



## Short-Term Energy Outlook

---

### Forecast highlights

- The July *Short-Term Energy Outlook* (STEO) is subject to heightened uncertainty resulting from a variety of factors, including Russia's full-scale invasion of Ukraine. The possibility of economic activity being less robust than assumed in our forecast could result in lower-than-forecast energy consumption. Factors driving uncertainty about energy supply include how sanctions affect Russia's oil production, the production decisions of OPEC+, and the rate at which U.S. oil and natural gas production rises.
- The spot price of Brent crude oil averaged \$71 per barrel (b) in 2021, and we forecast the Brent price will average \$104/b in 2022 and \$94/b in 2023.
- Global oil inventories in the forecast rise by 0.8 million barrels per day (b/d) in 2022 and remain unchanged in 2023. Inventory builds in 2022 reflect rising production of liquid fuels in the United States and OPEC, paired with slowing liquid fuels consumption growth.
- We expect global consumption of liquid fuels will grow by 2.2 million b/d in 2022 and by 2.0 million b/d in 2023.
- We forecast that OPEC crude oil production will rise by 2.4 million b/d to average 28.7 million b/d in 2022 and will further increase to 29.3 million b/d in 2023. Crude oil production from OPEC members averaged 26.3 million b/d in 2021.
- U.S. crude oil production in our forecast averages 11.9 million b/d in 2022 and 12.8 million b/d in 2023, which would set a record for most U.S. crude oil production in a year. The current record is 12.3 million b/d, set in 2019.
- U.S. regular gasoline retail prices averaged \$4.11 per gallon (gal) in the first half of 2022 (1H22), up from \$2.78/gal in 1H21. We forecast gasoline prices will average \$4.05/gal in 2022 and \$3.57/gal in 2023. U.S. diesel prices averaged \$4.91/gal in 1H22, up from \$3.06/gal in 1H21. We forecast diesel prices will average \$4.73/gal in 2022 and \$4.07/gal in 2023.
- U.S. refineries average 94% utilization in the third quarter of 2022 (3Q22) in our forecast, as a result of high wholesale product margins. Although we expect that refinery utilization will be at or near the highest levels in the past five years, operable

U.S. refinery capacity has fallen by about 1 million b/d. As a result, we do not expect U.S. refinery output of products to reach its highest level in the past five years.

- The spot price of natural gas at Henry Hub averaged \$6.07 per million British thermal units (MMBtu) in the first half of 2022 (1H22). The average price increased in each month from January through May, when it reached \$8.14/MMBtu before declining to \$7.70/MMBtu in June. We expect the Henry Hub spot price will average \$5.97/MMBtu in 2H22 and average \$4.76/MMBtu in 2023.
- We estimate that U.S. liquefied natural gas (LNG) exports averaged 11.2 billion cubic feet per day (Bcf/d) in 1H22, compared with 9.5 Bcf/d in the same period in 2021. We expect LNG exports to average 10.9 Bcf/d in 2022 and 12.7 Bcf/d in 2023. We reduced our forecast for LNG exports in 2H22 as a result of the outage at the Freeport LNG export facility in Texas. Our forecast assumes the facility will return to near full operations in January 2023.
- U.S. dry natural gas production in the forecast averages 96.2 Bcf/d in 2022, up 2.7 Bcf/d (3%) from 2021. We forecast average production will increase to almost 100.0 Bcf/d in 2023.
- Compared with the 2021, U.S. natural gas consumption in the forecast will increase by 2.9 Bcf/d (3%) to average 85.9 Bcf/d in 2022 and then fall to 85.4 Bcf/d in 2023.
- We forecast U.S. natural gas inventories will end October 2022, the end of the 2022 storage injection season, at almost 3.5 trillion cubic feet, which would be 6% below the 2017–21 average for the end of October and down 5% from October 2021.
- U.S. consumption of electricity increases in the forecast by 2.3% in 2022, largely because of rising economic activity. Growth in electricity consumption slows to 0.6% in 2023.
- The largest increases in U.S. electricity generation in our forecast come from renewable energy sources, mostly solar and wind. We expect renewable sources will provide 22% of U.S. generation in 2022 and 24% in 2023, up from a share of 20% in 2021.
- We forecast that the cost of natural gas to U.S. power generators will rise from \$4.97/MMBtu in 2021 to \$6.35/MMBtu in 2022. Despite the increase, we forecast the share of natural gas in U.S. generation will average 37% in 2022, about the same as last year. The similar share of natural gas generation despite higher prices results partly from our forecast that electricity generation from coal will decline from 23% of the total in 2021 to 21% in 2022 and to 20% in 2023, which reflects the continued [retirement of coal-fired generating capacity](#) and other coal market constraints.
- We forecast the U.S. residential electricity price will average 14.4 cents per kilowatthour in 2022, up 5.3% from 2021. Higher retail electricity prices largely reflect an increase in

wholesale power prices driven by rising natural gas prices. Annual average wholesale prices for 2022 range from an average of \$50 per megawatthour (MWh) in the Southwest Power Pool market to \$85/MWh in the ISO New England market.

- We expect energy-related carbon dioxide (CO<sub>2</sub>) emissions in the United States to increase by 1.5% in 2022 and remain generally unchanged in 2023.

## Global liquid fuels

After more than two years of price volatility in global oil markets stemming from responses to the COVID-19 pandemic, Russia's full-scale invasion of Ukraine has added further uncertainty and volatility to markets in 2022. Global oil consumption has outpaced the global oil supply since mid-2020, which, combined with the increased risk that global oil supply could be constrained, has put significant upward pressure on both crude oil and petroleum product prices. Because production has not kept up with demand, commercial oil inventories in the OECD have fallen outside of their five-year (2017–2021) range and are near their lowest levels since 2014.

Oil consumption outpacing oil production has led to persistent withdrawals from global oil inventories. We estimate that global oil inventories declined for seven consecutive quarters starting in the third quarter of 2020 (3Q20) and continuing through 1Q22. Inventories declined at an average rate of 1.4 million barrels per day (b/d) over that period. The Brent crude oil spot price increased from an average of \$43 per barrel (b) in 3Q20 to an average of \$114/b in 2Q22.

For 2Q22, we estimate that inventories rose for the first time on a quarterly basis in two years. We expect global oil inventories will rise by an average of 0.8 million b/d in 2022 and be mostly unchanged in 2023. Inventory builds in 2022 generally put downward pressure on crude oil prices. However, we expect prices to stay elevated as inventories remain below their recent five-year average for most of the forecast, which will likely keep crude oil prices volatile. The Brent price averages \$104/b in 2022 and \$94/b in 2023 in our forecast.

Uncertainty in global oil markets has increased during 2022. On the demand side, the impacts of COVID-19 restrictions on oil consumption have increasingly been centered in China. In addition, given the potential for high fuel prices, inflation, and slowing economic activity, fuel demand might decrease in the coming months. On the supply side, heightened geopolitical risks and uncertainty stemming from Russia's full-scale invasion of Ukraine have increased. The full impact of sanctions against Russia remains uncertain. There is additional uncertainty about whether OPEC+ members will meet their increasing production targets and the responsiveness of new crude oil production to current high prices.

***Global petroleum and other liquid fuels consumption.*** We forecast global consumption of petroleum and other liquid fuels will grow by 2.2 million b/d in 2022. This growth is less than our January STEO forecast 2022 growth of 3.6 million b/d. Our reduced consumption forecast reflects the reduced global GDP forecast and the COVID-related lockdowns in China during the

first half of 2022 (1H22). Our global economic forecasts come from Oxford Economics, which forecasts GDP will increase by 3.2% in 2022 compared with the 4.5% we used in the January STEO. Forecasted GDP grows by 3.3% in 2023, and global consumption of petroleum and other liquid fuels grows by 2.0 million b/d in 2023.

We forecast of OECD oil consumption grows by 1.2 million b/d in 2022, and non-OECD consumption grows by 1.0 million b/d. If realized, 2022 would be the first year growth in oil consumption in the OECD outpaces growth in non-OECD consumption since 1999. Economic growth is the main driver of oil consumption growth throughout the forecast, but how higher oil prices, increasingly tight monetary policy, and a stronger U.S. dollar will affect world oil consumption in 2H22 and 2023 remains uncertain.

Many countries have significantly eased or have eliminated the restrictions on travel, mobility, and economic activity that were imposed to lessen the spread of COVID-19. China has been an exception; the government imposed a strict city-wide lockdown in Shanghai, is conducting mass testing, and is isolating significant portions of the population in an effort to control an outbreak of COVID-19 that occurred in March 2022. The lockdown in Shanghai continued for nearly all of 2Q22 and severely limited mobility and business activity in that city. Many of China's larger cities, including Beijing, also experienced COVID-19 outbreaks in 2Q22 that restricted mobility and business activity, although less so than in Shanghai. The outbreaks of COVID-19 in China and related restrictions lowered China's oil consumption in 2Q22. Although the government began easing restrictions in a number of China's cities in May 2022, some limitations on business activity and mobility continue and are expected to linger into 3Q22. Oil demand in China could fall further than we expect in the event of future outbreaks.

***Non-OPEC production of petroleum and other liquid fuels.*** We expect non-OPEC production will increase by 2.2 million b/d in 2022 and by an additional 0.6 million b/d in 2023. The United States leads production growth among non-OPEC countries in our forecast, and [Brazil, Canada, and Norway also contribute](#) significantly to growth. Production increases in these countries more than offset a decline in Russia's driven by sanctions and independent corporate actions.

This forecast reflects the implementation of the European Union's (EU) sixth package of sanctions on Russia, with imposition of a crude oil import ban by early December 2022 and petroleum products import ban by early February 2023. These sanctions will ban most EU crude oil and petroleum product imports from Russia and will prohibit EU companies from providing certain services, including insurance and reinsurance, to ships that carry Russian oil cargoes. We assume that the United Kingdom will implement similar services sanctions, including insurance and reinsurance. However, the EU's sixth package of sanctions does not ban EU-owned and EU-operated tankers from transporting Russian crude oil and products.

Our forecast assumes that although some EU shippers will no longer participate in the trade of Russia's crude oil and petroleum products, sufficient shipping capacity exists to carry Russia's

previous exports to the EU to alternative (non-EU) destinations instead. We expect that about half of these petroleum products will go to countries in Africa and Asia and that most of these crude oil exports could find alternative buyers, mainly in Asia.

We also assume that given the timeline of the implementation of sanctions, tanker owners and operators will be able to secure alternative services, including sovereign guarantees or alternative insurance and reinsurance policies, to replace most of those currently provided by EU and UK companies. Some shippers currently involved in trade with Russia will voluntarily stop shipping Russia's oil.

Our assumptions about the EU import ban and the reduced availability of shippers are reflected in our lower forecast on Russia's crude oil production for 2023. Russia's production will ultimately depend on how markets and trade flows evolve based on these sanctions as well as any other potential future sanctions. We forecast Russia's production of liquid fuels will fall to an average of 10.4 million b/d by 4Q22, down from 11.3 million b/d in 1Q22. We expect that Russia's production will fall to 9.1 million b/d by the end of 2023.

Brazil's liquid fuels production in our forecast increases from 3.7 million b/d in 2021 to 3.9 million b/d in 2022 and to 4.1 million b/d in 2023. Our forecast assumes that production from six new floating production storage and offloading (FPSO) units will ramp up through 2023 and continue to drive growth, notably at the Sepia, Mero, and Buzios fields.

Liquid fuels production in Canada in our forecast rises by 0.2 million b/d in 2022 and by 0.1 million b/d in 2023, bringing production to 5.9 million b/d in 2023. Canada's production growth is driven primarily by oil sands expansion and debottlenecking projects following the [expansion of the Enbridge Line 3 pipeline](#) (with a capacity of 760,000 b/d), which became operational in October 2021. The [TransMountain pipeline expansion project](#) (with a capacity of 890,000 b/d) is set to begin service at the end of 2023. Additional expansions and optimizations to [Enbridge's existing pipeline system](#), if completed, will add more than 400,000 b/d of export capacity over the forecast period. This new pipeline capacity from Enbridge and other planned pipeline expansions will reduce existing constraints on Canada's crude oil exports by the end of 2023.

We forecast that production of liquid fuels in Norway will remain mostly flat in 2022, but we expect it to increase by 0.3 million b/d in 2023, reaching 2.3 million b/d. Growth largely reflects the completion of phase two of the Johan Sverdrup expansion project, which is scheduled to come online in 4Q22. We expect the combined production from this phase and from phase one to reach 720,000 b/d at full capacity.

The remaining key sources of forecast non-OPEC production growth come from China, Argentina, and Guyana. Notably, Guyana first began producing oil in December 2019. We expect that Guyana will be a source of liquid fuels production growth in 2022 and 2023, driven by new offshore oil resources such as the Liza oil field. We expect oil production in Guyana to increase from an average of 110,000 b/d in 2021 to 240,000 b/d in 2022 and 340,000 b/d in 2023.

We forecast that output from a number of other non-OPEC producers, notably Indonesia and Colombia, will decline in 2022 and 2023.

***OPEC production of petroleum and other liquid fuels.*** At the [June 2022 OPEC+ meeting](#), participants reaffirmed their decision to advance their planned September production increase to July and August and to continue their production agreement through December 2022 to compensate for some under-producing members. Notably, they made no adjustments to reflect reduced crude oil production from Russia as a result of sanctions. Our forecast assumes that OPEC+ member countries will not fully increase production in accordance with their targets in 2022. In addition to less oil from Russia, some countries will be unable to meet their new targets because of limited production capacity, and other countries will limit increases because of uncertainty over the magnitude of Russia's oil losses as well as weakening global oil demand.

OPEC crude oil production averaged 28.3 million b/d in 1H22, up 3.0 million b/d from the same period in 2021. We forecast that average OPEC crude oil production will increase to an average of 29.1 million b/d in 2H22 and then increase to 29.3 million b/d in 2023. Our OPEC crude oil production forecast is subject to considerable uncertainty, driven by a wide range of possible outcomes for country compliance with existing production targets and for future global demand growth.

We expect that surplus OPEC crude oil production capacity will decline from 5.2 million b/d in 2021 to an average of 2.8 million b/d in 2022 as OPEC production increases. We expect it to decline further to an average of 2.6 million b/d in 2023, compared with an average surplus capacity of 2.6 million b/d from 2010 to 2019.

Iran, Libya, and Venezuela are OPEC+ members that are not subject to production targets. Our STEO forecast assumes current U.S. sanctions remain in place for Iran and Venezuela for the entire forecast period. We also expect that OPEC+ will not implement further production cuts to accommodate any potential increases in oil output from Iran or Venezuela.

After five years of declines, Venezuela's crude oil production rose from 0.5 million b/d in 2020 to almost 0.6 million b/d in 2021, driven by increased service company activity and increased access to condensate and other diluents for blending with Venezuela's heavy crude oil. Even though Venezuela's crude oil production increased in 2021, its prospects are limited while sanctions remain. Overall, we expect that Venezuela's crude oil production will decline as long-run operational difficulties, including lack of field and facility maintenance, continue and as sanctions remain in effect.

Libya's crude oil production declined from 1.1 million b/d in February 2022 to less than 700,000 b/d in June. Civil unrest and protests in Libya have disrupted crude oil production and exports since mid-April. Armed militias blockaded several export facilities and large fields in the southwestern region, including Sharara, the country's largest oil field. This political strife continues to affect the oil sector, leading to disruptions in crude oil production and exports. Our

forecast for Libya's crude oil production is subject to heightened uncertainty as a result of the tentative political and security situation in Libya and the lack of a budget to support oil and natural gas infrastructure maintenance and repairs.

**OPEC non-crude oil liquids.** OPEC production of non-crude oil liquids averaged 5.4 million b/d in 2021, reflecting increases in production of associated liquids as a result of higher OPEC+ production targets. We expect that production of non-crude oil liquids will increase further in 2022 to 5.5 million b/d and remain relatively unchanged in 2023.

**Global oil inventories.** We estimate that global oil inventories decreased by an average of 1.4 million b/d from 3Q20 through 1Q22. In our forecast, global oil inventories increase by 1.2 million b/d in 2H22. Inventory growth in 2022 largely reflects growth in global oil production paired with slowing growth in oil consumption. However, we expect decelerating production growth will lead to mostly balanced markets in 2023, with inventory levels mostly unchanged next year.

Commercial oil inventories in the OECD totaled 2.6 billion barrels at the end of 2021. We expect oil inventories in the OECD to rise to more than 2.8 billion barrels at the end of 2022 and remain at that level at the end of 2023.

**Crude oil prices.** The Brent crude oil price has increased from an average of \$87/b in January 2022 to \$123/b in June. Crude oil prices increased in 1H22 following Russia's full-scale invasion of Ukraine in February. As a result of the invasion, several countries imposed sanctions on imports of crude oil and petroleum products from Russia. In addition, many international oil companies and other firms ended operations in Russia and limited or stopped trading Russia's crude oil and petroleum products. These actions have reduced Russia's oil production and caused crude oil prices to rise. Several OPEC+ members have produced below their targets, which has also put additional upward pressure on oil prices. These factors, along with already low global inventories, have intensified both upward oil price pressures and oil price volatility.

We expect the Brent crude oil price will average \$101/b in 2H22 and then fall to \$94/b in 2023. The forecast price declines are the result of expected increases in global oil inventories in late 2022. Most of the price declines in our forecast occur in 2H22, with prices falling from \$123/b on average in June to \$97/b in 4Q22. Although inventories build in our forecast, they are currently lower than in 2019, which may limit some of the downward price pressures associated with rising inventories and raises the potential for continuing volatility. In addition, we expect more balanced markets in 2023. As a result of this balance, crude oil prices in our forecast decline slowly through 2023, falling from \$97/b in 4Q22 to \$93/b in 4Q23.

Reduced exports of refined petroleum products from Russia as a result of sanctions and less global refining capacity than before 2020 have reduced the available supply of refined petroleum products and have led to higher retail prices for gasoline and diesel fuel. This

situation could persist and may limit the degree to which lower crude oil prices result in lower retail prices for gasoline and diesel.

Actual prices will be based on the degree to which existing sanctions imposed on Russia, any potential future sanctions, and independent corporate actions affect Russia's oil production and the sale of Russia's oil in the global market. Global economic developments will also be critical for oil prices. Our current price path reflects global oil consumption that increases by 2% from 2021 to 2022 and by an additional 2% in 2023. However, the ways that central banks may respond to inflationary concerns could affect economic growth and oil demand during the forecast period. The duration of, and compliance with, the latest OPEC+ production targets also remain uncertain. In addition, international sanctions have limited exports from Russia and global refining capacity has decreased from pre-pandemic levels. These factors have reduced the available global supply of refined petroleum products and led to higher retail prices for gasoline and diesel fuel. If this situation continues, it could limit the degree to which lower crude oil prices result in lower retail prices for gasoline and diesel.

We forecast the West Texas Intermediate (WTI) crude oil price will average about \$5/b less than the Brent price in 2H22 before averaging \$4/b less than the Brent price through 2023. These price discounts are based on our assumption that the recent discount of WTI to Brent, which averaged less than \$3/b in 2021, reflected low global demand for oil exports and relatively low U.S. crude oil production. U.S. crude oil supply increased in early 2Q22, which put downward pressure on WTI prices relative to Brent prices. At the same time, reduced crude oil supply from Russia into Europe put upward pressure on Brent prices. Together, these two factors caused the WTI discount to widen. We expect the WTI discount to return to \$4/b by 2023 as the global oil market adjusts to constraints on production from Russia and as new crude oil trade flows are established.

## U.S. liquid fuels

**U.S. consumption.** We forecast that consumption of petroleum and liquid fuels in the United States will average 20.5 million barrels per day (b/d) in 2022, which would be about the same as in 2019. In 2023, we forecast that consumption will grow to 20.8 million b/d. Our forecast of growth in U.S. consumption of petroleum and liquid fuels is driven by hydrocarbon gas liquids (HGLs) in 2022 and by gasoline in 2023.

We forecast that U.S. consumption of HGLs will increase by 0.2 million b/d in 2022 and by 0.1 million b/d in 2023. We expect all of the growth in HGL consumption in 2022 and 2023 to be from increased use of ethane as a petrochemical feedstock. Domestic ethane consumption increased this year when a new petrochemical cracker came online in the beginning of 2022, and we expect an additional petrochemical cracker to start up during the next two months, both of which will exclusively use ethane as a feedstock.

U.S. gasoline consumption averaged 8.7 million b/d in 1H22, up 0.1 million b/d from the same period in 2021. The April data for vehicle miles traveled (VMT), published by the Federal Highway Administration, is lower than we had forecast in last month's STEO, which possibly reflects the effects of high gasoline prices. As a result of the lower-than-expected VMT, we revised down our forecast VMT for the third quarter of 2022 (3Q22). Following the reduction in forecast VMT, we forecast U.S. gasoline consumption will average 9.0 million b/d in the second half of 2022 (2H22), a slight decline from 2H21. Gasoline consumption declines even though we forecast almost 5 million more jobs in the U.S. economy in 2H22 compared with a year earlier, based on the S&P Global macroeconomic model. However, the effects of high gasoline prices and strong employment on driving habits are uncertain. Employees may now have more flexibility when choosing between commuting to work or working from home, and with high gasoline prices, employees may be choosing to work from home more than before the COVID-19 pandemic. In addition, we expect a 2% increase in overall vehicle fleet fuel efficiency will also limit gasoline consumption growth in 2H22 compared with 2H21.

Distillate fuel consumption in the United States averaged 4.0 million b/d in 1H22, unchanged from the same period in 2021. However, we estimate distillate consumption averaged 3.8 million b/d in 2Q22, which down by 0.1 million b/d from 2Q21. Trade press reports indicate that the spot [segment of the trucking market has slowed](#), which is likely reducing distillate consumption. We expect distillate consumption will average 3.9 million b/d in 2H22 and 4.0 million b/d in 2023.

U.S. jet fuel consumption averaged 1.5 million b/d in 1H22, up 0.3 million b/d from 1H21. Despite this growth, jet fuel consumption in 1H22 remained 12% lower than 1H19 levels, the largest decline on a percentage basis among the major fuel types. We forecast that U.S. consumption of jet fuel will average 1.6 million b/d in 2H22 and in 2023.

***U.S. crude oil supply.*** We estimate U.S. crude oil production averaged 11.6 million b/d in 1H22, up 0.6 million b/d from year-ago levels. Although crude oil prices are high, economic headwinds including inflation, supply chain issues, and labor shortages, and less operator activity than we had forecast at the beginning of this year have limited production growth. We forecast that crude oil production will rise to an average of 12.2 million b/d in 2H22 and to 12.8 million b/d in 2023, which would surpass the previous annual record set in 2019.

During 2022, most of the drilling activity has occurred in the Permian Basin. Favorable geology combined with technological and operational improvements have made the Permian Basin one of the most prolific regions of U.S. crude oil production. We forecast that average annual crude oil production in the Permian Basin will reach 5.3 million b/d in 2022 and 5.7 million b/d in 2023.

However, the increased production of associated natural gas from this region poses a downside risk to Permian crude oil production. If natural gas pipeline constraints are not eased and the [proposed 5.0 billion cubic feet per day of pipeline takeaway](#) capacity out of the Permian Basin is not brought online by 2024, drilling activity in areas with high concentration of natural gas might

be reduced. In addition, the capital deployment decisions of producers will be critical for rig deployment and production. Further, production could be less than our forecast if supply chain issues and input cost inflation persist through the forecast period.

We expect that crude oil production from the Gulf of Mexico will average about 1.8 million b/d in both 2022 and 2023. In 2021, seven new projects came online. We expect nine more projects to come online in 2022.

Alaska's crude oil production in the forecast stays near the 2021 level of 0.4 million b/d in both 2022 and 2023.

**Hydrocarbon gas liquids supply.** We forecast U.S. production of HGLs to increase by 0.5 million b/d in 2022 to an average of 6.5 million b/d and then to increase to an average of 6.8 million b/d in 2023. HGL production will increase as a result of rising production of natural gas in 2022 and 2023, as well as higher rates of natural gas processing plant utilization. Ethane production is the leading contributor to the HGL growth, and we expect it will rise to meet growing demand for ethane as a petrochemical feedstock both in the United States and globally.

**Liquid biofuels.** Consumption of biofuels has risen in the United States in 2022, and we expect this growth to continue. Increasing demand for transportation fuels, higher 2022 Renewable Fuel Standard (RFS) program targets announced on June 3, and new renewable diesel production capacity coming online all contribute to this growth. Prices for Renewable identification number (RIN) credits—the compliance mechanism used for the Renewable Fuel Standard (RFS) program administered by the U.S. Environmental Protection Agency (EPA)—have increased in 2022 to near [record-high prices](#), which has facilitated growing biofuel consumption. From 1H21 to 1H22, ethanol consumption increased by 24,000 b/d (3%), renewable diesel consumption increased by 32,000 b/d (46%), and other biofuels consumption increased by 6,000 b/d (133%). Biodiesel consumption was unchanged during the same period.

We expect that new renewable diesel production will help meet rising RFS targets. Marathon Petroleum's renewable diesel refinery in Dickinson, North Dakota, became fully operational in 2Q21. It is now the second-largest renewable diesel refinery in the United States and has a production capacity of 12,500 b/d. In 4Q21, Diamond Green Diesel expanded its Norco, Louisiana, refinery, which is now the largest renewable diesel refinery in the United States, with a production capacity of 44,000 b/d. So far in 2022, HollyFrontier's Cheyenne, Wyoming, refinery [has come online](#), and CVR Energy's Wynnewood, Oklahoma, refinery [has come partially online](#). Seven other projects are set to come online by the end of the year, potentially adding as much as 88,000 b/d of capacity, and several more projects will come online in 2023. We forecast renewable diesel consumption of 116,000 b/d in 2022, an increase of 41,000 b/d (53%) from 2021, and we expect renewable diesel consumption to increase further to 164,000 b/d in 2023. This forecast assumes that some of the capacity scheduled to come online in 2022 and 2023 will have delays or be affected by high agricultural feedstock costs.

Because one gallon of renewable diesel produces more RIN credits under the RFS program than biodiesel and also faces no infrastructure or blending constraints, we expect new renewable diesel plants to be brought online to secure scarce oil feedstocks, such as soybean oil, outpacing biodiesel refineries and limiting biodiesel production. We forecast slightly higher biodiesel consumption in 2022 than in 2021. However, we expect U.S. biodiesel consumption to decrease in 2023 as renewable diesel increasingly satisfies RFS requirements. We forecast U.S. biodiesel production in 2022 to fall 8% from 2021 to less than 100,000 b/d, the lowest annual average since 2015.

More fuel ethanol was consumed in the United States in 1H22 than in the same period in 2021, mainly because of more gasoline consumption. We expect similar gasoline and fuel ethanol consumption in 2H22. We forecast that U.S. fuel ethanol consumption will remain around 2022 levels in 2023 and that the ethanol share of U.S. gasoline consumption will be near 10.3%. If favorable blending economics for fuel ethanol, driven by lower relative fuel ethanol prices, and high RIN prices persist, the fuel ethanol share of gasoline consumption could potentially increase.

**Product prices.** Increased global consumption of liquid fuels during 1H22, combined with constraints on global refining capacity and rising crude oil prices, puts upward pressure on prices for petroleum products. The average U.S. retail price for regular-grade motor gasoline in 1H22 was \$4.11 per gallon (gal), an increase of \$1.33/gal from 1H21. Retail diesel prices in 1H22 averaged \$4.91/gal, an increase of \$1.85/gal over 1H21. Russia's full-scale invasion of Ukraine, which began at the end of February, has significantly raised crude oil prices and crack spreads. In 2Q22, retail gasoline averaged \$4.50/gal, and diesel averaged \$5.49/gal.

Rising [crack spreads](#)—the difference in price between wholesale refining products and the crude oil used to make them—have been a major contributor to rising retail fuel prices. Crack spreads have increased sharply as exports of refined products from Russia have decreased in response to sanctions. Even where there are no formal sanctions, some international buyers, particularly European countries who typically purchase Russia's fuel, have chosen to reduce or end imports from Russia.

The gasoline crack spread (calculated as the [U.S. refiner gasoline price for resale](#) against Brent crude oil) in 2Q22 increased to an average of \$1.05/gal from 52 cents/gal in 2Q21, and the [diesel](#) crack spread increased to an average of \$1.47/gal during the same period from 40 cents/gal in 2Q21. Increasing crude oil prices often narrow crack spreads as high input costs narrow refining margins; however, the current high crack spreads are the result of decreased refinery capacity both globally and in the United States combined with Russia's reduced product exports.

[Refinery Capacity in the United States fell](#) by 0.9 million b/d in 2020 and by 0.2 million b/d in 2021. The lost capacity mainly resulted from low refinery margins brought on by the COVID-19 pandemic, as well as a handful of refinery incidents—including the explosion at Philadelphia

Energy Solutions in 2019 and the flooding of the Phillips 66 Alliance refinery during Hurricane Ida in August 2021— and conversions to biofuels production. Decreasing refinery capacity was not limited to the United States. The IEA reports that global refinery capacity fell by 0.9 million b/d in 2021, which combined with the exclusion of refining capacity in Russia, leaves the global market with less refinery capacity available to meet increasing demand this summer.

