,561	18,768	19,056	19,368	19,465	19,675	19,915	20,150	20,363	20,518	18,385	19,391	20,236
Real Personal Consumption Expend. (billion chained 2012 dollars - SAAR)	13,014	11,756	12,821	12,928	13,283	13,666	13,719	13,869	13,968	14,056	14,148	14,230	12,630	13,634	14,100
Real Private Fixed Investment (billion chained 2012 dollars - SAAR)	3,420	3,123	3,319	3,457	3,564	3,593	3,586	3,604	3,648	3,695	3,737	3,769	3,329	3,587	3,712
Business Inventory Change (billion chained 2012 dollars - SAAR)	-21	-290	15	57	-94	-174	-68	-41	30	109	172	200	-60	-94	128
Real Government Expenditures (billion chained 2012 dollars - SAAR)	3,346	3,378	3,360	3,356	3,391	3,374	3,380	3,381	3,422	3,444	3,463	3,472	3,360	3,382	3,450
Real Exports of Goods & Services (billion chained 2012 dollars - SAAR)	2,442	1,943	2,166	2,279	2,262	2,304	2,289	2,303	2,335	2,388	2,444	2,500	2,208	2,290	2,417
Real Imports of Goods & Services (billion chained 2012 dollars - SAAR)	3,284	2,718	3,188	3,412	3,488	3,549	3,601	3,613	3,650	3,694	3,744	3,795	3,150	3,563	3,721
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	14,963	16,520	15,783	15,443	17,219	15,740	15,513	15,275	15,265	15,411	15,571	15,659	15,677	15,937	15,476
Non-Farm Employment (millions)	151.9	133.7	140.9	142.6	143.4	145.1	147.4	148.7	150.1	151.4	152.6	153.5	142.3	146.1	151.9
Civilian Unemployment Rate (percent)	3.8	13.1	8.8	6.8	6.2	5.9	5.1	4.5	4.2	3.9	3.6	3.5	8.1	5.4	3.8
Housing Starts (millions - SAAR)	1.49	1.09	1.44	1.58	1.60	1.59	1.56	1.52	1.48	1.44	1.40	1.38	1.40	1.56	1.43
Industrial Production Indices (Index, 2017=100)															
Total Industrial Production	100.0	87.1	95.5	97.4	98.3	99.9	100.8	101.6	102.6	104.0	105.4	106.5	95.0	100.2	104.6
Manufacturing	97.6	84.2	94.2	96.7	97.3	98.7	100.0	100.9	102.1	103.7	105.4	106.8	93.2	99.2	104.5
Food	101.8	93.8	98.0	100.1	101.2	100.4	99.0	98.9	98.4	98.6	99.0	99.4	98.4	99.9	98.9
Paper	99.5	91.5	90.7	94.9	93.9	95.0	95.1	96.1	96.8	97.0	97.5	97.8	94.2	95.0	97.3
Petroleum and Coal Products	98.0	77.3	84.0	86.7	90.5	95.9	94.3	96.3	96.5	97.2	97.8	98.2	86.5	94.2	97.4
Chemicals	95.0	89.9	92.5	94.7	91.8	99.3	99.5	101.1	102.3	103.0	103.9	104.3	93.0	97.9	103.4
Nonmetallic Mineral Products	99.7	88.1	94.6	98.4	97.4	95.4	96.5	97.1	97.9	97.9	98.2	98.5	95.2	96.6	98.1
Primary Metals	95.9	72.9	83.3	90.3	92.4	96.7	98.2	99.0	99.9	100.2	101.5	102.0	85.6	96.6	100.9
Coal-weighted Manufacturing (a)	97.1	86.7	93.0	96.6	94.2	97.4	97.4	98.5	99.4	100.1	101.2	101.9	93.3	96.9	100.7
Distillate-weighted Manufacturing (a)	97.0	84.4	92.0	95.7	94.6	97.3	97.1	97.9	98.6	99.1	99.9	100.4	92.3	96.7	99.5
Electricity-weighted Manufacturing (a)	97.1	83.4	91.6	95.4	94.5	97.9	98.2	99.2	100.2	101.0	102.2	103.0	91.9	97.4	101.6
Natural Gas-weighted Manufacturing (a)	95.5	84.1	89.7	93.7	90.5	96.4	95.7	97.1	97.9	98.5	99.5	100.1	90.8	94.9	99.0
Price Indexes															
Consumer Price Index (all urban consumers) (index, 1982-1984=1.00)	2.59	2.56	2.59	2.61	2.63	2.69	2.73	2.77	2.77	2.79	2.79	2.81	2.59	2.70	2.79
Producer Price Index: All Commodities (index, 1982=1.00)	1.97	1.88	1.94	1.99	2.11	2.24	2.33	2.36	2.35	2.33	2.33	2.32	1.94	2.26	2.33
Producer Price Index: Petroleum (index, 1982=1.00)	1.71	1.05	1.47	1.51	1.84	2.14	2.29	2.42	2.19	2.16	2.13	2.01	1.43	2.17	2.12
GDP Implicit Price Deflator (index, 2012=100)	113.4	113.0	114.0	114.6	115.8	117.5	119.2	120.2	121.2	121.8	122.3	122.9	113.7	118.2	122.0
Miscellaneous															
Vehicle Miles Traveled (b) (million miles/day)	7,764	6,868	8,262	8,009	7,682	8,939	9,029	8,882	8,169	9,340	9,408	9,085	7,728	8,637	9,004
Air Travel Capacity (Available ton-miles/day, thousands)	630	362	478	537	537	596	675	691	638	700	702	649	502	625	673
Aircraft Utilization (Revenue ton-miles/day, thousands)	328	151	208	238	245	340	379	383	404	451	450	409	231	337	429
Airline Ticket Price Index (index, 1982-1984=100)	250.8	203.7	200.6	215.1	198.4	243.3	218.5	199.5	203.2	230.9	233.6	243.1	217.5	214.9	227.7
Raw Steel Production (million short tons per day)	0.268	0.174	0.197	0.224	0.246	0.258	0.267	0.276	0.311	0.287	0.284	0.295	0.216	0.262	0.294
Carbon Dioxide (CO2) Emissions (million metric tons)															
Petroleum	558	441	520	523	517	559	569	570	552	573	588	582	2,042	2,215	2,295
Natural Gas	490	347	381	428	484	353	365	435	474	350	373	441	1,647	1,638	1,639
Coal	202	177	271	225	255	228	319	226	232	223	295	244	875	1,028	993
Total Energy (c)	1,252	969	1,175	1,179	1,259	1,142	1,256	1,234	1,261	1,148	1,259	1,271	4,575	4,891	4,939