Historically high crack spreads have encouraged U.S. refiners to increase refinery utilization, which ran at 92% in 2Q22, in order to meet high demand in the United States. We expect refinery utilization to average 94% in 3Q22, compared with 89% in 3Q21. Refinery utilization is usually higher in the second and third quarters in response to summer demand for fuel. We expect utilization to average 90% in 4Q22 up only slightly over 4Q21, at a time when low product inventories and increasing demand were already providing incentives for refiners to increase refinery runs. Although we expect refinery utilization to remain well above average through the end of the year, less refinery capacity in the United States means that actual refinery inputs and volumetric production of refined products will not exceed pre-pandemic production levels.

As rising refinery production contributes to some increases in refined product inventories, we expect crack spreads to decrease in 2H22 but remain above the five-year average through the end of the forecast. We forecast gasoline crack spreads to average \$0.88/gal in 3Q22 and \$0.57/gal in 4Q22, or \$0.72/gal for the year, before decreasing to an annual average of \$0.52/gal in 2023. Similarly, we forecast distillate crack spreads to average \$1.11/gal in 3Q22 and \$0.91/gal in 4Q22, averaging \$1.03/gal in 2022 before dropping to \$0.65/gal in 2023. In comparison, the gasoline crack spread in 2019 was \$0.33/gal, and the distillate crack spread was \$0.43/gal in 2019.

High product crack spreads are encouraging refiners to maximize operations to meet U.S. and global demand although their ability to do so remains subject to several uncertainties. High refinery utilization brings inherently greater risks of operational malfunctions, disruptions, and unplanned turnarounds that can temporarily take units or whole facilities out of commission. Furthermore, the National Oceanic and Atmospheric Administration (NOAA) predicts an [above-average hurricane season](#) in 2022. Hurricanes present particular weather-related risks to most of U.S. refining capacity, which is concentrated along the U.S. Gulf Coast, particularly in Texas and Louisiana.

## Natural gas

***Natural gas consumption.*** We expect U.S. natural gas consumption will increase by 2.9 billion cubic feet per day (Bcf/d) (3%) to average 85.9 Bcf/d in 2022 and fall to 85.4 Bcf/d in 2023.

We forecast U.S. consumption of natural gas to increase in all sectors in 2022, with the largest increase in the electric power sector. We forecast the U.S. electric power sector will consume an average of 31.9 Bcf/d of natural gas in 2022, which is 3% more than in 2021. Our forecast

increase occurs despite [high natural gas prices](#) in 2022, which in the past have typically encouraged more switching from natural gas to coal as an electricity generation source. The electric power sector continues to use high amounts of natural gas because coal-fired power plants are limited in their ability to act as an alternative source of electricity generation. Ongoing [coal capacity retirements](#), limited rail capacity for fuel delivery to coal plants, and lower-than-average [stocks](#) at coal plants have all contributed to reduced coal-fired electricity generation. As a result, more natural gas has been used to meet electricity demand. We expect consumption of natural gas in the electric power sector to decline slightly by 0.5 Bcf/d (1%) in 2023 as more electric-generation capacity from renewable energy sources comes online.

Consumption of natural gas in the U.S. industrial sector in our forecast increases by 3% this year, averaging 23.2 Bcf/d in 2022, as demand for industrial goods and economic activity increases. We forecast industrial sector consumption of natural gas will be mostly unchanged in 2023 compared with 2022.

We expect combined U.S. residential and commercial natural gas consumption to average 22.6 Bcf/d in 2022 and 22.4 Bcf/d in 2023, based largely on weather expectations we derive from National Oceanic and Atmospheric Administration (NOAA) forecasts. Our July STEO assumes colder temperatures in 2022 than in 2021 and similar temperatures in 2023. NOAA forecasts 8% more [heating degree days](#) (HDDs) across the United States in 2022 compared with 2021.

***Natural gas production.*** We forecast dry natural gas production will average 96.2 Bcf/d in 2022 in the United States, an increase of 2.7 Bcf/d (3%) compared with 2021. Increases in [crude oil](#) and [domestic natural gas prices](#), as well as increases in the number of active [oil and natural gas rigs](#), will contribute to an overall increase in drilling activity in 2022 and 2023 that will lead to production growth. In 2023, we expect dry natural gas production to increase by 3.7 Bcf/d (4%) to reach 100.0 Bcf/d. The [Haynesville region](#) and the [Permian Basin](#) will drive growth in dry natural gas production, supported by increased [pipeline takeaway capacity](#) in both regions and high oil production in the Permian Basin that results in greater levels of [associated natural gas production](#).

***Natural gas trade.*** Liquefied natural gas (LNG) exports continued to [drive growth in U.S. natural gas exports](#) in the first half of 2022 (1H22). U.S. LNG exports averaged 11.2 Bcf/d during 1H22 and set a monthly record in March 2022, averaging 11.7 Bcf/d. U.S. LNG export capacity is continuing to expand this year with the addition of the [Calcasieu Pass LNG](#) export facility, which has been ramping up LNG production ahead of schedule and is expected to be fully operational by the third quarter of 2022 (3Q22).

Strong natural gas demand and high LNG prices in Europe and Asia drove the continued growth in U.S. LNG exports in the first half of this year. During the first five months of 2022, the United States exported 71% of its LNG to Europe, compared with an annual average of 34% last year. In the past, Asia had been the main destination for U.S. LNG exports, accounting for almost half of the total exports in 2020 and 2021. LNG prices in Europe remain high amid supply uncertainties

because of Russia's invasion of Ukraine and the need to replenish Europe's natural gas inventories, which has kept Europe's demand for LNG elevated.

Since December 2021, the EU and the United Kingdom have been importing record volumes of LNG, primarily to fill [natural gas storage inventories](#), which were historically low from fall 2021 through spring 2022. The United States became [the largest LNG supplier to the EU and United Kingdom last year](#), accounting for 26% of total imports. In the first five months of 2022, [LNG imports from the United States to the EU and the United Kingdom](#) continued to grow. [European natural gas storage inventories](#) filled up rapidly in recent months, and they were 3% below their five-year average (2017–2021) level at the end of June.

For the second half of this year, we expect U.S. LNG exports will decline because of [the outage at the Freeport LNG](#) export facility, which we do not expect to return to full service until late 2022. The shutdown of Freeport LNG will reduce U.S. LNG export capacity by approximately 2 Bcf/d, which is about 17% of the total capacity. We forecast U.S. LNG exports to average 10.5 Bcf/d in 2H22, 14% less than the forecast in our June 2022 STEO. We expect LNG exports will continue to grow in 2023, averaging 12.7 Bcf/d on an annual basis, 17% higher than in 2022.

U.S. exports of natural gas by pipeline, almost all of which move natural gas to Mexico, average 8.8 Bcf/d in 2022 in the forecast, up 4% from 2021, and then rise by an additional 4% to reach 9.2 Bcf/d in 2023.

**Natural gas inventories.** U.S. storage withdrawals in 1Q22 were 27% higher than the five-year average because of colder-than-normal temperatures that led to higher consumption in the residential, commercial, and electric power sectors and because of declines in natural gas production as a result of weather-related freeze-offs in producing regions. Working natural gas inventories ended March 2022 at 1,401 Bcf, which was 17% less than the five-year average for that time of year and the [least natural gas held in U.S. underground storage](#) at the end of March (the traditional end of the heating season) since 2019.

As the Freeport LNG outage returns about 2 Bcf/d of natural gas to the domestic market, we expect end-of-October storage will be closer the five-year average than we did in last month's forecast. We expect that inventories will reach 3,468 Bcf at the end of October 2022, which would be 6% less than the five-year average for October and 5% less than the natural gas in U.S. storage at the end of October 2021.

**Natural gas prices.** The Henry Hub spot price averaged \$6.07 per million British thermal units (MMBtu) in 1H22, rising steadily from an average of \$4.38/MMBtu in January to \$8.14/MMBtu in May. Prices then fell in June, in part, because of the outage at the Freeport LNG export terminal. The increase through May resulted from continued demand for LNG exports, increased demand in electric power generation as a result of limited natural gas-to-coal switching, and decreased production compared with the end of 2021.

Natural gas prices have been volatile in 2022. The 30-day historical volatility of U.S. natural gas prices averaged 179.1% in February compared with the five-year average of 47.7%. Historical volatility measures the magnitude of daily changes in the closing price for a commodity during a specific time in the past. Natural gas price volatility resulted, in large part, from the uncertainty in the global natural gas markets leading up to and following Russia's full-scale invasion of Ukraine on February 24, as well as from weather-related fluctuations in natural gas demand. Uncertainty around production that was relatively flat in 1H22 (and slightly lower than the high levels reached at the end of 2021) has also contributed to price volatility. Natural gas price volatility remained relatively high in 2Q22, averaging 87.2% in June.

We forecast the Henry Hub spot price will average \$5.97/MMBtu in 2H22. This price is down from our forecast of \$8.58/MMBtu in the June STEO in part because, due to the [Freeport LNG facility](#) being offline through late 2022, we expect more natural gas to be injected into storage in 2H22 than in last month's forecast. Although our end-of-October storage forecast is still less than the previous five-year average. However, because of ongoing constraints in the coal market that are limiting the use of coal in the electric power sector, we expect electric power-sector use of natural gas will remain strong, keeping upward pressure on prices, particularly in the case of a significant heat wave. Despite the outage at Freeport LNG, we also expect full utilization at remaining LNG facilities this summer to raise natural gas prices as Europe's demand for [LNG from the United States](#) remains high.

The lower natural gas price in our forecast for 2H22 contributes to our lower forecast for production in 2023 compared with the June STEO. Based partly on the lower production forecast, we raised our price forecast for May through December 2023. We expect the Henry Hub spot price will average \$4.41/MMBtu during 2H23, up 59 cents/MMBtu from last month's forecast. For all of 2023, we expect the Henry Hub spot price will average \$4.76/MMBtu.

## Coal

**Coal production.** U.S. coal production totaled 289 million short tons (MMst) in the first half of 2022 (1H22), up 6 MMst (2%) from 1H21. As coal consumption decreased, increases in production have kept inventories in 1H22 from falling by as much as they did in 1H21.

In 2022, we expect U.S. coal production to rise by 17 MMst (3%) from 2021 to 595 MMst. Our forecast 2022 coal production increases by 15 MMst (5%) in the Western Region and by 1 MMst (1%) in both the Appalachia and Interior regions. We expect U.S. coal production to remain flat in 2023.

Our expectation of increased production in 2022 primarily reflects demand to replenish [depleted coal stocks](#). Electric power sector inventories fell significantly in 2021. We expect more draws through summer 2022. In our forecast, 2022 end-of-year electric power sector coal inventories decline to 77 MMst, 18% less than at the end of 2021.

In 2023, we expect coal production to total 594 MMst, about the same as 2022. Much of the [decrease in coal mine capacity](#) that has occurred since 2020 appears to be permanent. Coal producers have experienced labor and capital shortages, which we expect will continue to limit coal supply in the forecast.

**Coal consumption.** In this forecast, U.S. coal consumption declines to 527 MMst (3%) in 2022 and to 506 MMst (4%) in 2023, compared with 546 MMst in 2021.

We expect the retirement of approximately 22 gigawatts (GW) of coal-fired power plant capacity through 2023, down 10% from 2021. As a result, we forecast electric power sector demand for coal will decrease by 20 MMst (4%) in 2022. Coal plant retirements and lower expected natural gas prices drive our forecast of an additional 23 MMst (5%) decline in 2023.

Increased economic activity following COVID-19 shutdowns and rising natural gas prices relative to coal prices led to increased demand for coal-fired power generation in 2021 compared with 2020. Although natural gas prices remain high in 2022, constraints on coal production from decreased mine capacity and transportation from labor shortages in the railroad industry have led to coal generators taking steps to conserve coal stocks to meet peak electricity demand during the summer, which is limiting coal-fired electricity generation.

Metallurgical coal, also known as coking coal, is an essential component of the steel-making process. We expect demand for coking coal to rise by 8% (1 MMst) from 2021 to 2023, driven by our expectation of more raw steel production in the forecast.

**Coal trade.** We expect U.S. coal exports to increase 3% to 88 MMst in 2022 from 85 MMst in 2021. It is unclear how much of the U.S. increase in coal exports have been a result of the improved post-pandemic economy and high natural gas prices or a result of sanctions against Russian coal.

Increased exports are driven by a forecast 2% increase in metallurgical coal exports in 2022 to accommodate increased steel production and an even larger 4% increase in steam coal exports as countries increase coal-fired electricity generation relative to natural gas-fired generation to manage costs associated with high natural gas prices. Exports in the forecast fall to 83 MMst in 2023, less than in 2021, as the economy cools down. While metallurgical coal exports remain steady, we expect steam coal exports to fall 12% in 2023 as natural gas prices fall, increasing natural gas-fired generation relative to coal-fired generation.

Although Europe—largest importer of coal from Russia—Japan, and South Korea are expected to eventually end coal imports from Russia, any decline in Russia’s coal exports so far have been [offset](#) by increases in purchases of coal from Russia by China, India, and Turkey to capitalize on the discounts Russia has offered.

**Coal prices.** The price of coal delivered to U.S. electricity generators averaged \$1.98 per million British thermal units (MMBtu) in 2021. We expect the average delivered coal prices to the

electric power sector to increase to \$2.10/MMBtu (6%) in 2022 then fall to \$1.99/MMBtu (5%) in 2023.

## Electricity

**Electricity consumption.** We forecast that total consumption of electricity in the United States, including sales to ultimate customers and direct use of electricity by generators, will increase by 2% in 2022 and by 1% in 2023. Sales of electricity to ultimate customers account for about 97% of total U.S. electricity consumption.

Relative outside temperatures, often measured using heating degree days (HDDs) and cooling degree days (CDDs), are the main driver of electricity consumed by the residential sector. We estimate that 2% more electricity was sold to residential customers in the first half of 2022 (1H22) than the same period last year. Although temperatures in January and February were colder than normal, they were relatively similar to temperatures last winter. Likewise, early summer temperatures have been warmer than normal, especially in the South, but have been relatively similar to the same period in 2021.

During 2H22, we expect U.S. residential electricity consumption to be similar to 2H21. We forecast that sales of electricity to residential customers will grow by 1% for all of 2022 and then fall slightly in 2023 as winter and summer temperatures return to more normal levels.

Electricity sales to customers in the U.S. commercial and industrial sectors are growing faster than sales to the residential sector. Commercial electricity use is related both to overall weather patterns and economic trends. We estimate that 5% more electricity was used by the U.S. commercial sector in 1H22 than 1H21. Stronger economic activity than in 2021 drove most of this growth. Nonfarm employment in 1H22 grew by 5% year over year. We expect economic growth to slow somewhat in 2H22, but we still expect commercial electricity use to rise by 3% in 2022. The slower economic growth contributes to our forecast that electricity consumption in the commercial sector will remain relatively unchanged next year.

The U.S. industrial production index for electricity-intensive industries increased year over year by 5% in 1H22, and we expect it to grow at a similar rate in 2H22. As a result, we expect 4% more sales of electricity to the industrial sector in 2022 than in 2021. Our forecast of industrial electricity use grows slightly less at 3% in 2023, reflecting slower overall economic growth.

**Electricity generation.** We estimate that electricity generation by the U.S. electric power sector during the first half of 2022 grew 4% from 1H21, reflecting warmer-than-normal temperatures in May and June. We expect the U.S. electric power sector will generate 4,055 billion kilowatthours (BkWh) in 2022, which is a 2% increase from 2021. Forecast electric power sector generation remains at about the same level in 2023.

We forecast that most of the increase in U.S. electricity generation through 2023 will come from renewable energy sources as a result of growth in U.S. renewable generating capacity. We

expect renewable energy will provide 22% of U.S. electric power sector generation in 2022 and 24% in 2023, compared with 20% in 2021.

Most of our forecast increase in generation from renewables comes from solar capacity expansions in the electric power sector. We expect solar electricity generation to increase to 145 BkWh in 2022 and 182 BkWh in 2023. Installed capacity of solar photovoltaic (PV) generation continued to grow despite supply chain and commerce issues that affected the industry during the past six months. We forecast that the electric power sector will add 19 gigawatts (GW) of solar capacity in 2022 and an additional 23 GW in 2023. We forecast small-scale solar PV capacity, including systems installed on rooftops, will increase by 6 GW in 2022 and by 7 GW in 2023. More than two-thirds of this additional small-scale solar PV capacity over the next two years will be installed on residential rooftops.

In February, U.S. tariffs on imported crystalline silicon solar products from China were [extended](#), setting an annual tariff-rate quota for solar cells imported from China to 5 GW, with exemption of [bifacial panels](#). In March, the U.S. Department of Commerce (DOC) announced an anti-dumping circumvention investigation of solar cells and modules imported from Cambodia, Malaysia, Thailand, and Vietnam—countries that allegedly use parts made in China that otherwise would be subject to tariffs. DOC is expected to make a decision by the first quarter of 2023. In June, by [Executive Order](#), the President invoked the Defense Production Act to ease import duties for a 24-month period for solar cells and modules imported from Cambodia, Malaysia, Thailand, and Vietnam. Our preliminary data from January to April 2022 indicate that an average of 3.9 GW of PV solar installations reported delays compared with 2.1 GW delayed during the same period last year.

We expect continued growth in solar energy through 2023, in part, because of the [solar investment tax credit](#) under the Consolidated Appropriations Act, which offers a 26% tax credit to projects that start in 2022. The credit drops to 22% for projects that start in 2023. States such as Texas and Florida are set to add significant solar PV in the next two years.

We forecast that U.S. electricity generation from wind will increase by 16% in 2022 from 2021 and by 4% in 2023 from 2022. Wind capacity in the electric power sector will grow by 11 GW in 2022 and by an additional 4 GW in 2023, down from the [14 GW added yearly in 2021 and 2020](#).

We can attribute slower growth in wind capacity, in part, to the phasedown of the production tax credit (PTC) as well as supply chain issues. The PTC, which was extended through the 2022 calendar year, provides a [2.6 cent per kWh](#) benefit for facilities entering service or spending at least 5% of total estimated project cost (securing 5% safe harboring). Producers of safe harbored projects are able to claim the PTC four years after they qualify.

Hydropower contributed 7% of U.S. electric power generation in 2021. In the forecast, the share of hydropower generation will remain around 7% in both 2022 and 2023. Since 2021, the drought affecting the West has constrained electricity generation by hydropower, and California

is one of the most affected states. We published a supplement to the STEO in May 2022, looking at [hydropower generation in California across a range of water conditions](#). In a severe drought case, we expect hydropower generation in California would drop to half of normal levels in 2022.

Economic factors, such as fuel costs and changes in the mix of generating capacity, are likely to affect trends in electricity generation from nonrenewable sources. The price of natural gas, in particular, has traditionally been an important driver of the relative use of natural gas and coal for power generation. Natural gas prices have significantly increased from last year, and we expect they will [remain high through the end of 2022](#).

In the past, high natural gas prices have typically led to more generation from coal-fired power plants. However, the industry continues to [retire coal-fired generation capacity](#). According to the latest information from the Form EIA-860 survey, the United States will have 10%, or nearly 22 GW, less operating coal capacity at the end of 2023 than at the end of 2021. In addition to these capacity retirements, coal-fired power plants have not received sufficient fuel deliveries because of [limited rail capacity](#) and reduced coal mine capacity. In some regions of the country, such as the Midcontinent Independent System Operator (MISO) and Southwest Power Pool (SPP) power markets, increased growth in renewables contributes to the forecast decline in coal-fired electricity generation. We expect that coal's share of U.S. total generation will fall from 23% in 2021 to 21% this year and 20% in 2023.

The constraints on coal-fired electricity generation are resulting in more natural gas-fired generation than we would have expected, despite the high fuel costs. We expect natural gas's share of total U.S. generation to average about 37% in 2022, similar to the generation share in 2021, and 36% 2023. Despite higher prices for natural gas, we expect that some regions, particularly in the mid-Atlantic and Southeast, will increase natural gas-fired electricity generation this year. The recent coal-fired power plant retirements and the constraints on coal deliveries are affecting these regions the most.

In May 2022, the Palisades nuclear power plant in Michigan shut down as planned. This retirement of 769 megawatts (MW) of capacity contributes to our expected slight reduction in U.S. nuclear generation in 2022. Two new reactors at the Vogtle plant in Georgia are scheduled to come online in 2023, adding 2.2 GW of nuclear power to the system. We expect the nuclear share of total generation to be 19% in 2022 and 2023, about the same share as last year.

**Electricity prices.** The large increase in natural gas fuel costs over the past year is also driving up wholesale electricity prices throughout the United States. Increases in wholesale prices during the first half of 2022 ranged from 13% higher than first half 2021 in the Southwest region to 135% higher in the New York ISO region. Average year-to-date prices are lower in the Central/SPP and Texas/ERCOT regions because of extreme price spikes that occurred in February 2021. We expect wholesale electricity prices to remain elevated through the remainder of 2022. Our forecast for a decline in natural gas prices next year contributes to our forecast that

electricity prices will fall in all regions in 2023, ranging from 18% lower in the Mid-Atlantic region's PJM market to 40% lower in the ERCOT market in Texas.

The higher prices of wholesale electricity and generation fuels contributes to our forecast for higher prices for electricity sold to ultimate customers. We forecast the U.S. retail electricity price for the residential sector will average 14.4 cents/kWh in 2022, which is 5% higher than the average retail price in 2021. The forecast increases in residential electricity prices vary by region, ranging from 2% higher in the West South Central states to 14% higher in New England. The forecast commercial sector electricity price averages 11.9 cents/kWh in 2022 (up 5%), and the industrial sector price averages 7.6 cents/kWh (up 5%).

## U.S. economic assumptions and energy-related carbon dioxide emissions

**U.S. economy.** We incorporate the S&P Global macroeconomic forecast model for the United States with our own energy price forecasts to create STEO forecasts.

Based on this model, we estimate that U.S. real GDP will grow by 2.4% in 2022 and by 2.5% in 2023. In comparison, real U.S. GDP grew by 5.7% in 2021. Total industrial production will grow at a relatively faster pace, increasing by 6.2% in 2022 and 3.4% in 2023, following a 5.5% increase in 2021. S&P Global estimates that the unemployment rate will fall from 5.4% in 2021 to 3.7% in 2022, but it will increase slightly to 3.9% in 2023. Nonfarm payroll employment will increase by 5.7 million jobs (3.9%) in 2022 and by 1.9 million (1.3%) in 2023. Price levels are elevated in 2022, when the Consumer Price Index (CPI) will rise by 7.4%, but forecast inflation falls to 2.8% in 2023.

**Energy-related carbon dioxide emissions.** Energy-related carbon dioxide (CO<sub>2</sub>) emissions rose by 6.5% in the United States during 2021, and we estimate that they will rise by 1.5% in 2022 and remain flat in 2023. Forecast petroleum-related CO<sub>2</sub> emissions increase by 2.4% in 2022 and by 1.1% in 2023 as transportation demand begins to return to pre-pandemic levels, but this growth is limited by high fuel prices. We expect CO<sub>2</sub> emissions from coal will fall by 3.9% in 2022 and by a further 3.2% in 2023 as coal-fired electricity generation is displaced, primarily by renewable sources. We expect CO<sub>2</sub> emissions from natural gas to rise by 3.6% in 2022, as demand for space heating increases, and to fall by 0.7% in 2023.

## Notable forecast changes

- We forecast Russia's liquid fuels production will average 10.7 million b/d in 2H22, up from a forecast of 10.0 million b/d in last month's STEO. The increase reflects our expectation that Russia's production will remain in 3Q22 before EU sanctions take effect at the end of 2022. However, we forecast a larger drop in Russia's production next year, with 2023 production averaging 9.3 million b/d, down by 0.2 million b/d from last month's forecast.

- We expect U.S. LNG exports will decline because of [the outage at the Freeport LNG](#) export facility, which we do not expect to return to full service until late 2022. U.S. LNG exports are forecast to average 10.5 Bcf/d in 2H22, 14% lower than in our June STEO.
- We forecast the Henry Hub spot price will average \$5.97/MMBtu in 2H22. This price is down from our forecast of \$8.58/MMBtu in the June STEO because of an additional 2 Bcf/d of natural gas that will be available in the domestic market as a result of the Freeport LNG facility being offline through the end of the year.
- You can find more information in the [detailed table of forecast changes](#).

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

# Short-Term Energy Outlook Chart Gallery



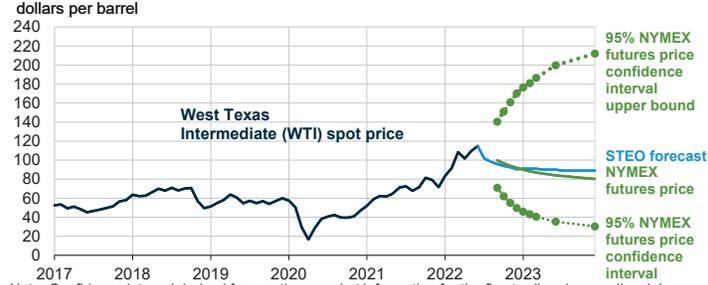
July 12, 2022



U.S. Energy Information Administration

Independent Statistics & Analysis | www.eia.gov

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

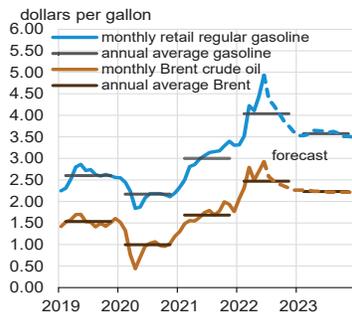


Note: Confidence interval derived from options market information for the five trading days ending Jul 7, 2022. Intervals not calculated for months with sparse trading in near-the-money options contracts.

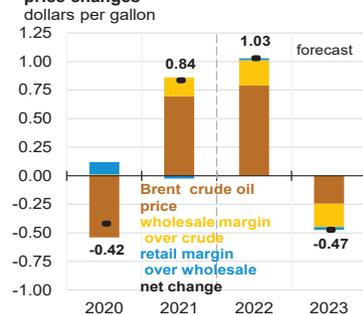
Sources: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022, CME Group, Bloomberg, L.P., and Refinitiv an LSEG Business



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



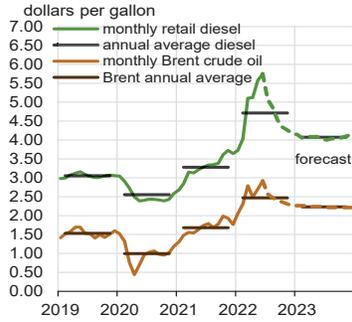
**Components of annual gasoline price changes**



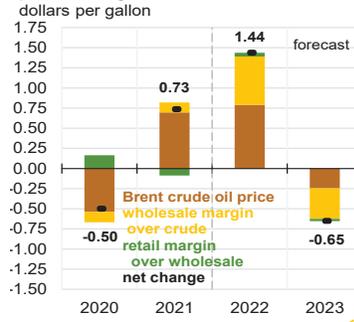
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022, and Refinitiv an LSEG Business



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



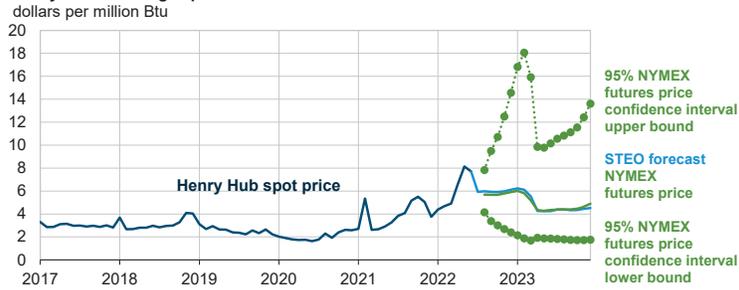
**Components of annual diesel prices changes**



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



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

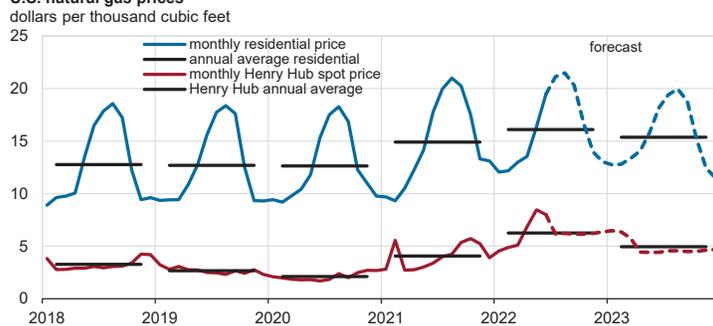


Note: Confidence interval derived from options market information for the five trading days ending Jul 7, 2022. Intervals not calculated for months with sparse trading in near-the-money options contracts.

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



**U.S. natural gas prices**

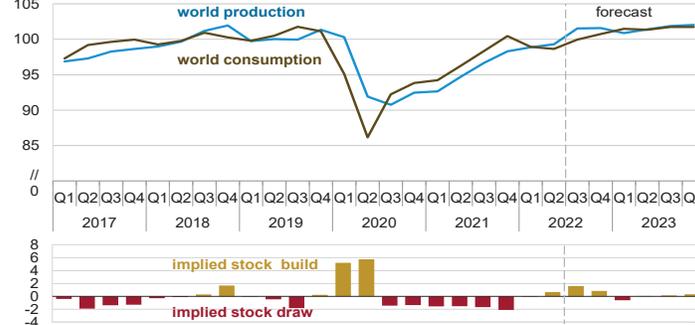


Sources: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022, and Refinitiv an LSEG Business



**World liquid fuels production and consumption balance**

million barrels per day

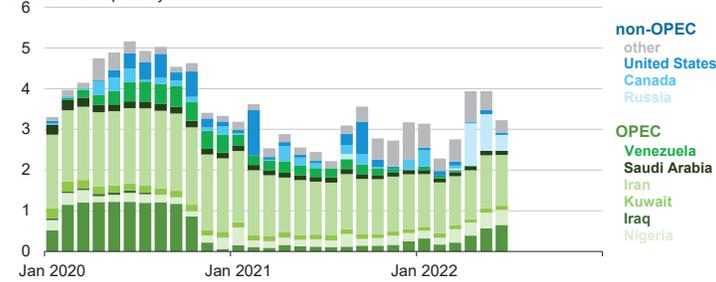


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022



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

million barrels per day

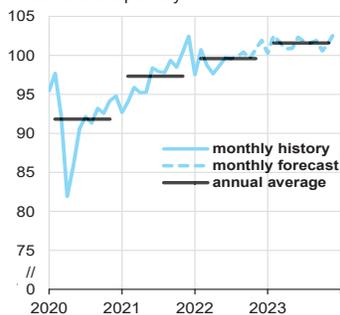


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022



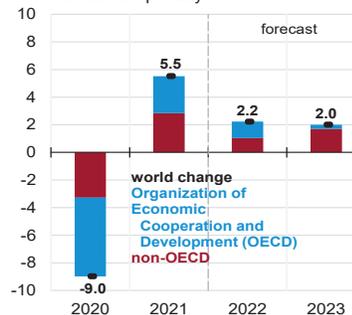
**World liquid fuels consumption**

million barrels per day



**Components of annual change**

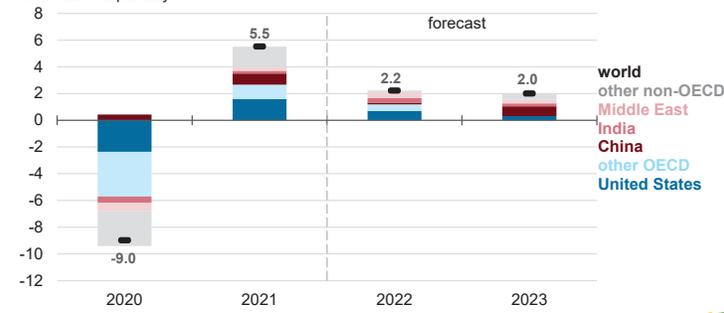
million barrels per day



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



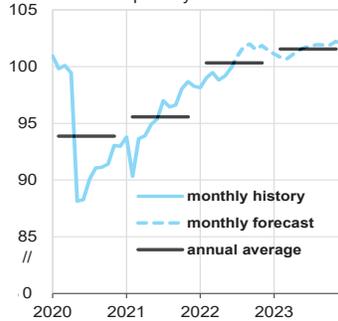
**Annual change in world liquid fuels consumption**  
million barrels per day



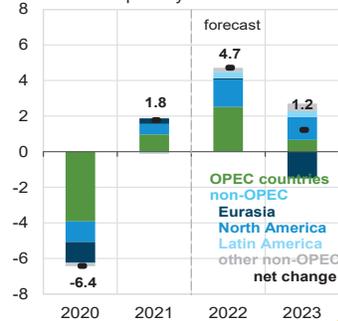
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022



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



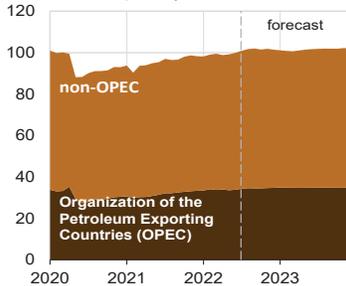
**Components of annual change**  
million barrels per day



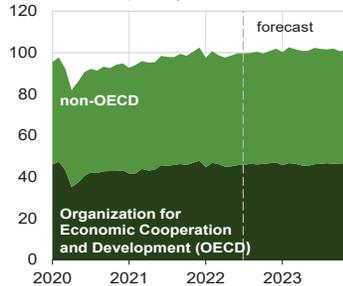
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022



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



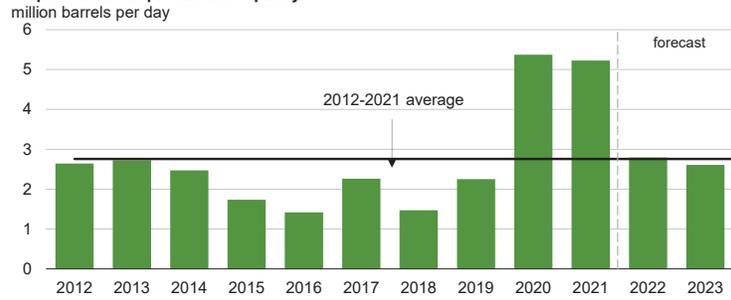
**World liquid fuels consumption**  
million barrels per day



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



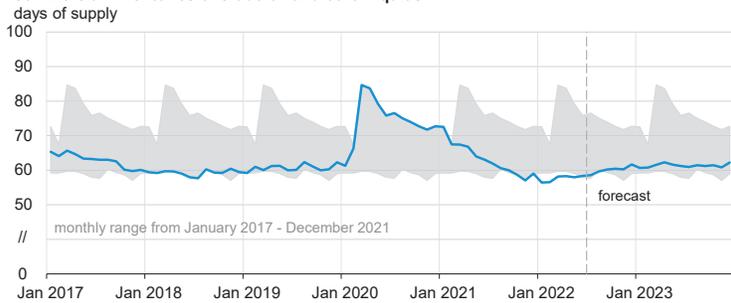
**Organization of the Petroleum Exporting Countries (OPEC)  
surplus crude oil production capacity**



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



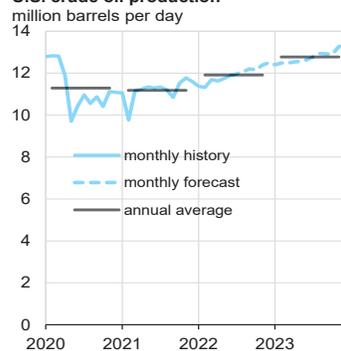
**Organization for Economic Cooperation and Development (OECD)  
commercial inventories of crude oil and other liquids**



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

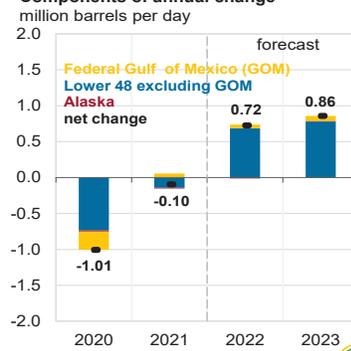


**U.S. crude oil production**

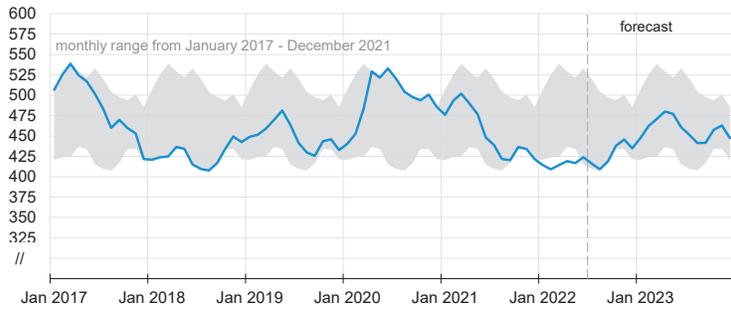


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022

**Components of annual change**



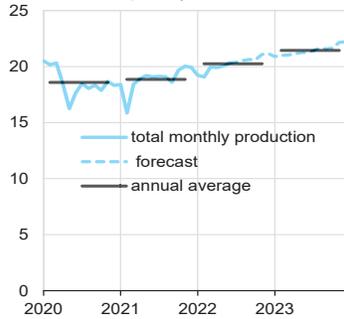
**U.S. commercial crude oil inventories**  
million barrels



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

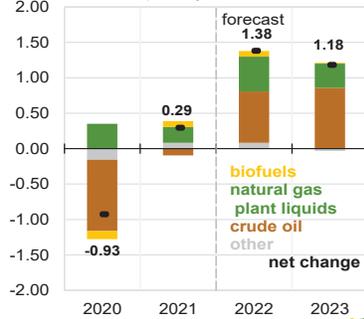


**U.S. crude oil and liquid fuels production**  
million barrels per day

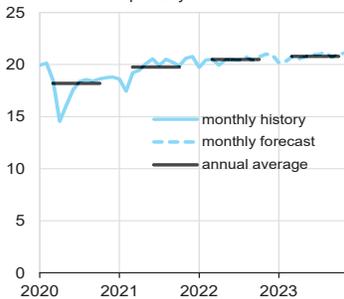


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022

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

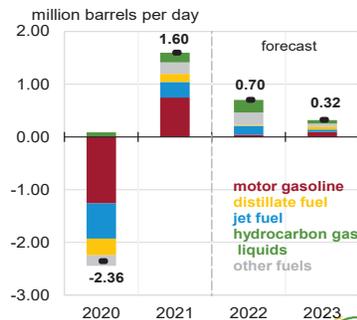


**U.S. liquid fuels product supplied (consumption)**  
million barrels per day

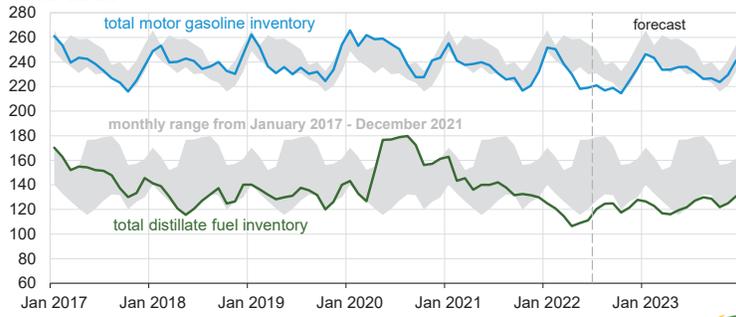


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022

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



**U.S. gasoline and distillate inventories**  
million barrels

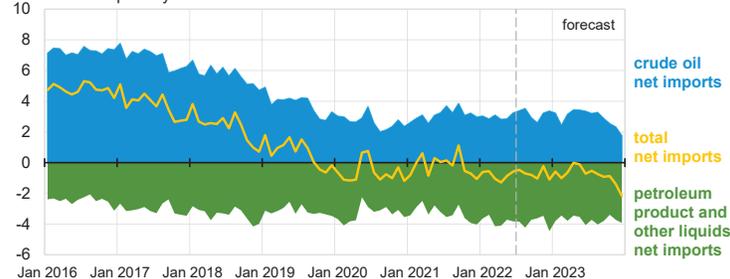


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022



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

million barrels per day



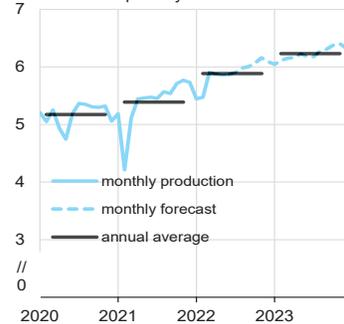
Note: Petroleum product and other liquids include: gasoline, distillate fuels, hydrocarbon gas liquids, jet fuel, residual fuel oil, unfinished oils, other hydrocarbons/oxygenates, and other oils.

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



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

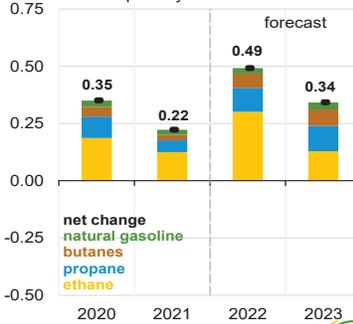
million barrels per day



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

**Components of annual change**

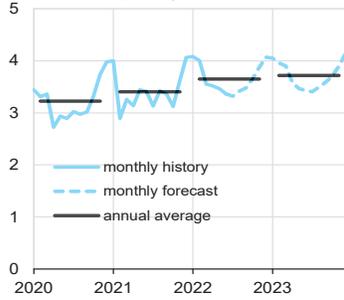
million barrels per day



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



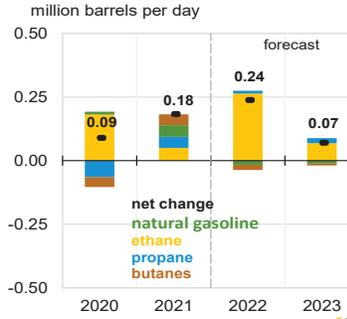
**U.S. hydrocarbon gas liquids product supplied (consumption)**  
million barrels per day



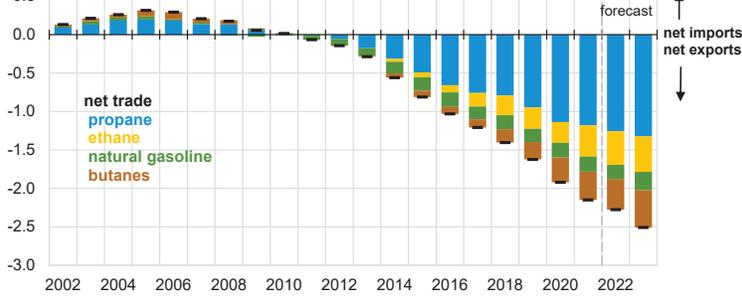
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022



**Components of annual change**



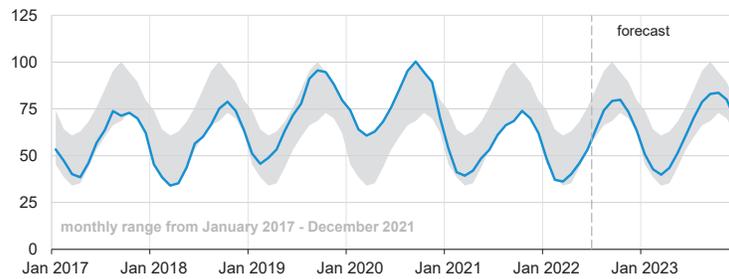
**U.S. net trade of hydrocarbon gas liquids (HGL)**  
million barrels per day



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



**U.S. commercial propane inventories**  
million barrels

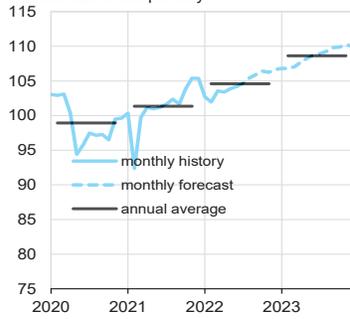


Note: Excludes propylene.

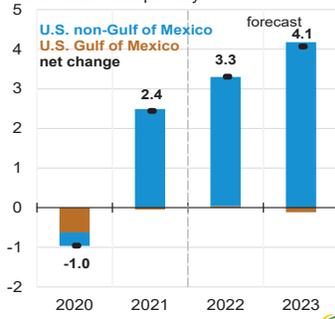
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022



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



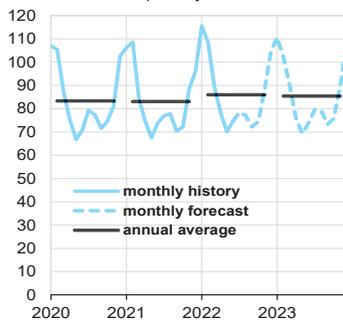
**Components of annual change**  
billion cubic feet per day



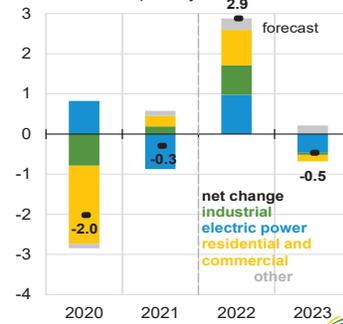
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022



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



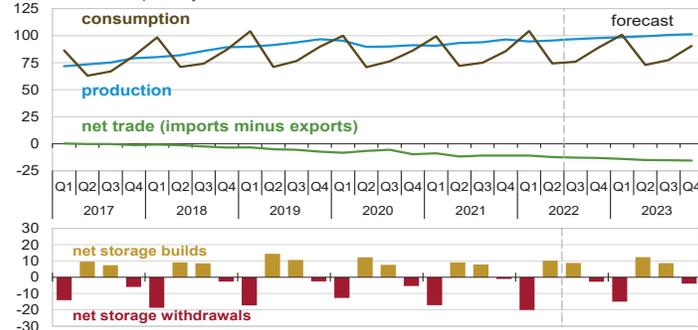
**Components of annual change**  
billion cubic feet per day



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



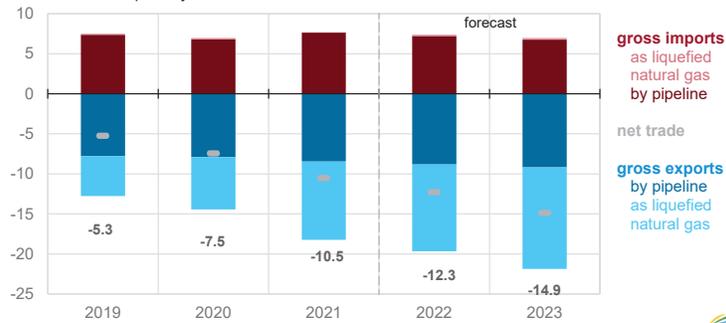
**U.S. natural gas production, consumption, and net imports**  
billion cubic feet per day



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



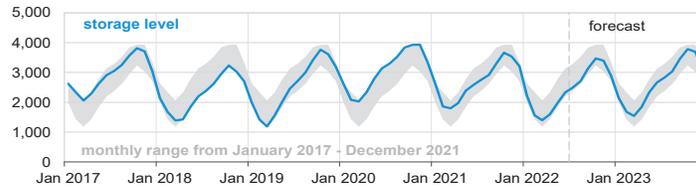
**U.S. annual natural gas trade**  
billion cubic feet per day



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



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



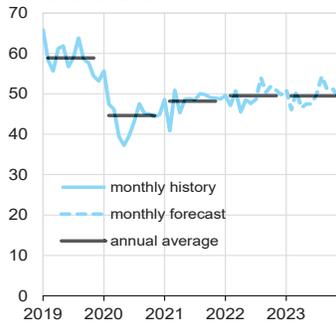
**Percent deviation from 2017 - 2021 average**



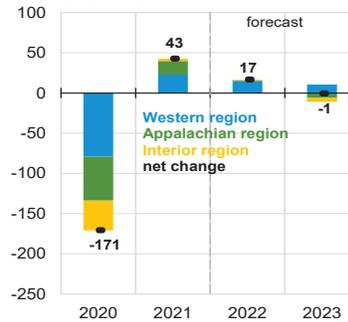
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022



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



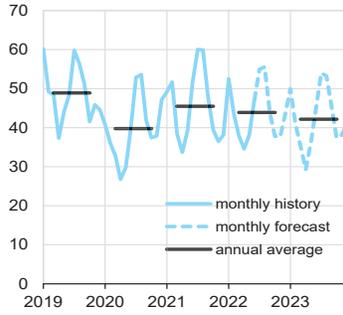
**Components of annual change**  
million short tons



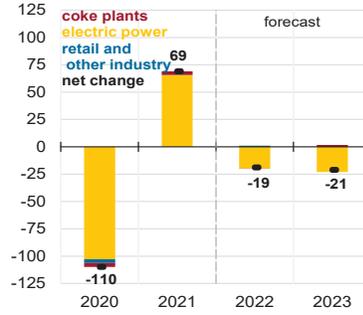
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022



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



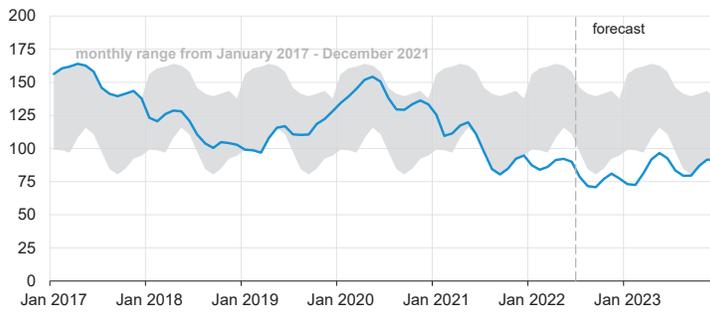
**Components of annual change**  
million short tons



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



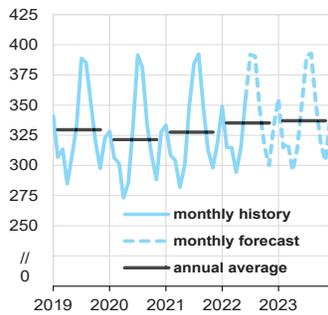
**U.S. electric power coal inventories**  
million short tons



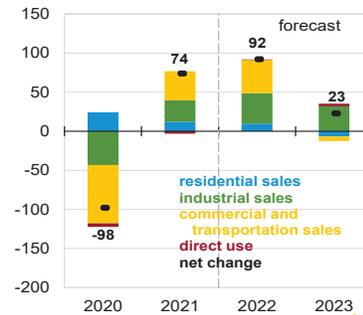
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022



**U.S. electricity consumption**  
billion kilowatthours



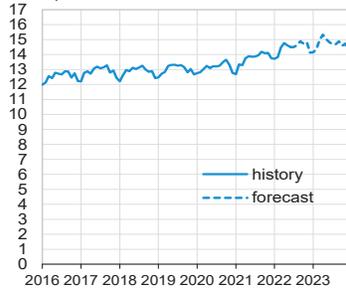
**Components of annual change**  
billion kilowatthours



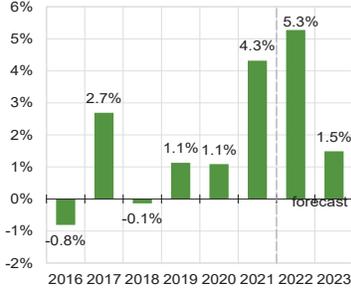
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022



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

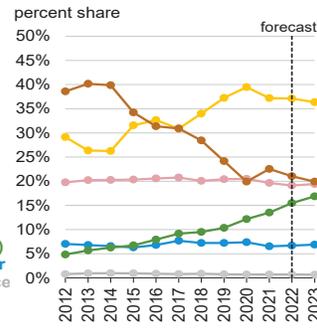
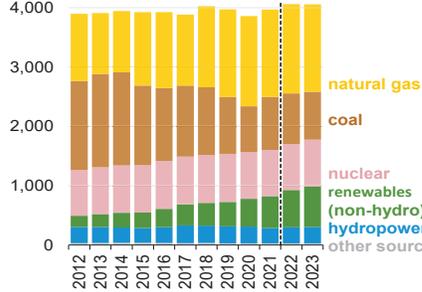


**Annual growth in nominal residential electricity prices**  
percent



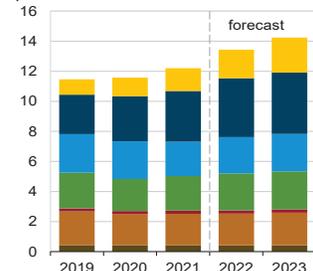
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022

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

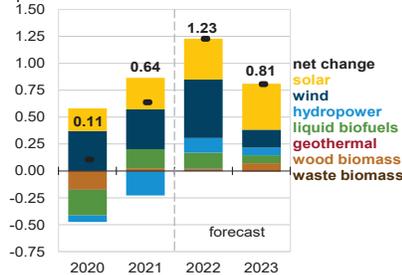


Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022

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



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

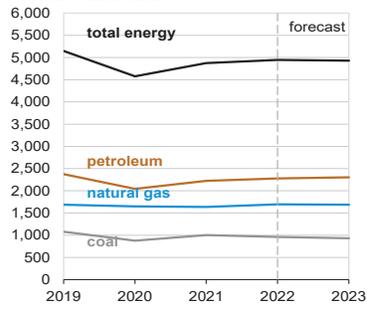


Note: Hydropower excludes pumped storage generation. Liquids include ethanol, biodiesel, renewable diesel, other biofuels, and biofuel losses and coproducts. Waste biomass includes municipal waste from biogenic sources, landfill gas, and non-wood waste.

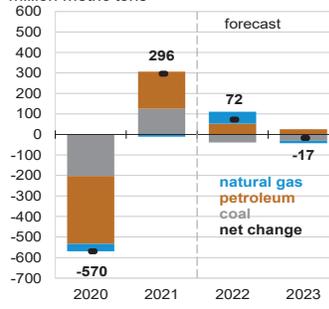
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, July 2022



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



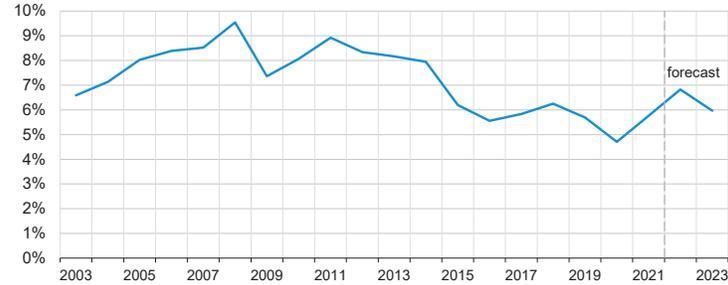
**Components of annual change**  
million metric tons



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



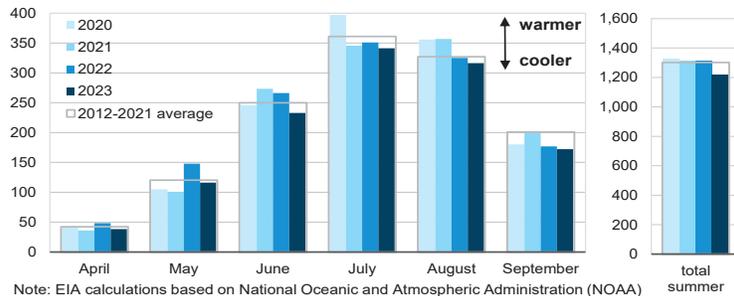
**U.S. annual energy expenditures**  
share of gross domestic product



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



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

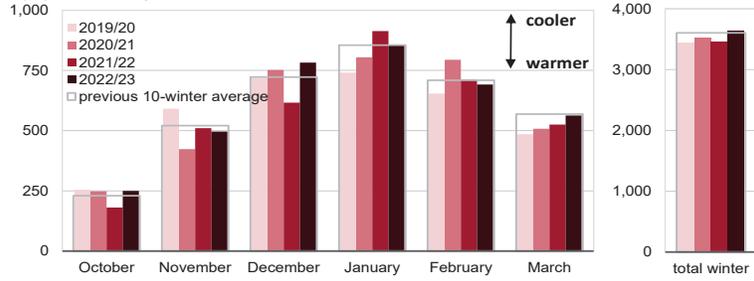


Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Projections reflect NOAA's 14-16 month outlook.

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



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

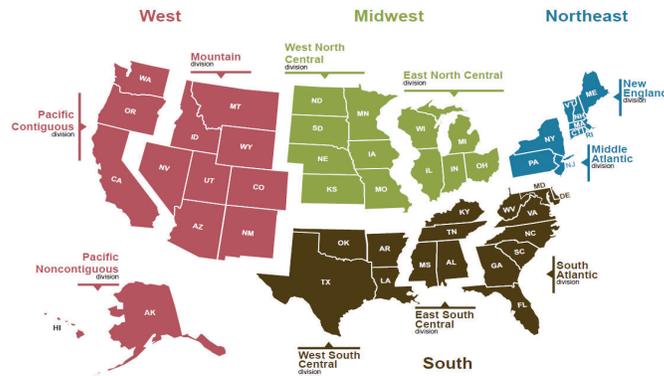


Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Projections reflect NOAA's 14-16 month outlook.