 (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 December 2, 2021.

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 IHS Markit model of the U.S. Economy.

Table 9b. U.S. Regional Macroeconomic Data

U.S. Energy Information Administration | Short-Term Energy Outlook - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Real Gross State Product (Billion \$2012)															
New England	980	889	959	967	976	993	999	1,010	1,022	1,034	1,045	1,053	949	994	1,038
Middle Atlantic	2,706	2,484	2,659	2,699	2,740	2,788	2,795	2,817	2,852	2,889	2,923	2,946	2,637	2,785	2,903
E. N. Central	2,468	2,238	2,421	2,452	2,482	2,521	2,529	2,551	2,581	2,609	2,634	2,654	2,395	2,521	2,620
W. N. Central	1,184	1,080	1,165	1,185	1,201	1,220	1,222	1,234	1,248	1,261	1,272	1,279	1,153	1,219	1,265
S. Atlantic	3,369	3,079	3,296	3,332	3,381	3,433	3,448	3,486	3,526	3,567	3,603	3,628	3,269	3,437	3,581
E. S. Central	829	738	808	819	834	845	849	857	866	874	882	887	798	846	878
W. S. Central	2,333	2,114	2,283	2,313	2,332	2,365	2,378	2,408	2,439	2,470	2,502	2,524	2,261	2,371	2,484
Mountain	1,278	1,154	1,239	1,250	1,264	1,284	1,296	1,311	1,330	1,345	1,360	1,372	1,230	1,289	1,352
Pacific	3,645	3,321	3,568	3,583	3,675	3,746	3,774	3,823	3,873	3,919	3,959	3,991	3,529	3,755	3,935
Industrial Output, Manufacturing (Index, Year 2017=100)															
New England	96.1	82.6	91.6	94.6	95.1	96.4	92.5	93.5	94.3	95.7	97.2	98.4	91.3	94.4	96.4
Middle Atlantic	95.0	79.2	89.9	92.5	93.0	94.3	91.0	92.0	93.2	94.7	96.2	97.2	89.2	92.6	95.3
E. N. Central	95.9	79.0	91.8	94.4	95.0	95.8	98.9	100.0	101.4	103.1	105.0	106.8	90.3	97.4	104.1
W. N. Central	98.0	86.0	94.7	97.1	98.0	99.3	100.4	101.0	102.1	103.4	105.2	106.4	94.0	99.7	104.3
S. Atlantic	98.6	85.8	95.2	98.4	98.9	100.3	104.9	105.8	107.0	108.6	110.5	111.9	94.5	102.5	109.5
E. S. Central	96.6	79.9	93.6	96.7	97.8	98.9	105.3	106.1	107.0	108.3	110.2	111.8	91.7	102.0	109.3
W. S. Central	100.2	88.9	95.7	97.9	98.8	100.4	95.1	96.2	97.6	99.2	100.9	102.3	95.7	97.6	100.0
Mountain	102.8	92.2	101.3	104.0	105.2	107.5	114.0	115.0	116.1	117.7	119.6	121.1	100.1	110.4	118.6
Pacific	96.4	84.0	91.6	93.3	93.5	94.7	95.3	96.5	97.8	99.7	101.5	103.0	91.3	95.0	100.5
Real Personal Income (Billion \$2012)															
New England	883	960	918	911	983	922	912	900	903	913	923	929	918	929	917
Middle Atlantic	2,248	2,477	2,401	2,326	2,553	2,381	2,348	2,312	2,313	2,339	2,365	2,378	2,363	2,398	2,349
E. N. Central	2,465	2,716	2,572	2,543	2,837	2,608	2,566	2,534	2,534	2,558	2,584	2,599	2,574	2,636	2,569