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



**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 - July 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Energy Production</b>															
Crude Oil Production (a) (million barrels per day) .....	<b>10.69</b>	<b>11.28</b>	11.13	11.63	<b>11.46</b>	<b>11.75</b>	12.08	12.34	12.45	12.58	12.87	13.17	<b>11.19</b>	<b>11.91</b>	12.77
Dry Natural Gas Production (f) (billion cubic feet per day) .....	<b>90.59</b>	<b>93.15</b>	<b>93.86</b>	<b>96.53</b>	<b>94.61</b>	<b>95.51</b>	96.88	97.89	98.40	99.62	100.60	101.25	<b>93.55</b>	96.23	99.98
Coal Production (million short tons) .....	<b>140</b>	<b>143</b>	<b>148</b>	<b>147</b>	<b>147</b>	<b>142</b>	153	153	148	142	155	149	<b>578</b>	595	594
<b>Energy Consumption</b>															
Liquid Fuels (million barrels per day) .....	<b>18.45</b>	<b>20.03</b>	<b>20.21</b>	<b>20.41</b>	<b>20.22</b>	<b>20.30</b>	20.53	20.88	20.41	20.75	20.95	21.09	<b>19.78</b>	20.48	20.80
Natural Gas (billion cubic feet per day) .....	<b>99.44</b>	<b>72.00</b>	<b>75.08</b>	<b>85.62</b>	<b>104.30</b>	<b>74.35</b>	75.94	89.10	100.87	72.95	77.43	90.49	<b>82.98</b>	85.85	85.38
Coal (b) (million short tons) .....	<b>139</b>	<b>125</b>	<b>168</b>	<b>114</b>	<b>134</b>	<b>120</b>	154	119	126	111	153	116	<b>546</b>	527	506
Electricity (billion kilowatt hours per day) .....	<b>10.51</b>	<b>10.23</b>	<b>12.22</b>	<b>10.10</b>	<b>10.87</b>	<b>10.61</b>	12.28	10.31	10.99	10.56	12.33	10.44	<b>10.77</b>	11.02	11.08
Renewables (c) (quadrillion Btu) .....	<b>2.95</b>	<b>3.16</b>	<b>2.95</b>	<b>3.14</b>	<b>3.35</b>	<b>3.55</b>	3.23	3.31	3.52	3.81	3.42	3.48	<b>12.21</b>	13.44	14.24
Total Energy Consumption (d) (quadrillion Btu) .....	<b>25.05</b>	<b>23.17</b>	<b>24.54</b>	<b>24.57</b>	<b>26.50</b>	<b>23.57</b>	24.70	25.29	26.17	23.89	25.22	25.68	<b>97.33</b>	100.05	100.97
<b>Energy Prices</b>															
Crude Oil West Texas Intermediate Spot (dollars per barrel) .....	<b>58.09</b>	<b>66.19</b>	<b>70.61</b>	<b>77.27</b>	<b>95.18</b>	<b>108.93</b>	98.77	92.30	91.00	90.00	89.00	89.00	<b>68.21</b>	98.79	89.75
Natural Gas Henry Hub Spot (dollars per million Btu) .....	<b>3.56</b>	<b>2.94</b>	<b>4.36</b>	<b>4.77</b>	<b>4.66</b>	<b>7.48</b>	5.94	6.00	5.97	4.25	4.38	4.44	<b>3.91</b>	6.02	4.76
Coal (dollars per million Btu) .....	<b>1.91</b>	<b>1.93</b>	<b>2.03</b>	<b>2.05</b>	<b>2.19</b>	<b>2.13</b>	2.04	2.03	1.98	2.00	2.00	1.97	<b>1.98</b>	2.10	1.99
<b>Macroeconomic</b>															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR) .....	<b>19,056</b>	<b>19,368</b>	<b>19,479</b>	<b>19,806</b>	<b>19,731</b>	<b>19,818</b>	19,930	20,093	20,190	20,313	20,448	20,586	<b>19,427</b>	19,893	20,384
Percent change from prior year .....	<b>0.5</b>	<b>12.2</b>	<b>4.9</b>	<b>5.5</b>	<b>3.5</b>	<b>2.3</b>	2.3	1.4	2.3	2.5	2.6	2.5	<b>5.7</b>	2.4	2.5
GDP Implicit Price Deflator (Index, 2012=100) .....	<b>115.8</b>	<b>117.5</b>	<b>119.3</b>	<b>121.3</b>	<b>123.7</b>	<b>125.6</b>	127.2	128.2	129.0	129.8	130.6	131.5	<b>118.5</b>	126.2	130.2
Percent change from prior year .....	<b>2.1</b>	<b>4.1</b>	<b>4.6</b>	<b>5.9</b>	<b>6.8</b>	<b>6.9</b>	6.6	5.6	4.3	3.3	2.7	2.6	<b>4.2</b>	6.5	3.2
Real Disposable Personal Income (billion chained 2012 dollars - SAAR) .....	<b>17,219</b>	<b>15,807</b>	<b>15,641</b>	<b>15,462</b>	<b>15,198</b>	<b>15,118</b>	15,162	15,257	15,387	15,633	15,870	16,096	<b>16,032</b>	15,184	15,746
Percent change from prior year .....	<b>15.1</b>	<b>-4.3</b>	<b>-0.9</b>	<b>0.1</b>	<b>-11.7</b>	<b>-4.4</b>	-3.1	-1.3	1.2	3.4	4.7	5.5	<b>2.3</b>	-5.3	3.7
Manufacturing Production Index (Index, 2017=100) .....	<b>97.3</b>	<b>98.7</b>	<b>99.7</b>	<b>101.0</b>	<b>102.2</b>	<b>104.2</b>	105.2	106.7	107.3	108.3	109.5	110.2	<b>99.2</b>	104.6	108.8
Percent change from prior year .....	<b>-0.2</b>	<b>17.2</b>	<b>5.8</b>	<b>4.5</b>	<b>5.0</b>	<b>5.5</b>	5.5	5.7	5.0	4.0	4.1	3.2	<b>6.5</b>	5.4	4.1
<b>Weather</b>															
U.S. Heating Degree-Days .....	<b>2,107</b>	<b>472</b>	<b>51</b>	<b>1,307</b>	<b>2,150</b>	<b>493</b>	75	1,529	2,112	494	80	1,528	<b>3,936</b>	4,247	4,213
U.S. Cooling Degree-Days .....	<b>50</b>	<b>410</b>	<b>902</b>	<b>127</b>	<b>46</b>	<b>463</b>	853	95	43	387	830	95	<b>1,489</b>	1,456	1,355

(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.

(f) We published the Natural Gas Monthly on Friday July 8, which was after we completed this forecast, and as a result, this forecast does not include final Natural Gas Monthly data for April 2022.

- = no data available

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

Prices are not adjusted for inflation.

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

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

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

Weather forecasts from National Oceanic and Atmospheric Administration.

**Table 2. Energy Prices**

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Crude Oil</b> (dollars per barrel)															
West Texas Intermediate Spot Average .....	<b>58.09</b>	<b>66.19</b>	<b>70.61</b>	<b>77.27</b>	<b>95.18</b>	<b>108.93</b>	<i>98.77</i>	<i>92.30</i>	<i>91.00</i>	<i>90.00</i>	<i>89.00</i>	<i>89.00</i>	<b>68.21</b>	<i>98.79</i>	<i>89.75</i>
Brent Spot Average .....	<b>61.12</b>	<b>68.91</b>	<b>73.45</b>	<b>79.42</b>	<b>101.17</b>	<b>113.84</b>	<i>104.27</i>	<i>96.97</i>	<i>95.00</i>	<i>94.00</i>	<i>93.00</i>	<i>93.00</i>	<b>70.89</b>	<i>104.05</i>	<i>93.75</i>
U.S. Imported Average .....	<b>55.33</b>	<b>64.81</b>	<b>68.41</b>	<b>73.67</b>	<b>89.44</b>	<b>106.68</b>	<i>96.41</i>	<i>89.44</i>	<i>88.25</i>	<i>87.25</i>	<i>86.25</i>	<i>86.25</i>	<b>65.91</b>	<i>95.46</i>	<i>87.04</i>
U.S. Refiner Average Acquisition Cost .....	<b>57.14</b>	<b>66.11</b>	<b>70.31</b>	<b>76.37</b>	<b>92.32</b>	<b>108.60</b>	<i>97.33</i>	<i>90.54</i>	<i>89.25</i>	<i>88.25</i>	<i>87.25</i>	<i>87.25</i>	<b>67.83</b>	<i>97.25</i>	<i>87.98</i>
<b>U.S. Liquid Fuels</b> (cents per gallon)															
<b>Refiner Prices for Resale</b>															
Gasoline .....	<b>180</b>	<b>216</b>	<b>232</b>	<b>243</b>	<b>278</b>	<b>376</b>	<i>336</i>	<i>288</i>	<i>272</i>	<i>282</i>	<i>278</i>	<i>268</i>	<b>219</b>	<i>320</i>	<i>275</i>
Diesel Fuel .....	<b>178</b>	<b>204</b>	<b>219</b>	<b>241</b>	<b>301</b>	<b>418</b>	<i>360</i>	<i>321</i>	<i>291</i>	<i>286</i>	<i>285</i>	<i>289</i>	<b>211</b>	<i>350</i>	<i>288</i>
Fuel Oil .....	<b>162</b>	<b>180</b>	<b>197</b>	<b>222</b>	<b>284</b>	<b>419</b>	<i>347</i>	<i>308</i>	<i>281</i>	<i>270</i>	<i>270</i>	<i>278</i>	<b>188</b>	<i>334</i>	<i>277</i>
<b>Refiner Prices to End Users</b>															
Jet Fuel .....	<b>163</b>	<b>182</b>	<b>199</b>	<b>226</b>	<b>283</b>	<b>400</b>	<i>337</i>	<i>305</i>	<i>284</i>	<i>278</i>	<i>278</i>	<i>283</i>	<b>195</b>	<i>332</i>	<i>281</i>
No. 6 Residual Fuel Oil (a) .....	<b>162</b>	<b>181</b>	<b>194</b>	<b>211</b>	<b>252</b>	<b>260</b>	<i>239</i>	<i>218</i>	<i>227</i>	<i>224</i>	<i>223</i>	<i>223</i>	<b>190</b>	<i>243</i>	<i>224</i>
<b>Retail Prices Including Taxes</b>															
Gasoline Regular Grade (b) .....	<b>256</b>	<b>297</b>	<b>316</b>	<b>333</b>	<b>371</b>	<b>450</b>	<i>422</i>	<i>375</i>	<i>354</i>	<i>364</i>	<i>360</i>	<i>351</i>	<b>302</b>	<i>405</i>	<i>357</i>
Gasoline All Grades (b) .....	<b>265</b>	<b>306</b>	<b>325</b>	<b>343</b>	<b>380</b>	<b>460</b>	<i>434</i>	<i>388</i>	<i>367</i>	<i>378</i>	<i>374</i>	<i>365</i>	<b>311</b>	<i>416</i>	<i>371</i>
On-highway Diesel Fuel .....	<b>290</b>	<b>321</b>	<b>336</b>	<b>366</b>	<b>432</b>	<b>549</b>	<i>483</i>	<i>426</i>	<i>410</i>	<i>407</i>	<i>402</i>	<i>410</i>	<b>329</b>	<i>473</i>	<i>407</i>
Heating Oil .....	<b>272</b>	<b>283</b>	<b>297</b>	<b>346</b>	<b>415</b>	<b>550</b>	<i>487</i>	<i>438</i>	<i>407</i>	<i>382</i>	<i>367</i>	<i>373</i>	<b>300</b>	<i>447</i>	<i>389</i>
<b>Natural Gas</b>															
Henry Hub Spot (dollars per thousand cubic feet) .....	<b>3.70</b>	<b>3.06</b>	<b>4.53</b>	<b>4.96</b>	<b>4.84</b>	<b>7.77</b>	<i>6.18</i>	<i>6.23</i>	<i>6.20</i>	<i>4.42</i>	<i>4.55</i>	<i>4.61</i>	<b>4.06</b>	<i>6.25</i>	<i>4.94</i>
Henry Hub Spot (dollars per million Btu) .....	<b>3.56</b>	<b>2.94</b>	<b>4.36</b>	<b>4.77</b>	<b>4.66</b>	<b>7.48</b>	<i>5.94</i>	<i>6.00</i>	<i>5.97</i>	<i>4.25</i>	<i>4.38</i>	<i>4.44</i>	<b>3.91</b>	<i>6.02</i>	<i>4.76</i>
<b>U.S. Retail Prices</b> (dollars per thousand cubic feet)															
Industrial Sector .....	<b>5.73</b>	<b>4.09</b>	<b>5.11</b>	<b>6.87</b>	<b>6.82</b>	<b>7.64</b>	<i>7.44</i>	<i>7.47</i>	<i>7.79</i>	<i>5.89</i>	<i>5.47</i>	<i>5.82</i>	<b>5.50</b>	<i>7.32</i>	<i>6.26</i>
Commercial Sector .....	<b>7.54</b>	<b>8.85</b>	<b>10.12</b>	<b>10.27</b>	<b>9.98</b>	<b>10.86</b>	<i>12.17</i>	<i>10.94</i>	<i>10.77</i>	<i>10.80</i>	<i>10.49</i>	<i>9.33</i>	<b>8.82</b>	<i>10.62</i>	<i>10.32</i>
Residential Sector .....	<b>9.75</b>	<b>13.87</b>	<b>20.38</b>	<b>13.81</b>	<b>12.32</b>	<b>15.30</b>	<i>20.93</i>	<i>13.89</i>	<i>12.92</i>	<i>15.37</i>	<i>19.37</i>	<i>12.36</i>	<b>12.27</b>	<i>13.80</i>	<i>13.58</i>
<b>U.S. Electricity</b>															
<b>Power Generation Fuel Costs</b> (dollars per million Btu)															
Coal .....	<b>1.91</b>	<b>1.93</b>	<b>2.03</b>	<b>2.05</b>	<b>2.19</b>	<b>2.13</b>	<i>2.04</i>	<i>2.03</i>	<i>1.98</i>	<i>2.00</i>	<i>2.00</i>	<i>1.97</i>	<b>1.98</b>	<i>2.10</i>	<i>1.99</i>
Natural Gas .....	<b>7.24</b>	<b>3.26</b>	<b>4.36</b>	<b>5.42</b>	<b>5.68</b>	<b>7.42</b>	<i>6.05</i>	<i>6.30</i>	<i>6.47</i>	<i>4.40</i>	<i>4.50</i>	<i>4.74</i>	<b>4.97</b>	<i>6.35</i>	<i>4.98</i>
Residual Fuel Oil (c) .....	<b>11.28</b>	<b>13.09</b>	<b>14.22</b>	<b>16.10</b>	<b>16.91</b>	<b>23.87</b>	<i>21.51</i>	<i>18.84</i>	<i>17.86</i>	<i>18.00</i>	<i>17.13</i>	<i>16.90</i>	<b>13.66</b>	<i>19.70</i>	<i>17.47</i>
Distillate Fuel Oil .....	<b>13.54</b>	<b>15.20</b>	<b>16.19</b>	<b>18.03</b>	<b>21.11</b>	<b>30.70</b>	<i>27.89</i>	<i>24.68</i>	<i>22.60</i>	<i>21.87</i>	<i>21.72</i>	<i>22.06</i>	<b>15.50</b>	<i>24.89</i>	<i>22.14</i>
<b>Prices to Ultimate Customers</b> (cents per kilowatthour)															
Industrial Sector .....	<b>7.09</b>	<b>6.92</b>	<b>7.62</b>	<b>7.38</b>	<b>7.42</b>	<b>7.74</b>	<i>7.81</i>	<i>7.42</i>	<i>7.47</i>	<i>7.43</i>	<i>7.65</i>	<i>7.24</i>	<b>7.26</b>	<i>7.60</i>	<i>7.45</i>
Commercial Sector .....	<b>10.99</b>	<b>11.07</b>	<b>11.59</b>	<b>11.37</b>	<b>11.63</b>	<b>11.81</b>	<i>12.11</i>	<i>11.84</i>	<i>12.01</i>	<i>11.95</i>	<i>12.09</i>	<i>11.62</i>	<b>11.27</b>	<i>11.86</i>	<i>11.92</i>
Residential Sector .....	<b>13.10</b>	<b>13.84</b>	<b>13.99</b>	<b>13.97</b>	<b>13.98</b>	<b>14.61</b>	<i>14.66</i>	<i>14.53</i>	<i>14.46</i>	<i>15.05</i>	<i>14.75</i>	<i>14.41</i>	<b>13.72</b>	<i>14.45</i>	<i>14.66</i>

(a) Average for all sulfur contents.

(b) Average self-service cash price.

(c) Includes fuel oils No. 4, No. 5, No. 6, and topped crude.

- = no data available

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

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

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

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

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

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

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

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Production (million barrels per day) (a)</b>															
OECD .....	<b>30.08</b>	<b>30.74</b>	<b>31.06</b>	<b>32.19</b>	<b>31.66</b>	<b>32.23</b>	<i>32.79</i>	<i>33.45</i>	<i>33.68</i>	<i>33.85</i>	<i>34.10</i>	<i>34.73</i>	<b>31.02</b>	<i>32.54</i>	<i>34.09</i>
U.S. (50 States) .....	<b>17.62</b>	<b>19.05</b>	<b>18.94</b>	<b>19.87</b>	<b>19.44</b>	<b>20.10</b>	<i>20.52</i>	<i>20.95</i>	<i>20.97</i>	<i>21.20</i>	<i>21.55</i>	<i>22.00</i>	<b>18.88</b>	<i>20.26</i>	<i>21.44</i>
Canada .....	<b>5.62</b>	<b>5.37</b>	<b>5.49</b>	<b>5.68</b>	<b>5.66</b>	<b>5.75</b>	<i>5.73</i>	<i>5.84</i>	<i>5.91</i>	<i>5.87</i>	<i>5.89</i>	<i>5.90</i>	<b>5.54</b>	<i>5.75</i>	<i>5.89</i>
Mexico .....	<b>1.93</b>	<b>1.95</b>	<b>1.90</b>	<b>1.92</b>	<b>1.91</b>	<b>1.89</b>	<i>1.89</i>	<i>1.86</i>	<i>1.90</i>	<i>1.87</i>	<i>1.83</i>	<i>1.79</i>	<b>1.92</b>	<i>1.89</i>	<i>1.85</i>
Other OECD .....	<b>4.92</b>	<b>4.37</b>	<b>4.73</b>	<b>4.71</b>	<b>4.65</b>	<b>4.49</b>	<i>4.65</i>	<i>4.80</i>	<i>4.89</i>	<i>4.91</i>	<i>4.83</i>	<i>5.02</i>	<b>4.68</b>	<i>4.65</i>	<i>4.91</i>
Non-OECD .....	<b>62.58</b>	<b>63.99</b>	<b>65.62</b>	<b>66.13</b>	<b>67.21</b>	<b>67.07</b>	<i>68.74</i>	<i>68.14</i>	<i>67.19</i>	<i>67.55</i>	<i>67.80</i>	<i>67.32</i>	<b>64.59</b>	<i>67.79</i>	<i>67.46</i>
OPEC .....	<b>30.34</b>	<b>30.88</b>	<b>32.28</b>	<b>33.10</b>	<b>33.75</b>	<b>33.82</b>	<i>34.49</i>	<i>34.64</i>	<i>34.88</i>	<i>34.80</i>	<i>34.85</i>	<i>34.85</i>	<b>31.66</b>	<i>34.18</i>	<i>34.84</i>
Crude Oil Portion .....	<b>25.08</b>	<b>25.49</b>	<b>26.84</b>	<b>27.67</b>	<b>28.19</b>	<b>28.38</b>	<i>29.01</i>	<i>29.12</i>	<i>29.32</i>	<i>29.36</i>	<i>29.37</i>	<i>29.33</i>	<b>26.28</b>	<i>28.68</i>	<i>29.35</i>
Other Liquids (b) .....	<b>5.26</b>	<b>5.39</b>	<b>5.44</b>	<b>5.44</b>	<b>5.56</b>	<b>5.43</b>	<i>5.48</i>	<i>5.52</i>	<i>5.56</i>	<i>5.43</i>	<i>5.48</i>	<i>5.52</i>	<b>5.38</b>	<i>5.50</i>	<i>5.50</i>
Eurasia .....	<b>13.42</b>	<b>13.66</b>	<b>13.63</b>	<b>14.27</b>	<b>14.39</b>	<b>13.47</b>	<i>13.94</i>	<i>13.49</i>	<i>12.61</i>	<i>12.27</i>	<i>12.21</i>	<i>12.21</i>	<b>13.75</b>	<i>13.82</i>	<i>12.32</i>
China .....	<b>4.99</b>	<b>5.03</b>	<b>5.01</b>	<b>4.93</b>	<b>5.18</b>	<b>5.18</b>	<i>5.14</i>	<i>5.18</i>	<i>5.22</i>	<i>5.25</i>	<i>5.24</i>	<i>5.28</i>	<b>4.99</b>	<i>5.17</i>	<i>5.25</i>
Other Non-OECD .....	<b>13.82</b>	<b>14.42</b>	<b>14.70</b>	<b>13.82</b>	<b>13.90</b>	<b>14.61</b>	<i>15.18</i>	<i>14.82</i>	<i>14.47</i>	<i>15.23</i>	<i>15.50</i>	<i>14.97</i>	<b>14.19</b>	<i>14.63</i>	<i>15.05</i>
Total World Production .....	<b>92.66</b>	<b>94.73</b>	<b>96.68</b>	<b>98.31</b>	<b>98.87</b>	<b>99.30</b>	<i>101.53</i>	<i>101.59</i>	<i>100.87</i>	<i>101.40</i>	<i>101.89</i>	<i>102.04</i>	<b>95.62</b>	<i>100.33</i>	<i>101.55</i>
Non-OPEC Production .....	<b>62.32</b>	<b>63.85</b>	<b>64.40</b>	<b>65.21</b>	<b>65.13</b>	<b>65.48</b>	<i>67.04</i>	<i>66.95</i>	<i>65.99</i>	<i>66.60</i>	<i>67.04</i>	<i>67.19</i>	<b>63.95</b>	<i>66.16</i>	<i>66.71</i>
<b>Consumption (million barrels per day) (c)</b>															
OECD .....	<b>42.45</b>	<b>44.08</b>	<b>45.82</b>	<b>46.81</b>	<b>45.89</b>	<b>45.29</b>	<i>46.12</i>	<i>46.66</i>	<i>46.23</i>	<i>45.69</i>	<i>46.46</i>	<i>46.79</i>	<b>44.81</b>	<i>45.99</i>	<i>46.29</i>
U.S. (50 States) .....	<b>18.45</b>	<b>20.03</b>	<b>20.21</b>	<b>20.41</b>	<b>20.22</b>	<b>20.30</b>	<i>20.53</i>	<i>20.88</i>	<i>20.41</i>	<i>20.75</i>	<i>20.95</i>	<i>21.09</i>	<b>19.78</b>	<i>20.48</i>	<i>20.80</i>
U.S. Territories .....	<b>0.21</b>	<b>0.19</b>	<b>0.19</b>	<b>0.20</b>	<b>0.22</b>	<b>0.20</b>	<i>0.20</i>	<i>0.22</i>	<i>0.22</i>	<i>0.20</i>	<i>0.21</i>	<i>0.22</i>	<b>0.20</b>	<i>0.21</i>	<i>0.21</i>
Canada .....	<b>2.26</b>	<b>2.24</b>	<b>2.50</b>	<b>2.40</b>	<b>2.33</b>	<b>2.38</b>	<i>2.50</i>	<i>2.48</i>	<i>2.46</i>	<i>2.40</i>	<i>2.51</i>	<i>2.48</i>	<b>2.35</b>	<i>2.43</i>	<i>2.46</i>
Europe .....	<b>11.91</b>	<b>12.62</b>	<b>13.83</b>	<b>13.89</b>	<b>13.08</b>	<b>13.33</b>	<i>13.65</i>	<i>13.35</i>	<i>13.20</i>	<i>13.21</i>	<i>13.61</i>	<i>13.38</i>	<b>13.07</b>	<i>13.36</i>	<i>13.35</i>
Japan .....	<b>3.73</b>	<b>3.08</b>	<b>3.18</b>	<b>3.67</b>	<b>3.73</b>	<b>3.09</b>	<i>3.19</i>	<i>3.52</i>	<i>3.78</i>	<i>3.12</i>	<i>3.15</i>	<i>3.45</i>	<b>3.42</b>	<i>3.38</i>	<i>3.37</i>
Other OECD .....	<b>5.89</b>	<b>5.92</b>	<b>5.90</b>	<b>6.23</b>	<b>6.30</b>	<b>5.99</b>	<i>6.03</i>	<i>6.20</i>	<i>6.17</i>	<i>6.00</i>	<i>6.03</i>	<i>6.17</i>	<b>5.99</b>	<i>6.13</i>	<i>6.09</i>
Non-OECD .....	<b>51.78</b>	<b>52.20</b>	<b>52.53</b>	<b>53.64</b>	<b>53.04</b>	<b>53.37</b>	<i>53.83</i>	<i>54.10</i>	<i>55.24</i>	<i>55.66</i>	<i>55.30</i>	<i>54.95</i>	<b>52.54</b>	<i>53.59</i>	<i>55.29</i>
Eurasia .....	<b>4.66</b>	<b>4.73</b>	<b>5.09</b>	<b>4.95</b>	<b>4.48</b>	<b>4.33</b>	<i>4.69</i>	<i>4.62</i>	<i>4.30</i>	<i>4.46</i>	<i>4.77</i>	<i>4.69</i>	<b>4.86</b>	<i>4.53</i>	<i>4.55</i>
Europe .....	<b>0.74</b>	<b>0.74</b>	<b>0.74</b>	<b>0.76</b>	<b>0.75</b>	<b>0.75</b>	<i>0.76</i>	<i>0.77</i>	<i>0.75</i>	<i>0.77</i>	<i>0.77</i>	<i>0.78</i>	<b>0.75</b>	<i>0.76</i>	<i>0.77</i>
China .....	<b>15.27</b>	<b>15.48</b>	<b>14.99</b>	<b>15.33</b>	<b>15.25</b>	<b>15.24</b>	<i>15.33</i>	<i>15.78</i>	<i>16.54</i>	<i>16.43</i>	<i>15.80</i>	<i>15.72</i>	<b>15.27</b>	<i>15.40</i>	<i>16.12</i>
Other Asia .....	<b>13.43</b>	<b>12.98</b>	<b>12.84</b>	<b>13.69</b>	<b>13.81</b>	<b>13.89</b>	<i>13.48</i>	<i>13.90</i>	<i>14.51</i>	<i>14.48</i>	<i>13.90</i>	<i>14.19</i>	<b>13.23</b>	<i>13.77</i>	<i>14.27</i>
Other Non-OECD .....	<b>17.68</b>	<b>18.27</b>	<b>18.87</b>	<b>18.91</b>	<b>18.75</b>	<b>19.15</b>	<i>19.57</i>	<i>19.03</i>	<i>19.15</i>	<i>19.53</i>	<i>20.06</i>	<i>19.57</i>	<b>18.44</b>	<i>19.13</i>	<i>19.58</i>
Total World Consumption .....	<b>94.23</b>	<b>96.29</b>	<b>98.35</b>	<b>100.45</b>	<b>98.93</b>	<b>98.65</b>	<i>99.95</i>	<i>100.75</i>	<i>101.47</i>	<i>101.35</i>	<i>101.76</i>	<i>101.74</i>	<b>97.35</b>	<i>99.58</i>	<i>101.58</i>
<b>Total Crude Oil and Other Liquids Inventory Net Withdrawals (million barrels per day)</b>															
U.S. (50 States) .....	<b>0.47</b>	<b>0.51</b>	<b>0.37</b>	<b>0.77</b>	<b>0.75</b>	<b>0.51</b>	<i>0.44</i>	<i>0.56</i>	<i>-0.05</i>	<i>-0.39</i>	<i>-0.09</i>	<i>0.40</i>	<b>0.53</b>	<i>0.57</i>	<i>-0.03</i>
Other OECD .....	<b>0.87</b>	<b>0.15</b>	<b>0.97</b>	<b>0.67</b>	<b>-0.23</b>	<b>-0.37</b>	<i>-0.65</i>	<i>-0.45</i>	<i>0.21</i>	<i>0.11</i>	<i>-0.01</i>	<i>-0.23</i>	<b>0.66</b>	<i>-0.43</i>	<i>0.02</i>
Other Stock Draws and Balance .....	<b>0.24</b>	<b>0.90</b>	<b>0.33</b>	<b>0.69</b>	<b>-0.47</b>	<b>-0.78</b>	<i>-1.37</i>	<i>-0.95</i>	<i>0.44</i>	<i>0.24</i>	<i>-0.03</i>	<i>-0.48</i>	<b>0.54</b>	<i>-0.90</i>	<i>0.04</i>
Total Stock Draw .....	<b>1.57</b>	<b>1.56</b>	<b>1.67</b>	<b>2.13</b>	<b>0.06</b>	<b>-0.64</b>	<i>-1.59</i>	<i>-0.84</i>	<i>0.60</i>	<i>-0.05</i>	<i>-0.13</i>	<i>-0.31</i>	<b>1.73</b>	<i>-0.76</i>	<i>0.03</i>
<b>End-of-period Commercial Crude Oil and Other Liquids Inventories (million barrels)</b>															
U.S. Commercial Inventory .....	<b>1,302</b>	<b>1,271</b>	<b>1,241</b>	<b>1,194</b>	<b>1,154</b>	<b>1,182</b>	<i>1,231</i>	<i>1,217</i>	<i>1,225</i>	<i>1,269</i>	<i>1,280</i>	<i>1,253</i>	<b>1,194</b>	<i>1,217</i>	<i>1,253</i>
OECD Commercial Inventory .....	<b>2,908</b>	<b>2,864</b>	<b>2,745</b>	<b>2,636</b>	<b>2,616</b>	<b>2,678</b>	<i>2,787</i>	<i>2,815</i>	<i>2,804</i>	<i>2,838</i>	<i>2,850</i>	<i>2,845</i>	<b>2,636</b>	<i>2,815</i>	<i>2,845</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 July 7, 2022.

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

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

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

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

**Table 3b. Non-OPEC Petroleum and Other Liquids Production (million barrels per day)**  
 U.S. Energy Information Administration | Short-Term Energy Outlook - July 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>North America</b> .....	<b>25.16</b>	<b>26.36</b>	<b>26.33</b>	<b>27.48</b>	<b>27.01</b>	<b>27.74</b>	<i>28.14</i>	<i>28.65</i>	<i>28.79</i>	<i>28.94</i>	<i>29.27</i>	<i>29.70</i>	<b>26.34</b>	<i>27.89</i>	<i>29.18</i>
Canada .....	<b>5.62</b>	<b>5.37</b>	<b>5.49</b>	<b>5.68</b>	<b>5.66</b>	<b>5.75</b>	<i>5.73</i>	<i>5.84</i>	<i>5.91</i>	<i>5.87</i>	<i>5.89</i>	<i>5.90</i>	<b>5.54</b>	<i>5.75</i>	<i>5.89</i>
Mexico .....	<b>1.93</b>	<b>1.95</b>	<b>1.90</b>	<b>1.92</b>	<b>1.91</b>	<b>1.89</b>	<i>1.89</i>	<i>1.86</i>	<i>1.90</i>	<i>1.87</i>	<i>1.83</i>	<i>1.79</i>	<b>1.92</b>	<i>1.89</i>	<i>1.85</i>
United States .....	<b>17.62</b>	<b>19.05</b>	<b>18.94</b>	<b>19.87</b>	<b>19.44</b>	<b>20.10</b>	<i>20.52</i>	<i>20.95</i>	<i>20.97</i>	<i>21.20</i>	<i>21.55</i>	<i>22.00</i>	<b>18.88</b>	<i>20.26</i>	<i>21.44</i>
<b>Central and South America</b> .....	<b>5.64</b>	<b>6.29</b>	<b>6.69</b>	<b>5.79</b>	<b>5.83</b>	<b>6.44</b>	<i>6.99</i>	<i>6.62</i>	<i>6.28</i>	<i>7.05</i>	<i>7.37</i>	<i>6.86</i>	<b>6.10</b>	<i>6.47</i>	<i>6.89</i>
Argentina .....	<b>0.65</b>	<b>0.69</b>	<b>0.73</b>	<b>0.74</b>	<b>0.77</b>	<b>0.77</b>	<i>0.77</i>	<i>0.79</i>	<i>0.81</i>	<i>0.81</i>	<i>0.81</i>	<i>0.83</i>	<b>0.70</b>	<i>0.77</i>	<i>0.82</i>
Brazil .....	<b>3.22</b>	<b>3.89</b>	<b>4.21</b>	<b>3.42</b>	<b>3.33</b>	<b>3.86</b>	<i>4.36</i>	<i>3.89</i>	<i>3.50</i>	<i>4.26</i>	<i>4.58</i>	<i>4.04</i>	<b>3.69</b>	<i>3.86</i>	<i>4.10</i>
Colombia .....	<b>0.77</b>	<b>0.74</b>	<b>0.77</b>	<b>0.77</b>	<b>0.77</b>	<b>0.76</b>	<i>0.74</i>	<i>0.73</i>	<i>0.69</i>	<i>0.68</i>	<i>0.66</i>	<i>0.65</i>	<b>0.76</b>	<i>0.75</i>	<i>0.67</i>
Ecuador .....	<b>0.51</b>	<b>0.50</b>	<b>0.49</b>	<b>0.41</b>	<b>0.48</b>	<b>0.46</b>	<i>0.46</i>	<i>0.53</i>	<i>0.55</i>	<i>0.57</i>	<i>0.59</i>	<i>0.61</i>	<b>0.48</b>	<i>0.48</i>	<i>0.58</i>
Other Central and S. America .....	<b>0.48</b>	<b>0.46</b>	<b>0.49</b>	<b>0.46</b>	<b>0.49</b>	<b>0.59</b>	<i>0.66</i>	<i>0.68</i>	<i>0.73</i>	<i>0.73</i>	<i>0.73</i>	<i>0.73</i>	<b>0.47</b>	<i>0.61</i>	<i>0.73</i>
<b>Europe</b> .....	<b>4.34</b>	<b>3.84</b>	<b>4.12</b>	<b>4.12</b>	<b>4.08</b>	<b>3.93</b>	<i>4.09</i>	<i>4.25</i>	<i>4.34</i>	<i>4.36</i>	<i>4.28</i>	<i>4.48</i>	<b>4.10</b>	<i>4.09</i>	<i>4.37</i>
Norway .....	<b>2.11</b>	<b>1.90</b>	<b>2.06</b>	<b>2.05</b>	<b>1.97</b>	<b>1.84</b>	<i>2.10</i>	<i>2.18</i>	<i>2.29</i>	<i>2.30</i>	<i>2.30</i>	<i>2.40</i>	<b>2.03</b>	<i>2.02</i>	<i>2.32</i>
United Kingdom .....	<b>1.08</b>	<b>0.81</b>	<b>0.93</b>	<b>0.93</b>	<b>0.96</b>	<b>0.97</b>	<i>0.87</i>	<i>0.94</i>	<i>0.93</i>	<i>0.92</i>	<i>0.84</i>	<i>0.94</i>	<b>0.94</b>	<i>0.93</i>	<i>0.91</i>
<b>Eurasia</b> .....	<b>13.42</b>	<b>13.66</b>	<b>13.63</b>	<b>14.27</b>	<b>14.39</b>	<b>13.47</b>	<i>13.94</i>	<i>13.49</i>	<i>12.61</i>	<i>12.27</i>	<i>12.21</i>	<i>12.21</i>	<b>13.75</b>	<i>13.82</i>	<i>12.32</i>
Azerbaijan .....	<b>0.75</b>	<b>0.70</b>	<b>0.71</b>	<b>0.71</b>	<b>0.70</b>	<b>0.69</b>	<i>0.68</i>	<i>0.67</i>	<i>0.66</i>	<i>0.65</i>	<i>0.64</i>	<i>0.65</i>	<b>0.72</b>	<i>0.68</i>	<i>0.65</i>
Kazakhstan .....	<b>1.87</b>	<b>1.86</b>	<b>1.72</b>	<b>2.01</b>	<b>2.01</b>	<b>1.79</b>	<i>1.94</i>	<i>2.00</i>	<i>2.02</i>	<i>1.94</i>	<i>1.95</i>	<i>2.01</i>	<b>1.87</b>	<i>1.93</i>	<i>1.98</i>
Russia .....	<b>10.42</b>	<b>10.71</b>	<b>10.80</b>	<b>11.16</b>	<b>11.30</b>	<b>10.59</b>	<i>10.92</i>	<i>10.43</i>	<i>9.51</i>	<i>9.27</i>	<i>9.20</i>	<i>9.14</i>	<b>10.78</b>	<i>10.81</i>	<i>9.28</i>
Turkmenistan .....	<b>0.25</b>	<b>0.25</b>	<b>0.25</b>	<b>0.25</b>	<b>0.26</b>	<b>0.26</b>	<i>0.26</i>	<i>0.26</i>	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	<b>0.25</b>	<i>0.26</i>	<i>0.27</i>
Other Eurasia .....	<b>0.13</b>	<b>0.14</b>	<b>0.14</b>	<b>0.13</b>	<b>0.14</b>	<b>0.14</b>	<i>0.14</i>	<i>0.14</i>	<i>0.14</i>	<i>0.14</i>	<i>0.13</i>	<i>0.13</i>	<b>0.13</b>	<i>0.14</i>	<i>0.14</i>
<b>Middle East</b> .....	<b>3.10</b>	<b>3.13</b>	<b>3.17</b>	<b>3.18</b>	<b>3.25</b>	<b>3.26</b>	<i>3.23</i>	<i>3.22</i>	<i>3.23</i>	<i>3.22</i>	<i>3.22</i>	<i>3.22</i>	<b>3.15</b>	<i>3.24</i>	<i>3.22</i>
Oman .....	<b>0.96</b>	<b>0.97</b>	<b>0.98</b>	<b>1.01</b>	<b>1.05</b>	<b>1.07</b>	<i>1.03</i>	<i>1.03</i>	<i>1.03</i>	<i>1.03</i>	<i>1.03</i>	<i>1.03</i>	<b>0.98</b>	<i>1.04</i>	<i>1.03</i>
Qatar .....	<b>1.80</b>	<b>1.82</b>	<b>1.83</b>	<b>1.83</b>	<b>1.85</b>	<b>1.86</b>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<b>1.82</b>	<i>1.86</i>	<i>1.86</i>
<b>Asia and Oceania</b> .....	<b>9.18</b>	<b>9.10</b>	<b>9.05</b>	<b>8.95</b>	<b>9.17</b>	<b>9.24</b>	<i>9.23</i>	<i>9.27</i>	<i>9.31</i>	<i>9.33</i>	<i>9.28</i>	<i>9.30</i>	<b>9.07</b>	<i>9.23</i>	<i>9.30</i>
Australia .....	<b>0.46</b>	<b>0.42</b>	<b>0.49</b>	<b>0.48</b>	<b>0.45</b>	<b>0.45</b>	<i>0.45</i>	<i>0.45</i>	<i>0.44</i>	<i>0.43</i>	<i>0.43</i>	<i>0.42</i>	<b>0.46</b>	<i>0.45</i>	<i>0.43</i>
China .....	<b>4.99</b>	<b>5.03</b>	<b>5.01</b>	<b>4.93</b>	<b>5.18</b>	<b>5.18</b>	<i>5.14</i>	<i>5.18</i>	<i>5.22</i>	<i>5.25</i>	<i>5.24</i>	<i>5.28</i>	<b>4.99</b>	<i>5.17</i>	<i>5.25</i>
India .....	<b>0.90</b>	<b>0.89</b>	<b>0.89</b>	<b>0.88</b>	<b>0.88</b>	<b>0.92</b>	<i>0.90</i>	<i>0.90</i>	<i>0.90</i>	<i>0.91</i>	<i>0.89</i>	<i>0.88</i>	<b>0.89</b>	<i>0.90</i>	<i>0.90</i>
Indonesia .....	<b>0.88</b>	<b>0.85</b>	<b>0.85</b>	<b>0.85</b>	<b>0.84</b>	<b>0.85</b>	<i>0.85</i>	<i>0.85</i>	<i>0.84</i>	<i>0.84</i>	<i>0.83</i>	<i>0.82</i>	<b>0.86</b>	<i>0.85</i>	<i>0.83</i>
Malaysia .....	<b>0.66</b>	<b>0.62</b>	<b>0.57</b>	<b>0.59</b>	<b>0.61</b>	<b>0.59</b>	<i>0.63</i>	<i>0.65</i>	<i>0.65</i>	<i>0.65</i>	<i>0.64</i>	<i>0.64</i>	<b>0.61</b>	<i>0.62</i>	<i>0.64</i>
Vietnam .....	<b>0.21</b>	<b>0.21</b>	<b>0.20</b>	<b>0.21</b>	<b>0.21</b>	<b>0.21</b>	<i>0.20</i>	<i>0.19</i>	<i>0.19</i>	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	<b>0.21</b>	<i>0.20</i>	<i>0.18</i>
<b>Africa</b> .....	<b>1.48</b>	<b>1.47</b>	<b>1.41</b>	<b>1.41</b>	<b>1.40</b>	<b>1.40</b>	<i>1.44</i>	<i>1.44</i>	<i>1.43</i>	<i>1.43</i>	<i>1.42</i>	<i>1.41</i>	<b>1.44</b>	<i>1.42</i>	<i>1.42</i>
Egypt .....	<b>0.66</b>	<b>0.67</b>	<b>0.65</b>	<b>0.66</b>	<b>0.66</b>	<b>0.66</b>	<i>0.66</i>	<i>0.67</i>	<i>0.65</i>	<i>0.65</i>	<i>0.65</i>	<i>0.65</i>	<b>0.66</b>	<i>0.66</i>	<i>0.65</i>
South Sudan .....	<b>0.16</b>	<b>0.16</b>	<b>0.15</b>	<b>0.16</b>	<b>0.15</b>	<b>0.15</b>	<i>0.18</i>	<i>0.18</i>	<i>0.19</i>	<i>0.19</i>	<i>0.19</i>	<i>0.20</i>	<b>0.16</b>	<i>0.17</i>	<i>0.19</i>
<b>Total non-OPEC liquids</b> .....	<b>62.32</b>	<b>63.85</b>	<b>64.40</b>	<b>65.21</b>	<b>65.13</b>	<b>65.48</b>	<i>67.04</i>	<i>66.95</i>	<i>65.99</i>	<i>66.60</i>	<i>67.04</i>	<i>67.19</i>	<b>63.95</b>	<i>66.16</i>	<i>66.71</i>
<b>OPEC non-crude liquids</b> .....	<b>5.26</b>	<b>5.39</b>	<b>5.44</b>	<b>5.44</b>	<b>5.56</b>	<b>5.43</b>	<i>5.48</i>	<i>5.52</i>	<i>5.56</i>	<i>5.43</i>	<i>5.48</i>	<i>5.52</i>	<b>5.38</b>	<i>5.50</i>	<i>5.50</i>
<b>Non-OPEC + OPEC non-crude</b> .....	<b>67.59</b>	<b>69.24</b>	<b>69.84</b>	<b>70.65</b>	<b>70.68</b>	<b>70.91</b>	<i>72.52</i>	<i>72.47</i>	<i>71.55</i>	<i>72.04</i>	<i>72.52</i>	<i>72.71</i>	<b>69.34</b>	<i>71.65</i>	<i>72.21</i>
<b>Unplanned non-OPEC Production Outages</b> .....	<b>0.61</b>	<b>0.50</b>	<b>0.80</b>	<b>0.86</b>	<b>0.76</b>	<b>1.35</b>	-	-	-	-	-	-	<b>0.70</b>	-	-

- = no data available

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

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

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

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

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

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

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

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Crude Oil</b>															
Algeria .....	<b>0.87</b>	<b>0.88</b>	<b>0.92</b>	<b>0.95</b>	<b>0.97</b>	<b>1.00</b>	-	-	-	-	-	-	<b>0.90</b>	-	-
Angola .....	<b>1.11</b>	<b>1.08</b>	<b>1.11</b>	<b>1.13</b>	<b>1.15</b>	<b>1.19</b>	-	-	-	-	-	-	<b>1.11</b>	-	-
Congo (Brazzaville) .....	<b>0.28</b>	<b>0.27</b>	<b>0.26</b>	<b>0.26</b>	<b>0.27</b>	<b>0.29</b>	-	-	-	-	-	-	<b>0.26</b>	-	-
Equatorial Guinea .....	<b>0.11</b>	<b>0.10</b>	<b>0.10</b>	<b>0.09</b>	<b>0.09</b>	<b>0.09</b>	-	-	-	-	-	-	<b>0.10</b>	-	-
Gabon .....	<b>0.16</b>	<b>0.17</b>	<b>0.18</b>	<b>0.19</b>	<b>0.19</b>	<b>0.19</b>	-	-	-	-	-	-	<b>0.18</b>	-	-
Iran .....	<b>2.18</b>	<b>2.47</b>	<b>2.47</b>	<b>2.45</b>	<b>2.55</b>	<b>2.55</b>	-	-	-	-	-	-	<b>2.39</b>	-	-
Iraq .....	<b>3.94</b>	<b>3.98</b>	<b>4.07</b>	<b>4.25</b>	<b>4.30</b>	<b>4.42</b>	-	-	-	-	-	-	<b>4.06</b>	-	-
Kuwait .....	<b>2.33</b>	<b>2.36</b>	<b>2.45</b>	<b>2.53</b>	<b>2.61</b>	<b>2.69</b>	-	-	-	-	-	-	<b>2.42</b>	-	-
Libya .....	<b>1.18</b>	<b>1.16</b>	<b>1.18</b>	<b>1.12</b>	<b>1.06</b>	<b>0.76</b>	-	-	-	-	-	-	<b>1.16</b>	-	-
Nigeria .....	<b>1.31</b>	<b>1.32</b>	<b>1.28</b>	<b>1.31</b>	<b>1.27</b>	<b>1.11</b>	-	-	-	-	-	-	<b>1.30</b>	-	-
Saudi Arabia .....	<b>8.49</b>	<b>8.53</b>	<b>9.55</b>	<b>9.87</b>	<b>10.08</b>	<b>10.30</b>	-	-	-	-	-	-	<b>9.11</b>	-	-
United Arab Emirates .....	<b>2.61</b>	<b>2.65</b>	<b>2.76</b>	<b>2.86</b>	<b>2.94</b>	<b>3.04</b>	-	-	-	-	-	-	<b>2.72</b>	-	-
Venezuela .....	<b>0.52</b>	<b>0.53</b>	<b>0.53</b>	<b>0.68</b>	<b>0.70</b>	<b>0.76</b>	-	-	-	-	-	-	<b>0.56</b>	-	-
OPEC Total .....	<b>25.08</b>	<b>25.49</b>	<b>26.84</b>	<b>27.67</b>	<b>28.19</b>	<b>28.38</b>	<i>29.01</i>	<i>29.12</i>	<i>29.32</i>	<i>29.36</i>	<i>29.37</i>	<i>29.33</i>	<b>26.28</b>	<i>28.68</i>	<i>29.35</i>
<b>Other Liquids (a)</b> .....	<b>5.26</b>	<b>5.39</b>	<b>5.44</b>	<b>5.44</b>	<b>5.56</b>	<b>5.43</b>	<i>5.48</i>	<i>5.52</i>	<i>5.56</i>	<i>5.43</i>	<i>5.48</i>	<i>5.52</i>	<b>5.38</b>	<i>5.50</i>	<i>5.50</i>
<b>Total OPEC Production</b> .....	<b>30.34</b>	<b>30.88</b>	<b>32.28</b>	<b>33.10</b>	<b>33.75</b>	<b>33.82</b>	<i>34.49</i>	<i>34.64</i>	<i>34.88</i>	<i>34.80</i>	<i>34.85</i>	<i>34.85</i>	<b>31.66</b>	<i>34.18</i>	<i>34.84</i>
<b>Crude Oil Production Capacity</b>															
Middle East .....	<b>25.21</b>	<b>25.50</b>	<b>25.50</b>	<b>25.48</b>	<b>25.48</b>	<b>25.48</b>	<i>25.62</i>	<i>25.72</i>	<i>25.92</i>	<i>26.02</i>	<i>26.07</i>	<i>26.07</i>	<b>25.42</b>	<i>25.58</i>	<i>26.02</i>
Other .....	<b>6.12</b>	<b>6.11</b>	<b>6.01</b>	<b>6.09</b>	<b>6.00</b>	<b>5.75</b>	<i>5.89</i>	<i>5.96</i>	<i>5.97</i>	<i>5.96</i>	<i>5.92</i>	<i>5.88</i>	<b>6.08</b>	<i>5.90</i>	<i>5.93</i>
OPEC Total .....	<b>31.33</b>	<b>31.60</b>	<b>31.50</b>	<b>31.57</b>	<b>31.48</b>	<b>31.23</b>	<i>31.51</i>	<i>31.68</i>	<i>31.89</i>	<i>31.98</i>	<i>31.99</i>	<i>31.95</i>	<b>31.50</b>	<i>31.48</i>	<i>31.95</i>
<b>Surplus Crude Oil Production Capacity</b>															
Middle East .....	<b>5.66</b>	<b>5.52</b>	<b>4.21</b>	<b>3.53</b>	<b>3.00</b>	<b>2.48</b>	<i>2.27</i>	<i>2.47</i>	<i>2.50</i>	<i>2.57</i>	<i>2.60</i>	<i>2.60</i>	<b>4.72</b>	<i>2.55</i>	<i>2.57</i>
Other .....	<b>0.59</b>	<b>0.60</b>	<b>0.45</b>	<b>0.38</b>	<b>0.29</b>	<b>0.37</b>	<i>0.22</i>	<i>0.09</i>	<i>0.07</i>	<i>0.05</i>	<i>0.02</i>	<i>0.02</i>	<b>0.50</b>	<i>0.24</i>	<i>0.04</i>
OPEC Total .....	<b>6.25</b>	<b>6.11</b>	<b>4.66</b>	<b>3.91</b>	<b>3.29</b>	<b>2.85</b>	<i>2.50</i>	<i>2.56</i>	<i>2.57</i>	<i>2.62</i>	<i>2.62</i>	<i>2.62</i>	<b>5.22</b>	<i>2.80</i>	<i>2.61</i>
<b>Unplanned OPEC Production Outages</b> .....	<b>2.49</b>	<b>2.12</b>	<b>2.15</b>	<b>2.03</b>	<b>1.98</b>	<b>2.37</b>	-	-	-	-	-	-	<b>2.20</b>	-	-

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

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

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

Forecasts are not published for individual OPEC countries.

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

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

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

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

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

	2021				2022				2023				2021	2022	2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
<b>North America</b> .....	<b>22.34</b>	<b>23.92</b>	<b>24.31</b>	<b>24.54</b>	<b>24.31</b>	<b>24.34</b>	<i>24.68</i>	<i>25.02</i>	<i>24.50</i>	<i>24.80</i>	<i>25.11</i>	<i>25.23</i>	<b>23.78</b>	<i>24.59</i>	<i>24.91</i>
Canada .....	<b>2.26</b>	<b>2.24</b>	<b>2.50</b>	<b>2.40</b>	<b>2.33</b>	<b>2.38</b>	<i>2.50</i>	<i>2.48</i>	<i>2.46</i>	<i>2.40</i>	<i>2.51</i>	<i>2.48</i>	<b>2.35</b>	<i>2.43</i>	<i>2.46</i>
Mexico .....	<b>1.62</b>	<b>1.64</b>	<b>1.60</b>	<b>1.71</b>	<b>1.75</b>	<b>1.65</b>	<i>1.64</i>	<i>1.65</i>	<i>1.62</i>	<i>1.64</i>	<i>1.64</i>	<i>1.65</i>	<b>1.64</b>	<i>1.67</i>	<i>1.64</i>
United States .....	<b>18.45</b>	<b>20.03</b>	<b>20.21</b>	<b>20.41</b>	<b>20.22</b>	<b>20.30</b>	<i>20.53</i>	<i>20.88</i>	<i>20.41</i>	<i>20.75</i>	<i>20.95</i>	<i>21.09</i>	<b>19.78</b>	<i>20.48</i>	<i>20.80</i>
<b>Central and South America</b> .....	<b>5.88</b>	<b>6.02</b>	<b>6.24</b>	<b>6.36</b>	<b>6.17</b>	<b>6.23</b>	<i>6.34</i>	<i>6.35</i>	<i>6.20</i>	<i>6.33</i>	<i>6.44</i>	<i>6.38</i>	<b>6.13</b>	<i>6.27</i>	<i>6.34</i>
Brazil .....	<b>2.79</b>	<b>2.90</b>	<b>3.02</b>	<b>3.12</b>	<b>2.94</b>	<b>2.95</b>	<i>3.03</i>	<i>3.03</i>	<i>2.95</i>	<i>3.00</i>	<i>3.08</i>	<i>3.06</i>	<b>2.96</b>	<i>2.99</i>	<i>3.02</i>
<b>Europe</b> .....	<b>12.65</b>	<b>13.36</b>	<b>14.57</b>	<b>14.65</b>	<b>13.84</b>	<b>14.08</b>	<i>14.41</i>	<i>14.12</i>	<i>13.95</i>	<i>13.98</i>	<i>14.39</i>	<i>14.16</i>	<b>13.82</b>	<i>14.11</i>	<i>14.12</i>
<b>Eurasia</b> .....	<b>4.66</b>	<b>4.73</b>	<b>5.09</b>	<b>4.95</b>	<b>4.48</b>	<b>4.33</b>	<i>4.69</i>	<i>4.62</i>	<i>4.30</i>	<i>4.46</i>	<i>4.77</i>	<i>4.69</i>	<b>4.86</b>	<i>4.53</i>	<i>4.55</i>
Russia .....	<b>3.42</b>	<b>3.53</b>	<b>3.82</b>	<b>3.66</b>	<b>3.30</b>	<b>3.20</b>	<i>3.48</i>	<i>3.39</i>	<i>3.16</i>	<i>3.25</i>	<i>3.53</i>	<i>3.39</i>	<b>3.61</b>	<i>3.34</i>	<i>3.34</i>
<b>Middle East</b> .....	<b>8.08</b>	<b>8.50</b>	<b>9.03</b>	<b>8.77</b>	<b>8.79</b>	<b>9.10</b>	<i>9.51</i>	<i>8.76</i>	<i>9.02</i>	<i>9.24</i>	<i>9.77</i>	<i>9.16</i>	<b>8.60</b>	<i>9.04</i>	<i>9.30</i>
<b>Asia and Oceania</b> .....	<b>36.27</b>	<b>35.38</b>	<b>34.82</b>	<b>36.71</b>	<b>36.86</b>	<b>36.09</b>	<i>35.92</i>	<i>37.30</i>	<i>38.92</i>	<i>37.93</i>	<i>36.77</i>	<i>37.44</i>	<b>35.80</b>	<i>36.54</i>	<i>37.76</i>
China .....	<b>15.27</b>	<b>15.48</b>	<b>14.99</b>	<b>15.33</b>	<b>15.25</b>	<b>15.24</b>	<i>15.33</i>	<i>15.78</i>	<i>16.54</i>	<i>16.43</i>	<i>15.80</i>	<i>15.72</i>	<b>15.27</b>	<i>15.40</i>	<i>16.12</i>
Japan .....	<b>3.73</b>	<b>3.08</b>	<b>3.18</b>	<b>3.67</b>	<b>3.73</b>	<b>3.09</b>	<i>3.19</i>	<i>3.52</i>	<i>3.78</i>	<i>3.12</i>	<i>3.15</i>	<i>3.45</i>	<b>3.42</b>	<i>3.38</i>	<i>3.37</i>
India .....	<b>4.94</b>	<b>4.37</b>	<b>4.41</b>	<b>4.87</b>	<b>5.08</b>	<b>5.13</b>	<i>4.75</i>	<i>5.05</i>	<i>5.27</i>	<i>5.34</i>	<i>4.99</i>	<i>5.31</i>	<b>4.65</b>	<i>5.00</i>	<i>5.23</i>
<b>Africa</b> .....	<b>4.36</b>	<b>4.38</b>	<b>4.28</b>	<b>4.47</b>	<b>4.48</b>	<b>4.48</b>	<i>4.40</i>	<i>4.59</i>	<i>4.59</i>	<i>4.60</i>	<i>4.52</i>	<i>4.68</i>	<b>4.37</b>	<i>4.49</i>	<i>4.60</i>
<b>Total OECD Liquid Fuels Consumption</b> .....	<b>42.45</b>	<b>44.08</b>	<b>45.82</b>	<b>46.81</b>	<b>45.89</b>	<b>45.29</b>	<i>46.12</i>	<i>46.66</i>	<i>46.23</i>	<i>45.69</i>	<i>46.46</i>	<i>46.79</i>	<b>44.81</b>	<i>45.99</i>	<i>46.29</i>
<b>Total non-OECD Liquid Fuels Consumption</b> .....	<b>51.78</b>	<b>52.20</b>	<b>52.53</b>	<b>53.64</b>	<b>53.04</b>	<b>53.37</b>	<i>53.83</i>	<i>54.10</i>	<i>55.24</i>	<i>55.66</i>	<i>55.30</i>	<i>54.95</i>	<b>52.54</b>	<i>53.59</i>	<i>55.29</i>
<b>Total World Liquid Fuels Consumption</b> .....	<b>94.23</b>	<b>96.29</b>	<b>98.35</b>	<b>100.45</b>	<b>98.93</b>	<b>98.65</b>	<i>99.95</i>	<i>100.75</i>	<i>101.47</i>	<i>101.35</i>	<i>101.76</i>	<i>101.74</i>	<b>97.35</b>	<i>99.58</i>	<i>101.58</i>
<b>Real Gross Domestic Product (a)</b>															
World Index, 2015 Q1 = 100 .....	<b>116.3</b>	<b>117.5</b>	<b>119.0</b>	<b>120.7</b>	<b>121.2</b>	<b>121.1</b>	<i>122.5</i>	<i>123.7</i>	<i>124.6</i>	<i>125.6</i>	<i>126.7</i>	<i>127.9</i>	<b>118.4</b>	<i>122.1</i>	<i>126.2</i>
Percent change from prior year .....	<b>3.4</b>	<b>11.6</b>	<b>5.0</b>	<b>4.6</b>	<b>4.2</b>	<b>3.0</b>	<i>3.0</i>	<i>2.5</i>	<i>2.8</i>	<i>3.7</i>	<i>3.4</i>	<i>3.4</i>	<b>6.0</b>	<i>3.2</i>	<i>3.3</i>
OECD Index, 2015 = 100 .....	<b>109.6</b>	<b>112.7</b>	<b>115.0</b>										<b>109.6</b>	<i>112.7</i>	<i>115.0</i>
Percent change from prior year .....	<b>5.5</b>	<b>2.8</b>	<b>2.0</b>										<b>5.5</b>	<i>2.8</i>	<i>2.0</i>
Non-OECD Index, 2015 = 100 .....	<b>123.8</b>	<b>128.1</b>	<b>133.6</b>										<b>123.8</b>	<i>128.1</i>	<i>133.6</i>
Percent change from prior year .....	<b>6.4</b>	<b>3.5</b>	<b>4.3</b>										<b>6.4</b>	<i>3.5</i>	<i>4.3</i>
<b>Nominal U.S. Dollar Index (b)</b>															
Index, 2015 Q1 = 100 .....	<b>106.5</b>	<b>106.1</b>	<b>107.5</b>	<b>109.1</b>	<b>109.6</b>	<b>112.2</b>	<i>114.0</i>	<i>113.6</i>	<i>112.9</i>	<i>112.2</i>	<i>111.6</i>	<i>111.0</i>	<b>107.3</b>	<i>112.3</i>	<i>111.9</i>
Percent change from prior year .....	<b>-4.6</b>	<b>-8.2</b>	<b>-3.4</b>	<b>0.9</b>	<b>2.9</b>	<b>5.8</b>	<i>6.0</i>	<i>4.2</i>	<i>3.0</i>	<i>0.0</i>	<i>-2.0</i>	<i>-2.3</i>	<b>-3.9</b>	<i>4.7</i>	<i>-0.4</i>