W. N. Central	1,160	1,259	1,182	1,197	1,316	1,221	1,207	1,194	1,193	1,202	1,214	1,221	1,199	1,234	1,207
S. Atlantic	3,284	3,531	3,398	3,350	3,744	3,457	3,441	3,400	3,404	3,437	3,475	3,497	3,391	3,511	3,453
E. S. Central	916	1,004	942	931	1,060	960	953	942	942	949	958	963	948	979	953
W. S. Central	2,053	2,200	2,122	2,093	2,343	2,164	2,141	2,127	2,137	2,162	2,189	2,206	2,117	2,194	2,173
Mountain	1,222	1,322	1,261	1,249	1,389	1,277	1,267	1,254	1,257	1,270	1,284	1,294	1,263	1,297	1,276
Pacific	2,765	2,962	2,955	2,876	3,142	2,955	2,922	2,875	2,875	2,904	2,933	2,951	2,889	2,973	2,916
Households (Thousands)															
New England	6,019	6,025	6,035	6,043	6,053	6,056	6,049	6,059	6,070	6,082	6,098	6,112	6,043	6,059	6,112
Middle Atlantic	16,352	16,367	16,404	16,434	16,467	16,478	16,476	16,515	16,551	16,594	16,635	16,676	16,434	16,515	16,676
E. N. Central	18,945	18,980	19,019	19,039	19,074	19,088	19,089	19,139	19,184	19,224	19,265	19,306	19,039	19,139	19,306
W. N. Central	8,619	8,645	8,667	8,689	8,714	8,726	8,730	8,758	8,783	8,812	8,843	8,868	8,689	8,758	8,868
S. Atlantic	25,844	25,945	26,036	26,139	26,237	26,300	26,338	26,451	26,560	26,679	26,797	26,908	26,139	26,451	26,908
E. S. Central	7,711	7,736	7,757	7,781	7,803	7,815	7,822	7,849	7,874	7,903	7,931	7,956	7,781	7,849	7,956
W. S. Central	15,058	15,123	15,180	15,245	15,304	15,342	15,373	15,443	15,512	15,586	15,661	15,728	15,245	15,443	15,728
Mountain	9,387	9,438	9,487	9,539	9,590	9,628	9,659	9,715	9,768	9,821	9,875	9,923	9,539	9,715	9,923
Pacific	18,882	18,929	18,971	19,019	19,056	19,065	19,065	19,117	19,172	19,230	19,288	19,332	19,019	19,117	19,332
Total Non-farm Employment (Millions)															
New England	7.6	6.4	6.8	6.9	7.0	7.1	7.2	7.3	7.3	7.4	7.5	7.5	6.9	7.1	7.4
Middle Atlantic	20.1	16.7	17.9	18.2	18.3	18.5	18.8	18.9	19.1	19.3	19.5	19.6	18.2	18.6	19.4
E. N. Central	22.3	19.3	20.7	20.8	20.9	21.1	21.4	21.5	21.7	21.9	22.1	22.2	20.8	21.2	22.0
W. N. Central	10.8	9.7	10.2	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.8	10.9	10.2	10.5	10.8
S. Atlantic	29.3	26.2	27.4	27.8	27.9	28.1	28.7	28.9	29.1	29.4	29.6	29.8	27.7	28.4	29.5
E. S. Central	8.3	7.5	7.9	8.0	8.0	8.1	8.2	8.2	8.3	8.3	8.4	8.4	7.9	8.1	8.3
W. S. Central	17.9	16.2	16.7	17.0	17.1	17.3	17.6	17.8	17.9	18.0	18.2	18.3	17.0	17.5	18.1
Mountain	11.2	10.0	10.5	10.6	10.7	10.9	11.1	11.2	11.3	11.4	11.4	11.5	10.6	11.0	11.4
Pacific	24.0	20.9	21.6	21.9	21.9	22.4	22.9	23.2	23.4	23.7	23.9	24.1	22.1	22.6	23.8