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

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

- = no data available

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

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

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

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

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Supply (million barrels per day)</b>															
<b>Crude Oil Supply</b>															
Domestic Production (a) .....	<b>10.69</b>	<b>11.28</b>	<b>11.13</b>	<b>11.63</b>	<b>11.46</b>	<b>11.75</b>	<i>12.08</i>	<i>12.34</i>	<i>12.45</i>	<i>12.58</i>	<i>12.87</i>	<i>13.17</i>	<b>11.19</b>	<i>11.91</i>	<i>12.77</i>
Alaska .....	<b>0.46</b>	<b>0.44</b>	<b>0.41</b>	<b>0.44</b>	<b>0.45</b>	<b>0.42</b>	<i>0.41</i>	<i>0.42</i>	<i>0.44</i>	<i>0.43</i>	<i>0.42</i>	<i>0.45</i>	<b>0.44</b>	<i>0.43</i>	<i>0.43</i>
Federal Gulf of Mexico (b) .....	<b>1.80</b>	<b>1.79</b>	<b>1.49</b>	<b>1.73</b>	<b>1.67</b>	<b>1.75</b>	<i>1.76</i>	<i>1.82</i>	<i>1.89</i>	<i>1.86</i>	<i>1.78</i>	<i>1.76</i>	<b>1.70</b>	<i>1.75</i>	<i>1.82</i>
Lower 48 States (excl GOM) .....	<b>8.44</b>	<b>9.05</b>	<b>9.24</b>	<b>9.46</b>	<b>9.34</b>	<b>9.58</b>	<i>9.91</i>	<i>10.10</i>	<i>10.12</i>	<i>10.29</i>	<i>10.68</i>	<i>10.96</i>	<b>9.05</b>	<i>9.74</i>	<i>10.52</i>
Crude Oil Net Imports (c) .....	<b>2.87</b>	<b>2.96</b>	<b>3.60</b>	<b>3.09</b>	<b>3.00</b>	<b>2.97</b>	<i>3.28</i>	<i>3.06</i>	<i>2.95</i>	<i>3.41</i>	<i>3.12</i>	<i>2.20</i>	<b>3.13</b>	<i>3.08</i>	<i>2.92</i>
SPR Net Withdrawals .....	<b>0.00</b>	<b>0.18</b>	<b>0.04</b>	<b>0.26</b>	<b>0.31</b>	<b>0.81</b>	<i>0.98</i>	<i>0.41</i>	<i>0.04</i>	<i>0.09</i>	<i>0.03</i>	<i>0.11</i>	<b>0.12</b>	<i>0.63</i>	<i>0.07</i>
Commercial Inventory Net Withdrawals .....	<b>-0.18</b>	<b>0.59</b>	<b>0.30</b>	<b>-0.01</b>	<b>0.08</b>	<b>-0.10</b>	<i>0.05</i>	<i>-0.17</i>	<i>-0.40</i>	<i>0.11</i>	<i>0.21</i>	<i>-0.06</i>	<b>0.18</b>	<i>-0.04</i>	<i>-0.03</i>
Crude Oil Adjustment (d) .....	<b>0.42</b>	<b>0.63</b>	<b>0.54</b>	<b>0.54</b>	<b>0.71</b>	<b>0.60</b>	<i>0.23</i>	<i>0.16</i>	<i>0.22</i>	<i>0.22</i>	<i>0.23</i>	<i>0.16</i>	<b>0.53</b>	<i>0.42</i>	<i>0.21</i>
<b>Total Crude Oil Input to Refineries .....</b>	<b>13.81</b>	<b>15.65</b>	<b>15.60</b>	<b>15.51</b>	<b>15.56</b>	<b>16.03</b>	<i>16.62</i>	<i>15.80</i>	<i>15.27</i>	<i>16.40</i>	<i>16.46</i>	<i>15.59</i>	<b>15.15</b>	<i>16.00</i>	<i>15.93</i>
<b>Other Supply</b>															
Refinery Processing Gain .....	<b>0.84</b>	<b>0.97</b>	<b>0.97</b>	<b>1.04</b>	<b>0.95</b>	<b>1.06</b>	<i>1.07</i>	<i>1.05</i>	<i>1.02</i>	<i>1.00</i>	<i>1.00</i>	<i>0.99</i>	<b>0.95</b>	<i>1.03</i>	<i>1.01</i>
Natural Gas Plant Liquids Production .....	<b>4.86</b>	<b>5.46</b>	<b>5.52</b>	<b>5.74</b>	<b>5.61</b>	<b>5.87</b>	<i>5.96</i>	<i>6.10</i>	<i>6.10</i>	<i>6.19</i>	<i>6.25</i>	<i>6.37</i>	<b>5.40</b>	<i>5.89</i>	<i>6.23</i>
Renewables and Oxygenate Production (e) .....	<b>1.03</b>	<b>1.13</b>	<b>1.10</b>	<b>1.24</b>	<b>1.19</b>	<b>1.19</b>	<i>1.19</i>	<i>1.23</i>	<i>1.19</i>	<i>1.21</i>	<i>1.20</i>	<i>1.26</i>	<b>1.12</b>	<i>1.20</i>	<i>1.22</i>
Fuel Ethanol Production .....	<b>0.90</b>	<b>0.99</b>	<b>0.96</b>	<b>1.06</b>	<b>1.02</b>	<b>1.01</b>	<i>1.01</i>	<i>1.02</i>	<i>0.99</i>	<i>1.00</i>	<i>0.99</i>	<i>1.02</i>	<b>0.98</b>	<i>1.02</i>	<i>1.00</i>
Petroleum Products Adjustment (f) .....	<b>0.19</b>	<b>0.22</b>	<b>0.22</b>	<b>0.23</b>	<b>0.22</b>	<b>0.22</b>	<i>0.22</i>	<i>0.22</i>	<i>0.21</i>	<i>0.22</i>	<i>0.22</i>	<i>0.22</i>	<b>0.22</b>	<i>0.22</i>	<i>0.21</i>
Product Net Imports (c) .....	<b>-2.94</b>	<b>-3.13</b>	<b>-3.24</b>	<b>-3.86</b>	<b>-3.74</b>	<b>-3.88</b>	<i>-3.94</i>	<i>-3.85</i>	<i>-3.68</i>	<i>-3.68</i>	<i>-3.85</i>	<i>-3.69</i>	<b>-3.29</b>	<i>-3.85</i>	<i>-3.73</i>
Hydrocarbon Gas Liquids .....	<b>-2.02</b>	<b>-2.23</b>	<b>-2.16</b>	<b>-2.19</b>	<b>-2.14</b>	<b>-2.26</b>	<i>-2.31</i>	<i>-2.40</i>	<i>-2.40</i>	<i>-2.49</i>	<i>-2.56</i>	<i>-2.58</i>	<b>-2.15</b>	<i>-2.28</i>	<i>-2.51</i>
Unfinished Oils .....	<b>0.14</b>	<b>0.25</b>	<b>0.22</b>	<b>0.08</b>	<b>0.09</b>	<b>0.32</b>	<i>0.35</i>	<i>0.21</i>	<i>0.18</i>	<i>0.25</i>	<i>0.38</i>	<i>0.21</i>	<b>0.17</b>	<i>0.24</i>	<i>0.25</i>
Other HC/Oxygenates .....	<b>-0.08</b>	<b>-0.04</b>	<b>-0.03</b>	<b>-0.06</b>	<b>-0.09</b>	<b>-0.09</b>	<i>-0.05</i>	<i>-0.03</i>	<i>-0.03</i>	<i>-0.03</i>	<i>-0.03</i>	<i>-0.02</i>	<b>-0.05</b>	<i>-0.06</i>	<i>-0.03</i>
Motor Gasoline Blend Comp. ....	<b>0.55</b>	<b>0.79</b>	<b>0.66</b>	<b>0.40</b>	<b>0.40</b>	<b>0.60</b>	<i>0.50</i>	<i>0.21</i>	<i>0.38</i>	<i>0.63</i>	<i>0.38</i>	<i>0.43</i>	<b>0.60</b>	<i>0.43</i>	<i>0.45</i>
Finished Motor Gasoline .....	<b>-0.66</b>	<b>-0.66</b>	<b>-0.68</b>	<b>-0.85</b>	<b>-0.76</b>	<b>-0.82</b>	<i>-0.86</i>	<i>-0.63</i>	<i>-0.70</i>	<i>-0.68</i>	<i>-0.70</i>	<i>-0.71</i>	<b>-0.71</b>	<i>-0.77</i>	<i>-0.70</i>
Jet Fuel .....	<b>0.03</b>	<b>0.09</b>	<b>0.09</b>	<b>0.00</b>	<b>-0.04</b>	<b>-0.08</b>	<i>-0.01</i>	<i>0.01</i>	<i>-0.06</i>	<i>0.04</i>	<i>0.05</i>	<i>0.07</i>	<b>0.05</b>	<i>-0.03</i>	<i>0.03</i>
Distillate Fuel Oil .....	<b>-0.49</b>	<b>-0.90</b>	<b>-0.94</b>	<b>-0.89</b>	<b>-0.81</b>	<b>-1.23</b>	<i>-1.13</i>	<i>-0.91</i>	<i>-0.66</i>	<i>-1.03</i>	<i>-0.98</i>	<i>-0.84</i>	<b>-0.80</b>	<i>-1.02</i>	<i>-0.88</i>
Residual Fuel Oil .....	<b>0.08</b>	<b>0.05</b>	<b>0.08</b>	<b>0.16</b>	<b>0.14</b>	<b>0.12</b>	<i>0.07</i>	<i>0.14</i>	<i>0.04</i>	<i>0.07</i>	<i>0.04</i>	<i>0.14</i>	<b>0.09</b>	<i>0.12</i>	<i>0.07</i>
Other Oils (g) .....	<b>-0.49</b>	<b>-0.49</b>	<b>-0.50</b>	<b>-0.50</b>	<b>-0.54</b>	<b>-0.43</b>	<i>-0.50</i>	<i>-0.45</i>	<i>-0.43</i>	<i>-0.44</i>	<i>-0.42</i>	<i>-0.39</i>	<b>-0.49</b>	<i>-0.48</i>	<i>-0.42</i>
Product Inventory Net Withdrawals .....	<b>0.65</b>	<b>-0.26</b>	<b>0.03</b>	<b>0.52</b>	<b>0.37</b>	<b>-0.20</b>	<i>-0.59</i>	<i>0.33</i>	<i>0.31</i>	<i>-0.59</i>	<i>-0.33</i>	<i>0.35</i>	<b>0.23</b>	<i>-0.03</i>	<i>-0.07</i>
<b>Total Supply .....</b>	<b>18.43</b>	<b>20.03</b>	<b>20.21</b>	<b>20.41</b>	<b>20.16</b>	<b>20.30</b>	<i>20.53</i>	<i>20.88</i>	<i>20.41</i>	<i>20.75</i>	<i>20.95</i>	<i>21.09</i>	<b>19.78</b>	<i>20.47</i>	<i>20.80</i>
<b>Consumption (million barrels per day)</b>															
Hydrocarbon Gas Liquids .....	<b>3.40</b>	<b>3.33</b>	<b>3.31</b>	<b>3.60</b>	<b>3.87</b>	<b>3.45</b>	<i>3.40</i>	<i>3.87</i>	<i>3.97</i>	<i>3.49</i>	<i>3.50</i>	<i>3.91</i>	<b>3.41</b>	<i>3.65</i>	<i>3.72</i>
Other HC/Oxygenates .....	<b>0.11</b>	<b>0.13</b>	<b>0.11</b>	<b>0.16</b>	<b>0.13</b>	<b>0.17</b>	<i>0.18</i>	<i>0.23</i>	<i>0.22</i>	<i>0.21</i>	<i>0.20</i>	<i>0.26</i>	<b>0.13</b>	<i>0.18</i>	<i>0.22</i>
Unfinished Oils .....	<b>0.05</b>	<b>0.03</b>	<b>-0.05</b>	<b>-0.01</b>	<b>0.13</b>	<b>0.06</b>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<b>0.00</b>	<i>0.05</i>	<i>0.00</i>
Motor Gasoline .....	<b>8.00</b>	<b>9.07</b>	<b>9.13</b>	<b>8.96</b>	<b>8.47</b>	<b>8.90</b>	<i>9.03</i>	<i>8.94</i>	<i>8.55</i>	<i>9.09</i>	<i>9.14</i>	<i>8.94</i>	<b>8.80</b>	<i>8.84</i>	<i>8.93</i>
Fuel Ethanol blended into Motor Gasoline .....	<b>0.82</b>	<b>0.93</b>	<b>0.94</b>	<b>0.95</b>	<b>0.87</b>	<b>0.93</b>	<i>0.92</i>	<i>0.93</i>	<i>0.87</i>	<i>0.94</i>	<i>0.93</i>	<i>0.94</i>	<b>0.91</b>	<i>0.91</i>	<i>0.92</i>
Jet Fuel .....	<b>1.13</b>	<b>1.34</b>	<b>1.52</b>	<b>1.49</b>	<b>1.45</b>	<b>1.58</b>	<i>1.57</i>	<i>1.55</i>	<i>1.46</i>	<i>1.61</i>	<i>1.65</i>	<i>1.62</i>	<b>1.37</b>	<i>1.54</i>	<i>1.58</i>
Distillate Fuel Oil .....	<b>3.97</b>	<b>3.93</b>	<b>3.87</b>	<b>4.00</b>	<b>4.14</b>	<b>3.83</b>	<i>3.85</i>	<i>4.03</i>	<i>4.10</i>	<i>3.97</i>	<i>3.95</i>	<i>4.05</i>	<b>3.94</b>	<i>3.96</i>	<i>4.02</i>
Residual Fuel Oil .....	<b>0.26</b>	<b>0.25</b>	<b>0.33</b>	<b>0.41</b>	<b>0.38</b>	<b>0.35</b>	<i>0.34</i>	<i>0.34</i>	<i>0.30</i>	<i>0.31</i>	<i>0.32</i>	<i>0.34</i>	<b>0.31</b>	<i>0.35</i>	<i>0.32</i>
Other Oils (g) .....	<b>1.53</b>	<b>1.95</b>	<b>1.98</b>	<b>1.81</b>	<b>1.65</b>	<b>1.97</b>	<i>2.16</i>	<i>1.92</i>	<i>1.81</i>	<i>2.07</i>	<i>2.20</i>	<i>1.97</i>	<b>1.82</b>	<i>1.92</i>	<i>2.01</i>
<b>Total Consumption .....</b>	<b>18.45</b>	<b>20.03</b>	<b>20.21</b>	<b>20.41</b>	<b>20.22</b>	<b>20.30</b>	<i>20.53</i>	<i>20.88</i>	<i>20.41</i>	<i>20.75</i>	<i>20.95</i>	<i>21.09</i>	<b>19.78</b>	<i>20.48</i>	<i>20.80</i>
<b>Total Petroleum and Other Liquids Net Imports .....</b>	<b>-0.07</b>	<b>-0.16</b>	<b>0.35</b>	<b>-0.77</b>	<b>-0.74</b>	<b>-0.91</b>	<i>-0.66</i>	<i>-0.79</i>	<i>-0.73</i>	<i>-0.28</i>	<i>-0.73</i>	<i>-1.48</i>	<b>-0.16</b>	<i>-0.77</i>	<i>-0.81</i>
<b>End-of-period Inventories (million barrels)</b>															
<b>Commercial Inventory</b>															
Crude Oil (excluding SPR) .....	<b>501.9</b>	<b>448.0</b>	<b>420.4</b>	<b>421.4</b>	<b>414.4</b>	<b>423.8</b>	<i>418.9</i>	<i>434.8</i>	<i>470.6</i>	<i>460.7</i>	<i>441.4</i>	<i>447.2</i>	<b>421.4</b>	<i>434.8</i>	<i>447.2</i>
Hydrocarbon Gas Liquids .....	<b>168.6</b>	<b>195.8</b>	<b>225.6</b>	<b>188.4</b>	<b>142.0</b>	<b>187.2</b>	<i>233.6</i>	<i>189.9</i>	<i>154.2</i>	<i>204.8</i>	<i>245.6</i>	<i>203.3</i>	<b>188.4</b>	<i>189.9</i>	<i>203.3</i>
Unfinished Oils .....	<b>93.3</b>	<b>93.0</b>	<b>90.2</b>	<b>80.3</b>	<b>87.9</b>	<b>88.0</b>	<i>89.2</i>	<i>82.8</i>	<i>92.3</i>	<i>89.3</i>	<i>89.2</i>	<i>82.4</i>	<b>80.3</b>	<i>82.8</i>	<i>82.4</i>
Other HC/Oxygenates .....	<b>29.1</b>	<b>27.5</b>	<b>25.4</b>	<b>28.6</b>	<b>34.1</b>	<b>30.4</b>	<i>30.1</i>	<i>30.4</i>	<i>32.4</i>	<i>31.2</i>	<i>30.9</i>	<i>31.2</i>	<b>28.6</b>	<i>30.4</i>	<i>31.2</i>
<b>Total Motor Gasoline .....</b>	<b>237.6</b>	<b>237.2</b>	<b>227.0</b>	<b>232.2</b>	<b>238.5</b>	<b>219.1</b>	<i>219.0</i>	<i>235.1</i>	<i>233.6</i>	<i>235.9</i>	<i>226.7</i>	<i>241.2</i>	<b>232.2</b>	<i>235.1</i>	<i>241.2</i>
Finished Motor Gasoline .....	<b>20.3</b>	<b>18.6</b>	<b>18.5</b>	<b>17.7</b>	<b>17.3</b>	<b>17.6</b>	<i>21.1</i>	<i>24.8</i>	<i>21.8</i>	<i>23.1</i>	<i>24.1</i>	<i>26.8</i>	<b>17.7</b>	<i>24.8</i>	<i>26.8</i>
Motor Gasoline Blend Comp. ....	<b>217.4</b>	<b>218.6</b>	<b>208.5</b>	<b>214.5</b>	<b>221.2</b>	<b>201.5</b>	<i>197.9</i>	<i>210.3</i>	<i>211.9</i>	<i>212.8</i>	<i>202.6</i>	<i>214.4</i>	<b>214.5</b>	<i>210.3</i>	<i>214.4</i>
Jet Fuel .....	<b>39.0</b>	<b>44.7</b>	<b>42.0</b>	<b>35.8</b>	<b>35.6</b>	<b>39.9</b>	<i>42.5</i>	<i>39.3</i>	<i>38.8</i>	<i>39.6</i>	<i>42.2</i>	<i>39.0</i>	<b>35.8</b>	<i>39.3</i>	<i>39.0</i>
Distillate Fuel Oil .....	<b>145.5</b>	<b>140.1</b>	<b>131.7</b>	<b>129.9</b>	<b>114.6</b>	<b>111.1</b>	<i>124.9</i>	<i>127.8</i>	<i>116.9</i>	<i>121.8</i>	<i>128.7</i>	<i>130.8</i>	<b>129.9</b>	<i>127.8</i>	<i>130.8</i>
Residual Fuel Oil .....	<b>30.9</b>	<b>31.1</b>	<b>28.0</b>	<b>25.4</b>	<b>27.9</b>	<b>28.4</b>	<i>28.2</i>	<i>30.2</i>	<i>30.1</i>	<i>30.9</i>	<i>29.5</i>	<i>31.0</i>	<b>25.4</b>	<i>30.2</i>	<i>31.0</i>
Other Oils (g) .....	<b>55.8</b>	<b>54.1</b>	<b>50.5</b>	<b>51.8</b>	<b>58.5</b>	<b>53.5</b>	<i>44.8</i>	<i>46.7</i>	<i>56.3</i>	<i>54.5</i>	<i>45.5</i>	<i>47.1</i>	<b>51.8</b>	<i>46.7</i>	<i>47.1</i>
<b>Total Commercial Inventory .....</b>	<b>1301.7</b>	<b>1271.5</b>	<b>1240.7</b>	<b>1193.8</b>	<b>1153.6</b>	<b>1181.5</b>	<i>1231.1</i>	<i>1217.0</i>	<i>1225.2</i>	<i>1268.8</i>	<i>1279.7</i>	<i>1253.2</i>	<b>1193.8</b>	<i>1217.0</i>	<i>1253.2</i>
Crude Oil in SPR .....	<b>637.8</b>	<b>621.3</b>	<b>617.8</b>	<b>593.7</b>	<b>566.1</b>	<b>492.0</b>	<i>402.0</i>	<i>364.2</i>	<i>360.4</i>	<i>352.6</i>	<i>350.0</i>	<i>339.5</i>	<b>593.7</b>	<i>364.2</i>	<i>339.5</i>

(a) Includes lease condensate.

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

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

(d) Crude oil adjustment balances supply and

**Table 4b. U.S. Hydrocarbon Gas Liquids (HGL) and Petroleum Refinery Balances (million barrels per day, except inventories and utilization factor)**  
 U.S. Energy Information Administration | Short-Term Energy Outlook - July 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>HGL Production</b>															
<b>Natural Gas Processing Plants</b>															
Ethane .....	1.87	2.19	2.18	2.32	2.33	2.45	2.45	2.55	2.53	2.59	2.56	2.61	2.14	2.44	2.57
Propane .....	1.62	1.74	1.75	1.82	1.77	1.83	1.85	1.90	1.92	1.92	1.95	2.01	1.73	1.84	1.95
Butanes .....	0.85	0.92	0.93	0.96	0.93	0.96	1.01	1.02	1.03	1.03	1.06	1.08	0.92	0.98	1.05
Natural Gasoline (Pentanes Plus) .....	0.53	0.61	0.65	0.64	0.59	0.63	0.66	0.64	0.62	0.66	0.69	0.67	0.61	0.63	0.66
<b>Refinery and Blender Net Production</b>															
Ethane/Ethylene .....	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.01
Propane .....	0.25	0.29	0.28	0.29	0.27	0.30	0.30	0.29	0.29	0.28	0.29	0.28	0.28	0.29	0.29
Propylene (refinery-grade) .....	0.27	0.31	0.29	0.29	0.28	0.28	0.28	0.28	0.28	0.29	0.28	0.28	0.29	0.28	0.28
Butanes/Butylenes .....	-0.09	0.24	0.18	-0.16	-0.07	0.26	0.19	-0.19	-0.08	0.26	0.19	-0.19	0.04	0.05	0.05
<b>Renewable Fuels and Oxygenate Plant Net Production</b>															
Natural Gasoline (Pentanes Plus) .....	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
<b>HGL Net Imports</b>															
Ethane .....	-0.35	-0.39	-0.41	-0.47	-0.50	-0.42	-0.40	-0.44	-0.46	-0.46	-0.46	-0.46	-0.40	-0.44	-0.46
Propane/Propylene .....	-1.11	-1.23	-1.19	-1.20	-1.18	-1.27	-1.23	-1.34	-1.26	-1.30	-1.34	-1.40	-1.18	-1.25	-1.32
Butanes/Butylenes .....	-0.35	-0.40	-0.38	-0.34	-0.28	-0.41	-0.47	-0.43	-0.45	-0.50	-0.52	-0.49	-0.37	-0.40	-0.49
Natural Gasoline (Pentanes Plus) .....	-0.22	-0.21	-0.18	-0.18	-0.17	-0.17	-0.20	-0.19	-0.23	-0.23	-0.24	-0.24	-0.20	-0.18	-0.24
<b>HGL Refinery and Blender Net Inputs</b>															
Butanes/Butylenes .....	0.39	0.29	0.31	0.52	0.44	0.31	0.32	0.50	0.42	0.29	0.32	0.50	0.38	0.39	0.38
Natural Gasoline (Pentanes Plus) .....	0.14	0.14	0.16	0.23	0.20	0.18	0.19	0.18	0.17	0.18	0.19	0.18	0.17	0.19	0.18
<b>HGL Consumption</b>															
Ethane/Ethylene .....	1.54	1.83	1.80	1.90	1.98	2.01	2.04	2.10	2.07	2.09	2.11	2.14	1.77	2.03	2.10
Propane .....	1.09	0.65	0.66	0.96	1.16	0.65	0.62	1.01	1.19	0.66	0.65	1.03	0.84	0.86	0.88
Propylene (refinery-grade) .....	0.29	0.32	0.30	0.30	0.30	0.30	0.29	0.30	0.30	0.30	0.30	0.29	0.31	0.30	0.30
Butanes/Butylenes .....	0.22	0.29	0.25	0.21	0.23	0.24	0.21	0.21	0.19	0.23	0.22	0.22	0.24	0.22	0.21
Natural Gasoline (Pentanes Plus) .....	0.26	0.24	0.30	0.22	0.21	0.25	0.24	0.25	0.23	0.21	0.23	0.24	0.25	0.24	0.23
<b>HGL Inventories (million barrels)</b>															
Ethane .....	65.8	67.4	64.6	64.0	51.1	51.7	52.1	55.4	55.0	59.2	58.8	61.1	65.4	52.6	58.5
Propane .....	39.3	53.2	68.6	62.1	36.3	53.3	79.3	63.6	39.9	60.7	83.0	69.6	62.1	63.6	69.6
Propylene (at refineries only) .....	1.1	1.2	1.3	1.4	1.0	1.3	1.7	1.7	1.5	1.8	2.0	1.9	1.4	1.7	1.9
Butanes/Butylenes .....	37.2	53.9	69.4	44.4	35.7	59.7	77.5	48.4	38.5	62.9	80.8	51.7	44.4	48.4	51.7
Natural Gasoline (Pentanes Plus) .....	22.8	22.3	22.3	20.7	19.4	21.1	21.8	21.0	18.5	19.7	20.5	19.7	20.7	21.0	19.7
<b>Refinery and Blender Net Inputs</b>															
Crude Oil .....	13.81	15.65	15.60	15.51	15.56	16.03	16.62	15.80	15.27	16.40	16.46	15.59	15.15	16.00	15.93
Hydrocarbon Gas Liquids .....	0.53	0.43	0.47	0.75	0.64	0.49	0.51	0.69	0.60	0.47	0.51	0.69	0.54	0.58	0.57
Other Hydrocarbons/Oxygenates .....	1.05	1.19	1.20	1.18	1.12	1.19	1.17	1.16	1.10	1.18	1.18	1.16	1.15	1.16	1.16
Unfinished Oils .....	-0.08	0.22	0.31	0.20	-0.12	0.26	0.33	0.28	0.08	0.28	0.38	0.28	0.16	0.19	0.26
Motor Gasoline Blend Components .....	0.71	0.92	0.81	0.28	0.33	0.86	0.64	0.30	0.48	0.72	0.59	0.53	0.68	0.53	0.58
Aviation Gasoline Blend Components .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Refinery and Blender Net Inputs .....	16.01	18.41	18.39	17.91	17.53	18.84	19.27	18.22	17.53	19.05	19.11	18.24	17.69	18.47	18.48
<b>Refinery Processing Gain</b> .....	0.84	0.97	0.97	1.04	0.95	1.06	1.07	1.05	1.02	1.00	1.00	0.99	0.95	1.03	1.01
<b>Refinery and Blender Net Production</b>															
Hydrocarbon Gas Liquids .....	0.44	0.85	0.76	0.42	0.49	0.85	0.78	0.39	0.49	0.84	0.77	0.37	0.62	0.63	0.62
Finished Motor Gasoline .....	8.74	9.82	9.83	9.69	9.22	9.75	9.99	9.79	9.30	9.85	9.91	9.85	9.52	9.69	9.73
Jet Fuel .....	1.10	1.32	1.41	1.42	1.48	1.71	1.61	1.50	1.51	1.58	1.63	1.52	1.31	1.58	1.56
Distillate Fuel .....	4.29	4.77	4.72	4.87	4.77	5.02	5.13	4.97	4.64	5.05	5.01	4.91	4.66	4.97	4.90
Residual Fuel .....	0.19	0.20	0.21	0.22	0.26	0.23	0.26	0.22	0.26	0.25	0.27	0.22	0.21	0.24	0.25
Other Oils (a) .....	2.09	2.42	2.44	2.33	2.26	2.35	2.56	2.40	2.35	2.49	2.52	2.37	2.32	2.39	2.43
Total Refinery and Blender Net Production .....	16.86	19.38	19.36	18.94	18.49	19.90	20.33	19.27	18.55	20.05	20.11	19.23	18.64	19.50	19.49
<b>Refinery Distillation Inputs</b> .....	14.25	16.17	16.22	16.02	16.07	16.53	16.89	16.12	15.60	16.61	16.75	15.93	15.67	16.40	16.23
<b>Refinery Operable Distillation Capacity</b> .....	18.11	18.13	18.13	18.05	17.94	17.94	17.94	17.94	17.94	17.94	17.94	17.94	18.10	17.94	17.94
<b>Refinery Distillation Utilization Factor</b> .....	0.79	0.89	0.89	0.89	0.90	0.92	0.94	0.90	0.87	0.93	0.93	0.89	0.87	0.91	0.90

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

- = no data available

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

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

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

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

**Table 4c. U.S. Regional Motor Gasoline Prices and Inventories**  
 U.S. Energy Information Administration | Short-Term Energy Outlook - July 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Prices (cents per gallon)</b>															
Refiner Wholesale Price .....	180	216	232	243	278	376	336	288	272	282	278	268	219	320	275
<b>Gasoline Regular Grade Retail Prices Including Taxes</b>															
PADD 1 .....	252	287	304	327	364	438	409	361	344	357	353	347	294	393	350
PADD 2 .....	247	288	304	315	352	436	407	358	339	351	348	337	290	388	343
PADD 3 .....	228	267	282	298	340	415	384	334	316	326	323	314	271	369	320
PADD 4 .....	247	311	360	351	360	445	448	388	353	368	367	352	319	410	360
PADD 5 .....	312	366	391	410	452	543	506	466	437	436	431	417	372	493	430
U.S. Average .....	256	297	316	333	371	450	422	375	354	364	360	351	302	405	357
<b>Gasoline All Grades Including Taxes</b>	<b>265</b>	<b>306</b>	<b>325</b>	<b>343</b>	<b>380</b>	<b>460</b>	<b>434</b>	<b>388</b>	<b>367</b>	<b>378</b>	<b>374</b>	<b>365</b>	<b>311</b>	<b>416</b>	<b>371</b>
<b>End-of-period Inventories (million barrels)</b>															
<b>Total Gasoline Inventories</b>															
PADD 1 .....	65.1	69.9	59.0	61.8	56.9	52.5	53.6	58.9	59.2	60.6	56.5	62.7	61.8	58.9	62.7
PADD 2 .....	50.7	50.6	46.9	50.9	56.5	47.2	49.0	50.3	53.0	50.8	50.3	49.7	50.9	50.3	49.7
PADD 3 .....	81.9	81.6	82.9	81.7	87.1	83.0	79.5	86.1	83.7	87.4	83.1	87.8	81.7	86.1	87.8
PADD 4 .....	8.6	6.2	7.6	8.1	8.1	6.3	7.1	8.1	8.0	7.9	7.4	8.3	8.1	8.1	8.3
PADD 5 .....	31.4	29.0	30.6	29.6	29.9	30.1	29.7	31.7	29.8	29.3	29.4	32.6	29.6	31.7	32.6
U.S. Total .....	237.6	237.2	227.0	232.2	238.5	219.1	219.0	235.1	233.6	235.9	226.7	241.2	232.2	235.1	241.2
<b>Finished Gasoline Inventories</b>															
U.S. Total .....	20.3	18.6	18.5	17.7	17.3	17.6	21.1	24.8	21.8	23.1	24.1	26.8	17.7	24.8	26.8
<b>Gasoline Blending Components Inventories</b>															
U.S. Total .....	217.4	218.6	208.5	214.5	221.2	201.5	197.9	210.3	211.9	212.8	202.6	214.4	214.5	210.3	214.4

- = no data available

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

Prices are not adjusted for inflation.

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

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

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

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

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

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

**Table 5a. U.S. Natural Gas Supply, Consumption, and Inventories (e)**  
 U.S. Energy Information Administration | Short-Term Energy Outlook - July 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Supply (billion cubic feet per day)</b>															
Total Marketed Production .....	97.65	101.12	101.89	104.86	102.77	103.83	105.34	106.44	106.90	108.26	109.34	110.04	101.40	104.61	108.64
Alaska .....	1.02	0.95	0.90	1.02	1.06	0.83	0.75	0.87	0.93	0.82	0.76	0.89	0.97	0.88	0.85
Federal GOM (a) .....	2.26	2.25	1.82	2.11	2.04	2.25	2.17	2.13	2.16	2.09	1.97	1.91	2.11	2.15	2.03
Lower 48 States (excl GOM) .....	94.37	97.92	99.17	101.73	99.67	100.75	102.43	103.44	103.81	105.35	106.61	107.23	98.32	101.58	105.76
Total Dry Gas Production .....	90.59	93.15	93.86	96.53	94.61	95.51	96.88	97.89	98.40	99.62	100.60	101.25	93.55	96.23	99.98
LNG Gross Imports .....	0.15	0.02	0.03	0.04	0.15	0.18	0.18	0.20	0.32	0.18	0.18	0.20	0.06	0.18	0.22
LNG Gross Exports .....	9.27	9.81	9.60	10.32	11.50	10.94	10.14	10.85	13.00	12.61	12.27	12.89	9.76	10.85	12.69
Pipeline Gross Imports .....	8.68	6.81	7.24	7.82	8.92	6.84	6.42	6.71	7.78	6.47	6.33	6.50	7.63	7.21	6.76
Pipeline Gross Exports .....	8.31	8.66	8.50	8.40	8.43	8.39	9.24	9.20	9.12	9.02	9.33	9.24	8.47	8.82	9.18
Supplemental Gaseous Fuels .....	0.17	0.15	0.15	0.17	0.19	0.17	0.17	0.17	0.17	0.17	0.18	0.18	0.16	0.17	0.17
Net Inventory Withdrawals .....	17.18	-9.12	-7.87	1.03	20.14	-10.17	-8.83	2.74	14.96	-12.35	-8.62	3.84	0.24	0.90	-0.59
Total Supply .....	99.18	72.53	75.31	86.87	104.08	73.19	75.44	87.65	99.51	72.45	77.06	89.83	83.42	85.02	84.67
Balancing Item (b) .....	0.26	-0.53	-0.23	-1.25	0.23	1.16	0.50	1.45	1.36	0.49	0.37	0.65	-0.44	0.83	0.72
Total Primary Supply .....	99.44	72.00	75.08	85.62	104.30	74.35	75.94	89.10	100.87	72.95	77.43	90.49	82.98	85.85	85.38
<b>Consumption (billion cubic feet per day)</b>															
Residential .....	25.67	7.50	3.63	14.43	26.09	7.65	3.49	16.82	24.71	7.77	3.90	16.74	12.75	13.46	13.23
Commercial .....	14.87	6.25	4.68	10.08	15.62	6.09	4.44	10.43	15.11	6.36	4.83	10.52	8.94	9.12	9.18
Industrial .....	23.81	21.49	21.12	23.44	25.23	22.05	21.41	24.13	23.49	21.44	22.31	25.34	22.46	23.20	23.15
Electric Power (c) .....	26.79	29.20	37.94	29.47	28.65	30.75	38.66	29.27	28.65	29.40	38.20	29.20	30.88	31.85	31.38
Lease and Plant Fuel .....	4.87	5.04	5.08	5.23	5.12	5.18	5.25	5.31	5.33	5.40	5.45	5.49	5.05	5.21	5.42
Pipeline and Distribution Use .....	3.29	2.38	2.48	2.83	3.45	2.49	2.54	3.00	3.43	2.44	2.60	3.06	2.74	2.87	2.88
Vehicle Use .....	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Total Consumption .....	99.44	72.00	75.08	85.62	104.30	74.35	75.94	89.10	100.87	72.95	77.43	90.49	82.98	85.85	85.38
<b>End-of-period Inventories (billion cubic feet)</b>															
Working Gas Inventory .....	1,801	2,585	3,306	3,210	1,401	2,327	3,139	2,887	1,541	2,664	3,457	3,103	3,210	2,887	3,103
East Region (d) .....	313	515	804	766	242	479	789	673	253	586	873	740	766	673	740
Midwest Region (d) .....	395	630	966	887	296	558	909	802	343	641	978	820	887	802	820
South Central Region (d) .....	760	993	1,053	1,143	587	889	974	987	674	1,011	1,077	1,065	1,143	987	1,065
Mountain Region (d) .....	113	175	205	171	90	137	182	168	100	144	208	188	171	168	188
Pacific Region (d) .....	197	246	248	218	165	239	261	233	147	258	297	267	218	233	267
Alaska .....	23	27	30	25	21	24	24	24	24	24	24	24	25	24	24

(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>).

(e) We published the Natural Gas Monthly on Friday July 8, which was after we completed this forecast, and as a result, this forecast does not include final Natural Gas Monthly data for April

- = no data available

LNG: liquefied natural gas.

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

**Historical data:** Latest data available from Energy Information Administration databases supporting the following reports: *Natural Gas Monthly*, DOE/EIA-0130; and *Electric Power Monthly*,

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

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

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Wholesale/Spot</b>															
Henry Hub Spot Price .....	<b>3.70</b>	<b>3.06</b>	<b>4.53</b>	<b>4.96</b>	<b>4.84</b>	<b>7.77</b>	6.18	6.23	6.20	4.42	4.55	4.61	<b>4.06</b>	6.25	4.94
<b>Residential Retail</b>															
New England .....	<b>14.66</b>	<b>16.24</b>	<b>20.41</b>	<b>17.61</b>	<b>17.69</b>	<b>20.18</b>	22.16	17.20	16.56	17.09	19.24	15.01	<b>16.12</b>	18.19	16.36
Middle Atlantic .....	<b>10.43</b>	<b>13.49</b>	<b>19.81</b>	<b>14.29</b>	<b>12.79</b>	<b>15.08</b>	20.70	14.29	13.17	14.88	18.64	12.35	<b>12.55</b>	13.96	13.57
E. N. Central .....	<b>7.41</b>	<b>12.69</b>	<b>22.36</b>	<b>11.40</b>	<b>9.81</b>	<b>13.42</b>	19.86	11.53	10.75	13.29	18.49	10.12	<b>10.19</b>	11.33	11.43
W. N. Central .....	<b>7.49</b>	<b>11.63</b>	<b>20.32</b>	<b>12.62</b>	<b>11.39</b>	<b>13.77</b>	20.86	12.63	11.20	13.90	19.21	11.03	<b>10.23</b>	12.51	12.02
S. Atlantic .....	<b>11.94</b>	<b>18.03</b>	<b>27.56</b>	<b>16.62</b>	<b>13.91</b>	<b>18.79</b>	26.09	15.72	14.29	19.16	24.58	14.12	<b>15.24</b>	15.92	15.69
E. S. Central .....	<b>9.35</b>	<b>14.78</b>	<b>22.94</b>	<b>14.14</b>	<b>11.78</b>	<b>16.26</b>	26.14	16.60	14.52	19.52	24.82	15.69	<b>11.99</b>	14.00	16.45
W. S. Central .....	<b>9.23</b>	<b>15.85</b>	<b>23.76</b>	<b>17.82</b>	<b>12.64</b>	<b>17.78</b>	24.65	14.58	11.73	17.23	22.03	13.13	<b>13.22</b>	14.82	13.84
Mountain .....	<b>7.90</b>	<b>10.64</b>	<b>15.58</b>	<b>10.85</b>	<b>10.33</b>	<b>12.44</b>	17.19	11.64	11.05	12.60	15.61	10.14	<b>9.77</b>	11.41	11.36
Pacific .....	<b>14.20</b>	<b>15.01</b>	<b>15.90</b>	<b>16.47</b>	<b>17.06</b>	<b>16.76</b>	18.35	17.05	17.17	17.37	17.47	16.13	<b>15.25</b>	17.15	16.92
U.S. Average .....	<b>9.75</b>	<b>13.87</b>	<b>20.38</b>	<b>13.81</b>	<b>12.32</b>	<b>15.30</b>	20.93	13.89	12.92	15.37	19.37	12.36	<b>12.27</b>	13.80	13.58
<b>Commercial Retail</b>															
New England .....	<b>10.39</b>	<b>11.13</b>	<b>12.24</b>	<b>12.58</b>	<b>12.63</b>	<b>13.77</b>	13.92	13.29	13.52	13.14	12.05	11.50	<b>11.33</b>	13.15	12.71
Middle Atlantic .....	<b>7.92</b>	<b>7.99</b>	<b>7.99</b>	<b>10.11</b>	<b>10.33</b>	<b>10.49</b>	10.44	10.77	11.03	10.31	9.21	9.32	<b>8.56</b>	10.50	10.18
E. N. Central .....	<b>6.11</b>	<b>8.59</b>	<b>11.03</b>	<b>8.67</b>	<b>8.14</b>	<b>10.09</b>	12.43	9.84	9.80	10.39	10.67	8.30	<b>7.60</b>	9.23	9.47
W. N. Central .....	<b>6.32</b>	<b>7.67</b>	<b>9.94</b>	<b>10.19</b>	<b>10.24</b>	<b>10.80</b>	12.61	10.26	10.10	10.05	10.58	8.55	<b>7.91</b>	10.50	9.65
S. Atlantic .....	<b>8.69</b>	<b>9.84</b>	<b>10.37</b>	<b>11.04</b>	<b>10.52</b>	<b>12.03</b>	13.26	11.90	11.62	11.95	11.63	10.43	<b>9.76</b>	11.50	11.31
E. S. Central .....	<b>8.33</b>	<b>9.90</b>	<b>11.95</b>	<b>11.80</b>	<b>10.54</b>	<b>11.92</b>	13.48	12.04	11.47	12.01	11.82	10.39	<b>9.89</b>	11.51	11.25
W. S. Central .....	<b>6.91</b>	<b>8.57</b>	<b>10.14</b>	<b>10.87</b>	<b>9.99</b>	<b>11.27</b>	12.14	10.65	9.91	10.16	9.84	8.89	<b>8.62</b>	10.70	9.68
Mountain .....	<b>6.50</b>	<b>7.76</b>	<b>9.25</b>	<b>9.02</b>	<b>8.83</b>	<b>9.83</b>	11.25	10.04	9.85	10.03	10.38	8.93	<b>7.75</b>	9.58	9.64
Pacific .....	<b>10.46</b>	<b>10.31</b>	<b>11.31</b>	<b>12.12</b>	<b>12.74</b>	<b>12.16</b>	13.07	12.46	12.10	11.37	10.99	10.20	<b>11.09</b>	12.59	11.19
U.S. Average .....	<b>7.54</b>	<b>8.85</b>	<b>10.12</b>	<b>10.27</b>	<b>9.98</b>	<b>10.86</b>	12.17	10.94	10.77	10.80	10.49	9.33	<b>8.82</b>	10.62	10.32
<b>Industrial Retail</b>															
New England .....	<b>8.59</b>	<b>8.08</b>	<b>7.85</b>	<b>10.08</b>	<b>11.09</b>	<b>11.25</b>	10.72	11.15	11.48	10.36	8.68	9.51	<b>8.73</b>	11.07	10.25
Middle Atlantic .....	<b>7.66</b>	<b>7.37</b>	<b>7.90</b>	<b>10.36</b>	<b>10.16</b>	<b>8.74</b>	10.49	10.77	11.08	9.98	8.92	8.98	<b>8.24</b>	10.12	10.13
E. N. Central .....	<b>5.43</b>	<b>8.14</b>	<b>8.49</b>	<b>7.89</b>	<b>7.72</b>	<b>8.69</b>	9.33	8.78	9.08	7.99	7.23	7.14	<b>6.90</b>	8.39	8.11
W. N. Central .....	<b>5.13</b>	<b>4.34</b>	<b>5.25</b>	<b>6.95</b>	<b>8.03</b>	<b>7.80</b>	8.04	8.06	8.30	6.62	5.93	6.31	<b>5.48</b>	7.99	6.85
S. Atlantic .....	<b>5.13</b>	<b>4.76</b>	<b>6.02</b>	<b>7.66</b>	<b>7.57</b>	<b>8.43</b>	8.44	8.10	8.46	6.71	6.24	6.52	<b>5.90</b>	8.09	7.05
E. S. Central .....	<b>4.72</b>	<b>4.28</b>	<b>5.36</b>	<b>7.21</b>	<b>6.87</b>	<b>8.37</b>	7.98	7.70	8.08	6.38	5.76	6.11	<b>5.39</b>	7.68	6.65
W. S. Central .....	<b>5.75</b>	<b>3.20</b>	<b>4.38</b>	<b>5.95</b>	<b>5.46</b>	<b>7.50</b>	6.65	6.39	6.44	4.79	4.70	4.75	<b>4.80</b>	6.54	5.15
Mountain .....	<b>4.98</b>	<b>5.32</b>	<b>6.66</b>	<b>7.27</b>	<b>7.07</b>	<b>7.87</b>	8.61	8.45	8.59	7.99	7.69	7.25	<b>5.99</b>	7.92	7.91
Pacific .....	<b>8.28</b>	<b>7.24</b>	<b>8.88</b>	<b>9.21</b>	<b>8.81</b>	<b>8.61</b>	9.99	9.88	9.85	8.90	8.10	7.94	<b>8.54</b>	9.34	8.75
U.S. Average .....	<b>5.73</b>	<b>4.09</b>	<b>5.11</b>	<b>6.87</b>	<b>6.82</b>	<b>7.64</b>	7.44	7.47	7.79	5.89	5.47	5.82	<b>5.50</b>	7.32	6.26

- = no data available

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

Prices are not adjusted for inflation.

Regions refer to U.S. Census divisions.

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

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

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

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

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

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Supply (million short tons)</b>															
Production .....	140.3	142.7	148.3	146.7	147.4	141.6	152.9	152.6	147.7	141.5	155.5	149.3	578.1	594.6	594.0
Appalachia .....	40.8	39.5	36.6	38.9	42.9	38.7	36.5	38.4	40.2	38.3	37.1	34.9	155.8	156.6	150.4
Interior .....	25.0	23.3	22.7	22.5	24.5	21.9	23.6	24.3	22.9	21.1	23.0	22.6	93.5	94.4	89.6
Western .....	74.5	80.0	89.0	85.3	80.0	81.0	92.7	89.9	84.7	82.2	95.4	91.8	328.8	343.7	354.0
Primary Inventory Withdrawals .....	-4.5	2.1	2.6	-1.8	-1.1	-2.2	-1.0	-5.4	-2.3	-1.5	1.4	-1.9	-1.7	-9.7	-4.2
Imports .....	1.1	1.5	1.1	1.7	1.3	1.9	1.5	1.3	1.1	1.2	1.6	1.4	5.4	6.0	5.3
Exports .....	20.7	22.1	20.7	21.7	20.2	22.2	20.2	25.2	19.4	20.8	20.5	22.3	85.2	87.8	82.9
Metallurgical Coal .....	10.3	11.7	11.4	11.9	10.5	11.1	11.6	13.0	10.8	11.8	11.4	12.2	45.3	46.1	46.1
Steam Coal .....	10.4	10.4	9.3	9.7	9.7	11.1	8.6	12.2	8.6	9.0	9.1	10.1	39.9	41.6	36.8
Total Primary Supply .....	116.2	124.2	131.3	124.9	127.4	119.1	133.2	123.4	127.2	120.5	137.9	126.5	496.6	503.2	512.2
Secondary Inventory Withdrawals .....	22.3	0.3	30.4	-14.0	7.6	-4.0	19.1	-6.4	-3.2	-11.5	12.9	-11.9	39.0	16.3	-13.8
Waste Coal (a) .....	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	7.9	7.5	7.2
Total Supply .....	140.6	126.2	163.7	112.9	136.9	117.0	154.2	118.9	125.8	110.8	152.6	116.4	543.4	527.0	505.6
<b>Consumption (million short tons)</b>															
Coke Plants .....	4.4	4.5	4.4	4.4	4.4	4.1	4.0	4.8	4.5	4.6	4.9	5.1	17.6	17.3	19.0
Electric Power Sector (b) .....	128.0	113.8	157.0	102.7	122.6	108.8	143.4	106.9	114.1	99.9	141.1	103.8	501.4	481.7	458.8
Retail and Other Industry .....	6.8	6.3	6.5	7.0	6.9	6.9	6.7	7.2	7.2	6.4	6.6	7.5	26.7	27.7	27.7
Residential and Commercial .....	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.1	0.1	0.2	0.8	0.6	0.8
Other Industrial .....	6.6	6.2	6.3	6.8	6.7	6.8	6.6	7.0	6.9	6.2	6.5	7.3	25.8	27.1	26.9
Total Consumption .....	139.2	124.6	167.9	114.1	133.9	119.8	154.2	118.9	125.8	110.8	152.6	116.4	545.7	526.8	505.6
Discrepancy (c) .....	1.4	1.6	-4.1	-1.2	3.0	-2.8	0.0	0.0	0.0	0.0	0.0	0.0	-2.2	0.2	0.0
<b>End-of-period Inventories (million short tons)</b>															
Primary Inventories (d) .....	28.1	26.1	23.4	25.3	26.4	28.6	29.6	35.0	37.3	38.8	37.4	39.3	25.3	35.0	39.3
Secondary Inventories .....	115.8	115.5	85.1	99.1	91.6	95.6	76.5	82.9	86.0	97.5	84.7	96.6	99.1	82.9	96.6
Electric Power Sector .....	111.5	110.9	80.4	94.7	86.2	90.0	70.8	77.4	81.4	92.6	79.6	91.4	94.7	77.4	91.4
Retail and General Industry .....	2.6	2.6	2.7	2.6	3.6	3.5	3.5	3.3	2.8	2.9	3.1	3.1	2.6	3.3	3.1
Coke Plants .....	1.5	1.9	1.8	1.7	1.6	1.9	2.0	2.0	1.8	1.9	1.9	2.0	1.7	2.0	2.0
Commercial & Institutional .....	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1
<b>Coal Market Indicators</b>															
Coal Miner Productivity															
(Tons per hour) .....	6.32	6.32	6.32	6.32	6.30	6.30	6.30	6.30	6.21	6.21	6.21	6.21	6.32	6.30	6.21
Total Raw Steel Production															
(Million short tons per day) .....	0.246	0.258	0.267	0.260	0.253	0.253	0.272	0.300	0.314	0.318	0.349	0.377	0.258	0.270	0.340
Cost of Coal to Electric Utilities															
(Dollars per million Btu) .....	1.91	1.93	2.03	2.05	2.19	2.13	2.04	2.03	1.98	2.00	2.00	1.97	1.98	2.10	1.99

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

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

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

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

- = no data available

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

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

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

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

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Electricity Supply (billion kilowatthours)</b>															
Electricity Generation .....	989	985	1,166	975	1,033	1,020	1,167	989	1,020	1,013	1,173	1,001	4,116	4,209	4,207
Electric Power Sector (a) .....	952	949	1,127	935	994	984	1,127	950	982	975	1,132	961	3,963	4,055	4,050
Industrial Sector (b) .....	34	33	36	36	35	33	36	36	35	35	38	37	140	141	144
Commercial Sector (b) .....	3	3	4	3	3	3	3	3	3	3	4	3	13	13	13
Net Imports .....	11	11	11	6	10	12	14	11	12	13	15	12	39	46	51
Total Supply .....	1,000	997	1,177	981	1,042	1,032	1,181	1,000	1,032	1,026	1,188	1,012	4,155	4,255	4,259
Losses and Unaccounted for (c) .....	54	66	52	52	64	67	51	51	43	65	54	52	225	233	214
<b>Electricity Consumption (billion kilowatthours unless noted)</b>															
Sales to Ultimate Customers .....	913	898	1,089	894	944	933	1,094	914	955	927	1,098	925	3,795	3,886	3,905
Residential Sector .....	379	329	446	324	379	340	438	330	381	330	434	334	1,477	1,486	1,480
Commercial Sector .....	304	321	377	322	322	336	382	327	323	332	380	326	1,325	1,367	1,361
Industrial Sector .....	229	247	264	247	242	255	273	256	250	263	282	263	987	1,026	1,058
Transportation Sector .....	2	2	2	2	2	2	2	2	2	2	2	2	6	6	6
Direct Use (d) .....	33	32	35	35	34	32	35	34	34	34	37	35	136	137	140
Total Consumption .....	946	931	1,124	929	979	965	1,129	949	989	961	1,135	960	3,930	4,022	4,045
Average residential electricity usage per customer (kWh) .....	2,744	2,381	3,232	2,346	2,724	2,441	3,143	2,371	2,713	2,352	3,092	2,377	10,703	10,678	10,535
<b>End-of-period Fuel Inventories Held by Electric Power Sector</b>															
Coal (mmst) .....	111.5	110.9	80.4	94.7	86.2	90.0	70.8	77.4	81.4	92.6	79.6	91.4	94.7	77.4	91.4
Residual Fuel (mmb) .....	8.0	7.4	6.9	7.0	5.7	6.0	6.2	6.7	4.6	4.6	2.7	3.4	7.0	6.7	3.4
Distillate Fuel (mmb) .....	16.0	15.5	15.3	16.0	15.5	15.6	15.5	15.7	15.5	15.4	15.3	15.5	16.0	15.7	15.5
<b>Prices</b>															
<b>Power Generation Fuel Costs (dollars per million Btu)</b>															
Coal .....	1.91	1.93	2.03	2.05	2.19	2.13	2.04	2.03	1.98	2.00	2.00	1.97	1.98	2.10	1.99
Natural Gas .....	7.24	3.26	4.36	5.42	5.68	7.42	6.05	6.30	6.47	4.40	4.50	4.74	4.97	6.35	4.98
Residual Fuel Oil .....	11.28	13.09	14.22	16.10	16.91	23.87	21.51	18.84	17.86	18.00	17.13	16.90	13.66	19.70	17.47
Distillate Fuel Oil .....	13.54	15.20	16.19	18.03	21.11	30.70	27.89	24.68	22.60	21.87	21.72	22.06	15.50	24.89	22.14
<b>Prices to Ultimate Customers (cents per kilowatthour)</b>															
Residential Sector .....	13.10	13.84	13.99	13.97	13.98	14.61	14.66	14.53	14.46	15.05	14.75	14.41	13.72	14.45	14.66
Commercial Sector .....	10.99	11.07	11.59	11.37	11.63	11.81	12.11	11.84	12.01	11.95	12.09	11.62	11.27	11.86	11.92
Industrial Sector .....	7.09	6.92	7.62	7.38	7.42	7.74	7.81	7.42	7.47	7.43	7.65	7.24	7.26	7.60	7.45
<b>Wholesale Electricity Prices (dollars per megawatthour)</b>															
ERCOT North hub .....	616.34	39.74	52.31	49.79	42.73	83.19	70.06	41.06	33.79	35.00	47.38	25.80	189.54	59.26	35.49
CAISO SP15 zone .....	44.74	36.90	72.02	60.47	45.20	60.34	58.36	52.94	48.71	39.19	44.94	39.05	53.53	54.21	42.97
ISO-NE Internal hub .....	55.26	33.67	52.57	65.75	116.48	73.28	92.64	56.11	48.44	52.55	86.57	34.86	51.81	84.63	55.61
NYISO Hudson Valley zone .....	44.74	31.85	50.42	57.54	100.10	79.72	87.64	65.40	48.74	55.93	75.93	28.17	46.14	83.21	52.19
PJM Western hub .....	35.09	33.71	51.32	62.57	58.33	93.00	78.40	74.05	74.85	55.78	62.28	55.83	45.67	75.94	62.18
Midcontinent ISO Illinois hub .....	44.97	33.82	49.36	57.71	47.88	89.21	67.98	64.42	64.47	48.38	51.15	46.55	46.47	67.37	52.63
SPP ISO South hub .....	250.31	30.86	48.63	45.72	37.25	72.85	57.96	46.98	46.61	35.33	37.58	32.00	93.88	53.76	37.88
SERC index, Into Southern .....	41.10	32.93	44.18	51.34	42.45	84.96	56.50	53.58	53.60	40.05	42.32	38.80	42.39	59.37	43.69
FRCC index, Florida Reliability .....	27.73	32.17	42.76	49.02	41.11	78.70	49.22	49.27	48.41	36.66	38.89	37.59	37.92	54.58	40.39
Northwest index, Mid-Columbia .....	34.56	51.51	91.61	60.46	39.85	59.39	59.97	54.12	49.31	37.26	44.56	40.24	59.53	53.33	42.84
Southwest index, Palo Verde .....	41.72	46.57	79.86	53.60	39.02	60.50	53.57	47.57	45.04	37.26	42.22	35.10	55.44	50.17	39.90

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

kWh = kilowatthours. Btu = British thermal units.

Prices are not adjusted for inflation.