- = no data available

Notes: EIA completed modeling and analysis for this report on December 2, 2021.

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

Regions refer to U.S. Census divisions.

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

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

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

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

Table 9c. U.S. Regional Weather Data

U.S. Energy Information Administration | Short-Term Energy Outlook - December 2021

	2020				2021				2022				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2020	2021	2022
Heating Degree Days															
New England	2,737	974	116	2,003	3,017	783	85	1,988	3,028	868	137	2,150	5,830	5,873	6,181
Middle Atlantic	2,468	836	85	1,830	2,818	668	57	1,809	2,811	695	88	1,971	5,220	5,353	5,566
E. N. Central	2,785	846	126	2,099	3,085	709	70	2,082	3,092	730	134	2,261	5,856	5,946	6,217
W. N. Central	3,040	799	167	2,315	3,228	720	89	2,251	3,228	707	168	2,479	6,321	6,288	6,582
South Atlantic	1,110	254	17	879	1,348	212	11	920	1,350	193	13	950	2,260	2,490	2,506
E. S. Central	1,480	336	20	1,225	1,791	312	19	1,270	1,738	246	22	1,312	3,060	3,392	3,318
W. S. Central	969	102	8	737	1,296	121	1	750	1,091	76	5	831	1,816	2,168	2,002
Mountain	2,220	676	128	1,780	2,301	660	110	1,748	2,254	699	144	1,881	4,804	4,819	4,978
Pacific	1,537	528	67	1,089	1,564	488	77	1,170	1,579	614	88	1,231	3,220	3,298	3,511
U.S. Average	1,880	543	71	1,424	2,108	473	51	1,436	2,077	492	77	1,541	3,919	4,067	4,187
Heating Degree Days, Prior 10-year Average															
New England	3,152	822	105	2,127	3,133	856	107	2,100	3,101	853	108	2,110	6,207	6,196	6,172
Middle Atlantic	2,948	644	69	1,944	2,912	678	72	1,911	2,887	685	72	1,917	5,606	5,572	5,559
E. N. Central	3,198	698	102	2,197	3,157	731	105	2,170	3,133	728	97	2,181	6,195	6,162	6,139
W. N. Central	3,288	703	132	2,380	3,248	728	133	2,368	3,219	726	125	2,379	6,502	6,477	6,450
South Atlantic	1,461	169	10	953	1,395	181	11	916	1,380	187	11	918	2,593	2,503	2,496
E. S. Central	1,849	214	15	1,277	1,771	231	16	1,249	1,763	243	15	1,251	3,356	3,267	3,272
W. S. Central	1,199	83	3	794	1,140	86	3	786	1,145	93	3	780	2,078	2,015	2,020
Mountain	2,198	721	136	1,850	2,188	704	135	1,850	2,180	685	132	1,829	4,905	4,877	4,826
Pacific	1,456	580	85	1,162	1,462	553	81	1,147	1,455	523	79	1,133	3,283	3,242	3,190
U.S. Average	2,153	473	64	1,512	2,112	483	65	1,487	2,096	479	62	1,486	4,202	4,148	4,123
Cooling Degree Days															
New England	0	102	538	0	0	141	452	6	0	79	402	2	639	600	482
Middle Atlantic	0	156	682	4	0	183	628	23	0	147	530	5	842	835	682
E. N. Central	2	218	606	2	2	250	627	30	0	211	518	6	828	909	735
W. N. Central	6	295	662	3	8	312	746	22	3	259	651	9	966	1,088	922
South Atlantic	194	614	1,225	296	150	613	1,172	263	135	652	1,160	237	2,329	2,198	2,184
E. S. Central	74	425	1,063	81	41	436	1,018	103	32	508	1,031	62	1,643	1,598	1,633
W. S. Central	175	841	1,508	212	90	770	1,474	261	103	891	1,491	192	2,736	2,595	2,677
Mountain	10	465	1,080	117	11	532	964	63	17	422	932	75	1,672	1,569	1,446
Pacific	25	195	713	125	24	250	696	45	27	168	593	60	1,057	1,014	847
U.S. Average	70	393	931	120	49	410	901	112	48	400	847	93	1,514	1,472	1,387
Cooling Degree Days, Prior 10-year Average															
New England	0	83	471	1	0	80	473	1	0	87	471	2	554	555	560
Middle Atlantic	0	170	609	6	0	163	610	6	0	162	608	8	786	779	779
E. N. Central	3	240	579	8	3	234	572	7	3	237	571	9	829	816	821
W. N. Central	7	296	696	11	7	294	686	10	7	299	681	11	1,010	997	999
South Atlantic	127	695	1,201	247	143	679	1,194	260	147	667	1,188	266	2,270	2,275	2,268
E. S. Central	36	557	1,082	72	42	532	1,065	74	44	518	1,058	81	1,747	1,714	1,701
W. S. Central	100	892	1,576	207	114	880	1,568	210	113	853	1,537	218	2,775	2,773	2,721
Mountain	24	430	934	80	24	442	949	85	23	459	946	84	1,468	1,499	1,512
Pacific	31	185	624	78	31	193	647	86	31	207	663	84	919	957	985
U.S. Average	47	419	891	99	52	413	892	104	53	412	889	107	1,455	1,461	1,461

- = no data available

Notes: EIA completed modeling and analysis for this report on December 2, 2021.

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 December 2021 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

	Oct 2021	Nov 2021	Oct 2021 - Nov 2021 Average	Oct 2020 - Nov 2020 Average	2018 - 2020 Average
Global Petroleum and Other Liquids (million barrels per day)					
Global Petroleum and Other Liquids Production (a)	97.9	99.0	98.4	92.1	98.2
Global Petroleum and Other Liquids Consumption (b)	98.5	99.7	99.1	94.1	97.3
Biofuels Production (c)	2.8	2.6	2.7	2.8	2.7
Biofuels Consumption (c)	2.7	2.6	2.6	2.6	2.6
Iran Liquid Fuels Production	3.5	3.6	3.5	2.9	3.6
Iran Liquid Fuels Consumption	1.8	1.9	1.8	1.8	1.9
Petroleum and Petroleum Products Produced and Consumed in Countries Other Than Iran (million barrels per day)					
Production (d)	91.5	92.8	92.2	86.3	91.9
Consumption (d)	94.1	95.3	94.7	89.7	92.8
Production minus Consumption	-2.6	-2.4	-2.5	-3.4	-0.9
World Inventory Net Withdrawals Including Iran	0.7	0.7	0.7	2.0	-0.9
Estimated OECD Inventory Level (e) (million barrels)	2,777	2,767	2,772	3,109	2,943
Surplus Production Capacity (million barrels per day)					
OPEC Surplus Crude Oil Production Capacity (f)	6.2	5.9	6.1	7.7	3.4

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	Oct 2021	Nov 2021	Oct 2021 - Nov	Oct 2020 - Nov	2018 - 2020
			2021 Average	2020 Average	Average
Brent Front Month Futures Price (\$ per barrel)	83.75	80.85	82.30	42.69	59.69
WTI Front Month Futures Price (\$ per barrel)	81.22	78.65	79.94	40.41	53.76
Dubai Front Month Futures Price (\$ per barrel)	81.81	79.77	80.79	42.60	59.01
Brent 1st - 13th Month Futures Spread (\$ per barrel)	8.29	7.39	7.84	14.97	1.01
WTI 1st - 13th Month Futures Spread (\$ per barrel)	9.09	8.62	8.86	11.72	0.57
RBOB Front Month Futures Price (\$ per gallon)	2.42	2.28	2.35	1.16	1.61
Heating Oil Front Month Futures Price (\$ per gallon)	2.52	2.37	2.45	1.20	1.76
RBOB - Brent Futures Crack Spread (\$ per gallon)	0.43	0.36	0.39	0.15	0.19
Heating Oil - Brent Futures Crack Spread (\$ per gallon)	0.52	0.45	0.49	0.18	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).