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

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

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

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

**Historical data sources:**

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

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

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

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

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

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Residential Sector</b>															
New England .....	12.9	10.8	14.0	11.0	13.1	10.5	13.3	10.9	12.8	10.5	12.9	10.9	48.7	47.9	47.0
Middle Atlantic .....	36.0	30.3	41.9	30.5	36.1	29.8	39.5	30.7	35.8	29.8	38.9	30.8	138.7	136.1	135.3
E. N. Central .....	50.1	43.1	56.3	43.2	50.9	43.6	53.9	44.6	50.3	42.2	53.3	45.1	192.6	193.0	191.0
W. N. Central .....	29.9	23.7	31.0	24.0	30.6	24.3	29.7	23.7	30.2	23.0	29.3	23.2	108.6	108.4	105.7
S. Atlantic .....	95.2	85.1	111.5	83.1	96.0	88.3	111.1	85.1	98.7	87.2	111.6	86.9	374.9	380.6	384.5
E. S. Central .....	33.5	25.3	35.8	25.9	32.7	27.0	36.8	26.9	34.0	26.3	36.3	27.2	120.5	123.4	123.7
W. S. Central .....	56.8	50.0	76.2	47.5	55.7	56.3	79.6	49.7	55.2	52.4	78.6	51.1	230.5	241.4	237.3
Mountain .....	23.7	26.9	35.2	22.3	24.2	25.9	34.1	23.1	24.3	25.6	34.1	23.4	108.1	107.2	107.3
Pacific contiguous .....	39.0	32.2	43.0	34.8	38.5	32.9	38.3	34.0	38.6	32.3	38.0	34.0	149.0	143.8	142.9
AK and HI .....	1.3	1.1	1.2	1.3	1.3	1.1	1.2	1.3	1.3	1.1	1.2	1.3	4.9	4.9	4.9
Total .....	378.5	328.5	445.8	323.7	379.1	339.7	437.5	330.0	381.1	330.4	434.3	333.9	1,476.6	1,486.4	1,479.7
<b>Commercial Sector</b>															
New England .....	11.7	11.7	13.5	11.5	12.1	11.9	13.6	11.7	12.1	11.9	13.4	11.6	48.5	49.3	48.9
Middle Atlantic .....	34.6	33.2	39.7	34.3	36.0	34.2	39.8	34.6	36.1	34.0	39.2	34.2	141.9	144.6	143.4
E. N. Central .....	41.7	42.1	48.9	42.1	43.3	42.7	48.8	42.8	43.3	42.2	48.4	42.6	174.8	177.6	176.5
W. N. Central .....	24.0	23.7	27.6	24.0	25.1	24.3	27.6	24.3	25.1	23.9	27.5	24.1	99.3	101.3	100.6
S. Atlantic .....	70.8	77.3	89.6	75.3	75.1	81.2	91.1	76.7	75.3	80.4	91.0	77.0	313.1	324.1	323.7
E. S. Central .....	20.7	21.5	26.0	20.9	21.0	22.5	26.8	21.3	21.2	22.1	26.6	21.3	89.0	91.7	91.3
W. S. Central .....	42.4	50.5	58.7	49.5	46.7	54.7	61.6	51.0	47.1	53.5	61.3	51.1	201.0	214.0	213.0
Mountain .....	21.9	24.8	28.8	23.2	23.2	25.3	29.1	23.7	23.3	25.2	29.1	23.7	98.7	101.2	101.3
Pacific contiguous .....	35.2	35.3	43.1	39.6	37.7	38.1	42.5	39.8	37.8	37.9	42.1	39.4	153.2	158.1	157.3
AK and HI .....	1.3	1.3	1.3	1.4	1.3	1.3	1.4	1.4	1.3	1.3	1.4	1.4	5.3	5.4	5.4
Total .....	304.3	321.5	377.2	321.8	321.5	336.3	382.2	327.1	322.7	332.4	379.8	326.4	1,324.8	1,367.2	1,361.4
<b>Industrial Sector</b>															
New England .....	3.8	4.0	4.2	3.9	3.9	4.0	4.2	3.9	3.9	4.1	4.3	3.9	15.8	16.0	16.2
Middle Atlantic .....	17.6	17.9	19.4	18.1	17.5	18.5	20.1	18.6	17.9	19.0	20.5	18.8	73.1	74.7	76.2
E. N. Central .....	44.5	46.4	48.6	46.0	45.9	47.2	50.2	48.1	47.8	49.1	52.9	50.0	185.5	191.5	199.8
W. N. Central .....	23.0	24.2	26.0	24.6	24.0	24.7	26.7	25.3	25.0	25.2	27.4	25.9	97.9	100.7	103.6
S. Atlantic .....	33.4	35.9	38.2	36.1	36.3	37.6	39.6	37.5	37.6	38.6	40.9	38.5	143.7	151.0	155.6
E. S. Central .....	23.7	24.9	26.1	25.0	24.7	25.7	26.7	25.7	25.2	26.3	27.5	26.3	99.7	102.8	105.3
W. S. Central .....	44.1	49.7	54.3	51.5	49.8	52.3	57.7	54.9	52.6	55.5	61.2	57.9	199.7	214.6	227.3
Mountain .....	19.2	21.6	23.2	20.4	19.9	22.2	23.5	20.7	20.1	22.6	24.1	21.2	84.4	86.3	88.0
Pacific contiguous .....	18.2	20.9	23.1	20.4	19.0	22.0	22.6	19.8	18.6	21.4	21.9	19.1	82.5	83.4	81.0
AK and HI .....	1.1	1.2	1.2	1.2	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	4.6	4.7	4.8
Total .....	228.5	246.7	264.4	247.2	242.1	255.4	272.6	255.7	249.9	263.1	282.0	262.8	986.8	1,025.8	1,057.7
<b>Total All Sectors (a)</b>															
New England .....	28.5	26.6	31.7	26.5	29.2	26.6	31.3	26.6	28.9	26.5	30.6	26.6	113.4	113.6	112.5
Middle Atlantic .....	89.1	82.3	101.8	83.7	90.5	83.3	100.1	84.6	90.6	83.6	99.3	84.5	356.9	358.6	358.0
E. N. Central .....	136.4	131.7	154.0	131.3	140.3	133.7	153.0	135.6	141.5	133.7	154.7	137.8	553.4	562.5	567.8
W. N. Central .....	77.0	71.6	84.6	72.6	79.7	73.3	84.0	73.3	80.3	72.2	84.2	73.2	305.8	310.4	310.0
S. Atlantic .....	199.7	198.6	239.6	194.9	207.7	207.4	242.1	199.5	211.9	206.5	243.8	202.6	832.7	856.8	864.9
E. S. Central .....	77.8	71.8	87.8	71.9	78.4	75.2	90.4	73.9	80.4	74.7	90.4	74.8	309.2	317.9	320.3
W. S. Central .....	143.4	150.2	189.2	148.5	152.3	163.3	199.0	155.6	155.0	161.5	201.2	160.2	631.4	670.2	677.9
Mountain .....	64.9	73.3	87.3	66.0	67.3	73.3	86.7	67.5	67.7	73.4	87.3	68.3	291.4	294.8	296.7
Pacific contiguous .....	92.5	88.6	109.3	95.0	95.4	93.2	103.7	93.8	95.2	91.7	102.3	92.7	385.5	386.1	381.9
AK and HI .....	3.7	3.6	3.7	3.9	3.7	3.6	3.7	3.9	3.7	3.6	3.8	3.9	14.9	15.0	15.1
Total .....	913.0	898.2	1,089.1	894.3	944.5	932.9	1,093.9	914.4	955.4	927.4	1,097.7	924.6	3,794.5	3,885.7	3,905.1

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

- = no data available

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

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

Regions refer to U.S. Census divisions.

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

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

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

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

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

Energy Information Administration | Short-Term Energy Outlook - July 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Residential Sector</b>															
New England .....	21.38	21.34	21.43	21.95	23.92	24.01	24.73	25.47	27.24	26.50	26.38	26.27	21.51	24.52	26.62
Middle Atlantic .....	15.63	16.51	16.93	16.85	17.12	18.02	18.35	17.94	17.86	18.15	18.14	17.44	16.49	17.86	17.91
E. N. Central .....	13.39	14.50	14.14	14.48	14.22	15.10	14.89	15.09	14.81	15.63	15.21	15.17	14.10	14.81	15.19
W. N. Central .....	10.88	12.77	13.29	11.90	11.28	13.06	13.84	12.12	11.50	13.30	13.76	12.10	12.21	12.57	12.65
S. Atlantic .....	11.66	12.34	12.48	12.48	12.68	13.33	13.30	12.99	12.90	13.43	13.19	12.72	12.24	13.08	13.06
E. S. Central .....	11.20	12.24	11.99	12.02	11.97	12.62	12.27	12.17	12.08	12.84	12.36	12.08	11.83	12.25	12.32
W. S. Central .....	11.85	11.70	11.80	12.28	11.83	12.26	12.11	12.50	12.24	12.71	12.07	12.12	11.89	12.16	12.26
Mountain .....	11.53	12.09	12.33	12.27	12.14	12.78	12.84	12.60	12.36	12.91	12.93	12.65	12.08	12.62	12.73
Pacific .....	16.75	18.15	19.43	17.55	18.12	18.85	20.21	18.22	18.96	19.95	20.89	18.57	18.01	18.87	19.61
U.S. Average .....	13.10	13.84	13.99	13.97	13.98	14.61	14.66	14.53	14.46	15.05	14.75	14.41	13.72	14.45	14.66
<b>Commercial Sector</b>															
New England .....	16.31	15.96	16.78	16.89	18.54	17.74	18.59	18.54	19.97	18.55	18.95	18.51	16.49	18.36	19.00
Middle Atlantic .....	12.51	13.24	14.31	13.53	14.05	14.66	15.27	14.27	14.39	14.35	14.71	13.40	13.43	14.58	14.23
E. N. Central .....	10.40	10.70	10.66	10.92	11.08	11.49	11.35	11.49	11.55	11.71	11.37	11.31	10.67	11.35	11.48
W. N. Central .....	9.10	10.19	10.83	9.61	9.65	10.04	9.94	8.84	9.00	9.26	9.53	8.39	9.97	9.63	9.06
S. Atlantic .....	9.29	9.18	9.52	9.95	10.30	10.14	10.10	10.43	10.60	10.23	10.05	10.05	9.49	10.23	10.22
E. S. Central .....	10.98	11.24	11.27	11.26	11.69	11.73	11.70	11.66	12.04	11.94	11.76	11.57	11.19	11.70	11.82
W. S. Central .....	10.37	8.89	8.55	8.65	8.65	8.50	8.56	8.75	8.79	8.51	8.70	8.95	9.04	8.61	8.73
Mountain .....	9.11	9.76	10.20	9.59	9.56	10.24	10.50	9.74	9.66	10.27	10.48	9.68	9.70	10.04	10.05
Pacific .....	14.52	15.99	18.08	16.12	16.09	17.70	19.57	17.39	17.33	18.66	20.04	17.44	16.27	17.74	18.40
U.S. Average .....	10.99	11.07	11.59	11.37	11.63	11.81	12.11	11.84	12.01	11.95	12.09	11.62	11.27	11.86	11.92
<b>Industrial Sector</b>															
New England .....	13.50	12.99	13.71	14.13	15.14	14.75	14.80	14.90	15.67	14.98	14.85	14.86	13.58	14.89	15.08
Middle Atlantic .....	6.52	6.59	7.11	7.30	7.87	7.58	7.26	7.24	7.67	7.10	6.96	6.79	6.89	7.48	7.12
E. N. Central .....	6.97	6.97	7.38	7.70	7.72	8.00	7.71	7.84	7.91	7.77	7.62	7.73	7.26	7.82	7.76
W. N. Central .....	6.97	7.30	8.00	7.06	7.16	7.72	8.21	7.20	7.33	7.65	8.22	7.20	7.35	7.59	7.61
S. Atlantic .....	6.24	6.31	7.04	6.89	6.85	7.08	7.15	6.91	6.96	6.65	7.01	6.75	6.64	7.00	6.84
E. S. Central .....	5.75	5.86	6.27	6.26	6.35	6.69	6.48	6.30	6.44	6.38	6.35	6.16	6.04	6.45	6.33
W. S. Central .....	7.22	5.46	6.00	6.13	6.20	6.03	6.06	5.91	5.94	5.46	5.65	5.50	6.17	6.05	5.63
Mountain .....	6.27	6.63	7.39	6.54	6.58	7.19	7.55	6.62	6.67	7.16	7.57	6.62	6.74	7.01	7.03
Pacific .....	9.69	10.71	12.62	11.06	10.33	11.82	13.05	11.39	10.70	12.03	13.36	11.63	11.10	11.71	11.99
U.S. Average .....	7.09	6.92	7.62	7.38	7.42	7.74	7.81	7.42	7.47	7.43	7.65	7.24	7.26	7.60	7.45
<b>All Sectors (a)</b>															
New England .....	18.20	17.67	18.40	18.54	20.48	19.74	20.67	20.80	22.57	21.11	21.48	21.13	18.21	20.44	21.59
Middle Atlantic .....	12.57	12.98	14.00	13.37	14.06	14.27	14.87	14.05	14.42	14.05	14.45	13.40	13.26	14.33	14.10
E. N. Central .....	10.38	10.62	10.90	10.96	11.11	11.43	11.40	11.38	11.48	11.50	11.41	11.27	10.72	11.33	11.41
W. N. Central .....	9.16	10.07	10.86	9.50	9.53	10.26	10.77	9.33	9.42	9.98	10.58	9.15	9.92	9.99	9.80
S. Atlantic .....	9.91	10.01	10.50	10.46	10.79	10.94	11.09	10.86	11.02	10.91	10.97	10.57	10.23	10.93	10.87
E. S. Central .....	9.48	9.72	10.08	9.80	10.12	10.32	10.39	9.98	10.30	10.30	10.36	9.85	9.78	10.21	10.21
W. S. Central .....	9.99	8.69	9.13	8.93	9.01	9.01	9.26	8.95	9.05	8.82	9.09	8.71	9.17	9.07	8.93
Mountain .....	9.16	9.69	10.31	9.55	9.61	10.21	10.62	9.76	9.74	10.23	10.63	9.75	9.73	10.09	10.13
Pacific .....	14.50	15.52	17.45	15.55	15.75	16.71	18.37	16.41	16.68	17.55	18.90	16.64	15.83	16.85	17.47
U.S. Average .....	10.88	10.94	11.61	11.21	11.49	11.72	12.06	11.57	11.80	11.77	12.00	11.38	11.18	11.72	11.75

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

- = no data available

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

Prices are not adjusted for inflation.

Regions refer to U.S. Census divisions.

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

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

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

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

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>United States</b>															
Natural Gas .....	319.3	345.7	453.9	354.7	337.9	359.0	458.0	349.8	336.1	340.9	449.2	346.1	<b>1,473.6</b>	1,504.6	1,472.3
Coal .....	230.0	203.8	280.9	178.1	217.5	193.0	254.9	188.2	201.7	175.5	249.4	180.6	<b>892.8</b>	853.6	807.1
Nuclear .....	198.4	186.6	202.8	190.4	195.6	184.9	203.7	191.1	193.9	187.9	207.2	198.0	<b>778.2</b>	775.3	787.0
Renewable Energy Sources: .....	197.9	207.3	183.3	206.6	235.5	241.3	204.7	216.1	243.9	266.1	220.7	230.7	<b>795.2</b>	897.7	961.5
Conventional Hydropower .....	68.7	65.8	60.7	63.8	76.5	71.6	64.5	57.8	70.6	81.2	66.0	60.8	<b>259.0</b>	270.5	278.5
Wind .....	97.0	96.1	76.8	108.8	119.5	116.6	85.4	118.1	126.4	120.8	89.0	122.1	<b>378.6</b>	439.6	458.3
Solar (a) .....	21.3	34.7	34.6	23.3	28.9	42.7	43.8	29.4	36.3	53.9	54.6	37.5	<b>113.9</b>	144.7	182.4
Biomass .....	7.2	6.8	7.2	6.7	6.7	6.2	6.9	6.5	6.7	6.3	6.8	6.4	<b>27.9</b>	26.3	26.1
Geothermal .....	3.8	3.9	4.0	4.0	3.9	4.1	4.2	4.3	4.0	3.9	4.2	4.0	<b>15.7</b>	16.5	16.2
Pumped Storage Hydropower .....	-1.1	-1.0	-1.8	-1.2	-1.2	-0.9	-1.7	-1.3	-1.2	-1.0	-1.6	-1.2	<b>-5.1</b>	-5.2	-5.1
Petroleum (b) .....	5.2	3.5	4.7	4.4	6.6	3.8	4.4	3.9	5.2	3.7	4.4	4.1	<b>17.8</b>	18.7	17.3
Other Gases .....	0.7	0.8	0.9	0.7	0.8	0.8	0.9	0.8	0.8	0.7	0.9	0.8	<b>3.2</b>	3.3	3.2
Other Nonrenewable Fuels (c) .....	1.8	1.8	1.8	1.8	1.6	1.7	1.8	1.7	1.5	1.7	1.7	1.7	<b>7.2</b>	6.9	6.6
Total Generation .....	<b>952.2</b>	<b>948.5</b>	<b>1,126.6</b>	<b>935.5</b>	<b>994.2</b>	<b>983.6</b>	<b>1,126.7</b>	<b>950.4</b>	<b>981.9</b>	<b>975.3</b>	<b>1,131.9</b>	<b>960.8</b>	<b>3,962.8</b>	<b>4,054.9</b>	<b>4,050.0</b>
<b>New England (ISO-NE)</b>															
Natural Gas .....	12.2	11.0	15.7	12.6	11.8	12.3	16.0	12.0	13.5	12.5	16.2	12.5	<b>51.5</b>	52.1	54.7
Coal .....	0.5	0.0	0.0	0.0	0.3	0.2	0.2	0.0	0.3	0.2	0.2	0.0	<b>0.6</b>	0.6	0.7
Nuclear .....	7.1	7.1	7.3	5.6	7.1	5.6	7.3	7.3	7.1	5.7	7.3	6.2	<b>27.1</b>	27.2	26.2
Conventional hydropower .....	1.7	1.5	1.5	1.5	1.7	1.7	1.1	1.8	2.0	2.2	1.2	1.8	<b>6.3</b>	6.3	7.2
Nonhydro renewables (d) .....	2.8	2.9	2.6	2.8	3.1	3.1	2.8	2.9	3.2	3.3	2.8	2.9	<b>11.2</b>	11.9	12.2
Other energy sources (e) .....	0.4	0.3	0.3	0.4	1.4	0.4	0.3	0.4	0.7	0.3	0.3	0.4	<b>1.5</b>	2.4	1.7
Total generation .....	24.7	22.9	27.6	23.1	25.4	23.2	27.7	24.2	26.8	24.2	27.9	23.7	<b>98.2</b>	100.6	102.6
Net energy for load (f) .....	29.4	27.0	32.5	27.6	30.2	25.9	32.5	28.6	30.3	28.0	32.7	29.1	<b>116.4</b>	117.2	120.1
<b>New York (NYISO)</b>															
Natural Gas .....	12.9	14.1	19.7	15.2	14.0	13.3	19.5	14.1	11.7	15.0	18.7	14.3	<b>61.9</b>	60.9	59.7
Coal .....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<b>0.0</b>	0.0	0.0
Nuclear .....	9.3	7.7	7.2	7.0	6.4	7.0	6.6	6.9	6.7	6.5	7.0	7.0	<b>31.1</b>	26.8	27.1
Conventional hydropower .....	6.9	6.8	6.9	7.2	7.1	6.7	6.8	7.0	7.3	7.3	7.3	7.5	<b>27.9</b>	27.6	29.4
Nonhydro renewables (d) .....	1.8	1.8	1.6	1.9	2.2	2.0	1.7	2.2	2.4	2.6	2.0	2.8	<b>7.1</b>	8.1	9.8
Other energy sources (e) .....	0.6	0.2	0.4	0.1	1.4	0.1	0.2	0.1	0.7	0.1	0.3	0.1	<b>1.3</b>	1.8	1.2
Total generation .....	31.5	30.6	35.8	31.4	31.0	29.2	34.8	30.2	28.8	31.5	35.3	31.7	<b>129.3</b>	125.2	127.2
Net energy for load (f) .....	36.6	34.7	42.8	34.9	37.6	33.8	42.1	35.3	36.5	35.2	42.0	35.5	<b>149.0</b>	148.9	149.3
<b>Mid-Atlantic (PJM)</b>															
Natural Gas .....	72.7	70.8	88.9	78.5	76.9	70.5	90.5	84.2	81.8	75.0	93.7	86.3	<b>310.9</b>	322.1	336.9
Coal .....	50.5	39.9	55.4	29.5	48.6	35.4	43.4	33.3	41.2	34.6	43.1	30.5	<b>175.4</b>	160.8	149.4
Nuclear .....	68.3	64.6	70.5	68.3	69.0	65.0	72.2	66.8	67.9	67.1	72.1	68.8	<b>271.7</b>	273.1	275.8
Conventional hydropower .....	2.6	2.3	2.2	2.2	2.6	2.5	1.7	2.1	2.6	2.6	1.7	2.1	<b>9.3</b>	8.9	9.1
Nonhydro renewables (d) .....	11.0	10.7	9.2	11.5	13.2	12.6	10.0	12.4	14.4	14.0	11.4	13.6	<b>42.4</b>	48.1	53.4
Other energy sources (e) .....	0.9	0.6	0.4	0.6	0.6	0.5	0.3	0.4	0.5	0.4	0.3	0.5	<b>2.5</b>	1.8	1.6
Total generation .....	206.0	188.9	226.7	190.6	211.0	186.6	218.0	199.2	208.3	193.9	222.3	201.8	<b>812.1</b>	814.7	826.3
Net energy for load (f) .....	194.5	177.6	215.3	182.9	200.9	177.3	210.9	186.0	200.2	182.0	212.4	188.5	<b>770.2</b>	775.1	783.1
<b>Southeast (SERC)</b>															
Natural Gas .....	57.6	57.2	73.2	64.3	64.1	63.7	75.4	63.7	67.8	60.5	74.6	62.8	<b>252.3</b>	266.9	265.8
Coal .....	36.3	33.7	44.3	23.3	32.3	32.9	41.3	27.2	33.4	29.6	43.5	27.7	<b>137.7</b>	133.7	134.3
Nuclear .....	53.8	52.2	54.1	52.0	51.4	51.4	55.4	52.4	52.6	54.0	58.2	59.1	<b>212.2</b>	210.6	223.8
Conventional hydropower .....	11.6	10.4	10.9	11.0	11.9	10.1	9.0	9.9	12.7	10.1	9.2	10.2	<b>43.9</b>	40.9	42.1
Nonhydro renewables (d) .....	3.9	5.7	5.4	4.1	5.0	6.6	6.1	4.8	5.9	7.5	7.0	5.5	<b>19.1</b>	22.5	25.9
Other energy sources (e) .....	0.0	-0.2	-0.5	-0.2	-0.2	-0.1	-0.4	-0.2	-0.1	-0.2	-0.4	-0.2	<b>-0.9</b>	-0.9	-0.9
Total generation .....	163.2	159.0	187.3	154.6	164.6	164.7	186.8	157.8	172.2	161.6	192.1	165.1	<b>664.2</b>	673.8	690.9
Net energy for load (f) .....	161.3	154.7	183.9	154.5	166.5	164.3	184.3	156.2	168.9	163.0	191.2	162.3	<b>654.4</b>	671.3	685.3
<b>Florida (FRCC)</b>															
Natural Gas .....	34.5	43.8	52.5	40.9	38.3	45.1	55.2	39.8	37.1	40.5	55.3	38.4	<b>171.8</b>	178.3	171.4
Coal .....	4.7	5.3	5.6	2.8	3.5	5.1	5.1	3.1	2.9	4.4	4.5	2.6	<b>18.3</b>	16.8	14.4
Nuclear .....	7.8	7.2	7.2	5.8	7.3	7.8	8.0	7.1	7.0	6.9	7.5	7.7	<b>28.1</b>	30.2	29.2
Conventional hydropower .....	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	<b>0.2</b>	0.2	0.2
Nonhydro renewables (d) .....	2.4	3.1	2.9	2.6	2.9	3.7	3.7	2.9	3.8	4.6	4.6	3.6	<b>11.0</b>	13.1	16.5
Other energy sources (e) .....	0.8	0.7	0.7	0.6	0.7	0.7	0.8	0.7	0.7	0.7	0.8	0.7	<b>2.8</b>	2.9	2.9
Total generation .....	50.3	60.2	68.9	52.8	52.8	62.4	72.8	53.6	51.6	57.2	72.7	53.1	<b>232.2</b>	241.6	234.6
Net energy for load (f) .....	52.4	63.8	72.3	55.6	54.1	64.0	68.0	53.1	50.2	59.8	68.6	53.6	<b>244.1</b>	239.2	232.2

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

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

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

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

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

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

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

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

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

**Table 7d part 2. U.S. Regional Electricity Generation, Electric Power Sector (billion kilowatthours), continued from Table 7d part 1**  
 U.S. Energy Information Administration | Short-Term Energy Outlook - July 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Midwest (MISO)</b>															
Natural Gas .....	35.4	41.1	50.2	43.1	41.8	47.1	51.6	37.6	37.0	46.6	54.6	41.9	169.7	178.0	180.1
Coal .....	69.7	60.1	83.2	54.7	64.5	56.6	78.8	58.5	59.8	55.5	73.5	54.7	267.7	258.3	243.4
Nuclear .....	23.6	22.6	25.2	24.4	23.8	19.7	24.2	23.5	22.3	21.0	24.3	20.9	95.7	91.2	88.5
Conventional hydropower .....	2.8	2.7	2.5	2.7	3.1	2.5	2.2	2.1	2.5	2.9	2.4	2.2	10.7	9.9	10.1
Nonhydro renewables (d) .....	24.1	23.1	18.5	27.3	31.8	26.9	20.4	29.2	33.5	28.4	21.8	30.5	93.1	108.4	114.2
Other energy sources (e) .....	1.8	1.3	1.7	1.7	1.3	1.4	1.5	1.2	1.4	1.4	1.5	1.3	6.4	5.4	5.6
Total generation .....	157.4	150.9	181.2	153.8	166.4	154.2	178.6	152.1	156.5	155.8	178.0	151.6	643.3	651.3	641.9
Net energy for load (f) .....	159.0	154.0	180.7	153.5	165.1	156.1	181.7	159.8	163.0	160.3	184.2	162.5	647.3	662.7	670.0
<b>Central (Southwest Power Pool)</b>															
Natural Gas .....	12.4	14.3	18.8	10.9	11.1	14.5	19.0	10.1	10.6	13.2	16.9	9.9	56.3	54.7	50.6
Coal .....	21.8	19.8	31.3	19.2	22.1	17.5	27.6	18.3	20.5	14.9	30.1	18.4	92.0	85.5	83.8
Nuclear .....	4.1	2.8	4.2	4.3	4.3	4.3	4.1	2.5	4.3	4.3	4.4	4.4	15.5	15.2	17.4
Conventional hydropower .....	4.2	3.9	3.6	3.9	4.6	3.8	3.6	3.0	3.9	4.7	4.3	3.5	15.5	15.0	16.4
Nonhydro renewables (d) .....	22.9	23.8	20.5	26.4	28.8	29.9	23.2	29.3	31.4	31.3	24.5	30.2	93.6	111.3	117.5
Other energy sources (e) .....	0.3	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.7	0.7	0.7
Total generation .....	65.7	64.7	78.5	64.7	71.2	70.2	77.6	63.4	70.9	68.7	80.3	66.4	273.6	282.5	286.3
Net energy for load (f) .....	65.5	65.5	78.5	62.0	68.0	69.1	76.7	61.6	66.1	64.5	77.5	61.9	271.6	275.4	270.0
<b>Texas (ERCOT)</b>															
Natural Gas .....	32.8	39.7	57.3	34.5	34.2	44.9	60.1	32.6	28.7	31.3	49.3	29.2	164.2	171.8	138.5
Coal .....	16.3	18.5	22.7	17.0	17.7	19.2	22.1	17.4	16.1	18.1	21.9	17.0	74.5	76.4	73.0
Nuclear .....	10.5	9.8	11.0	8.9	11.0	9.9	10.6	10.9	10.7	9.0	11.0	10.1	40.2	42.4	40.7
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	0.7	0.6
Nonhydro renewables (d) .....	25.2	27.8	23.8	29.4	31.2	37.4	30.1	33.9	35.9	42.1	34.7	36.4	106.3	132.5	149.0
Other energy sources (e) .....	0.2	0.3	0.4	0.4	0.3	0.4	0.4	0.5	0.4	0.4	0.4	0.5	1.4	1.6	1.7
Total generation .....	85.2	96.2	115.3	90.4	94.6	112.0	123.5	95.3	91.9	101.0	117.3	93.3	387.1	425.4	403.5
Net energy for load (f) .....	85.2	96.2	115.3	90.4	94.6	112.0	123.5	95.3	91.9	101.0	117.3	93.3	387.1	425.4	403.5
<b>Northwest</b>															
Natural Gas .....	20.9	20.1	28.2	21.0	19.6	20.3	28.0	23.0	22.0	20.4	28.5	19.5	90.2	90.9	90.5
Coal .....	22.5	19.1	26.6	22.2	21.6	18.8	24.0	23.2	22.3	11.8	21.2	22.6	90.5	87.6	77.9
Nuclear .....	2.5	1.2	2.5	2.3	2.5	2.4	2.4	2.4	2.4	1.2	2.4	2.4	8.5	9.7	8.4
Conventional hydropower .....	33.8	31.0	25.7	30.4	39.3	36.3	32.7	27.7	33.6	40.7	30.2	27.7	121.0	136.0	132.3
Nonhydro renewables (d) .....	15.9	17.0	15.2	17.4	19.1	19.2	16.4	18.7	20.2	20.7	17.6	19.9	65.5	73.4	78.5
Other energy sources (e) .....	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.7	0.7	0.6
Total generation .....	95.8	88.7	98.5	93.5	102.2	97.2	103.7	95.1	100.6	95.0	100.2	92.3	376.4	398.2	388.0
Net energy for load (f) .....	89.9	86.2	97.8	89.7	88.0	89.2	96.0	88.8	91.3	87.9	95.0	88.3	363.5	362.0	362.5
<b>Southwest</b>															
Natural Gas .....	10.7	15.2	19.4	11.5	9.6	12.7	15.8	11.6	10.9	12.1	15.1	10.5	56.8	49.8	48.6
Coal .....	5.5	5.6	8.3	7.4	6.1	5.6	9.3	4.7	4.2	4.4	8.4	4.7	26.8	25.8	21.8
Nuclear .....	8.5	7.1	8.6	7.5	8.2	7.5	8.6	7.4	8.4	7.5	8.6	7.5	31.6	31.7	31.9
Conventional hydropower .....	2.0	2.3	1.9	1.5	1.9	2.1	2.2	1.8	2.1	2.5	2.4	1.9	7.7	7.9	9.0
Nonhydro renewables (d) .....	3.1	3.9	3.2	3.7	4.6	5.6	4.6	5.1	4.8	5.9	4.8	5.6	14.0	19.8	21.1
Other energy sources (e) .....	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.3	0.2
Total generation .....	29.8	34.2	41.5	31.6	30.4	33.5	40.6	30.8	30.4	32.5	39.4	30.2	137.1	135.3	132.6
Net energy for load (f) .....	20.5	26.3	33.2	22.5	21.2	26.8	33.2	22.1	21.8	26.9	33.3	22.5	102.6	103.3	104.4
<b>California</b>															
Natural Gas .....	16.7	17.9	29.4	21.6	15.8	14.2	26.3	20.4	14.2	13.0	25.7	19.9	85.6	76.8	72.8
Coal .....	1.8	1.4	3.0	1.4	0.5	1.3	2.6	1.9	0.7	1.5	2.7	1.9	7.6	6.3	6.7
Nuclear .....	2.9	4.2	5.0	4.3	4.6	4.2	4.4	4.0	4.6	4.7	4.6	4.1	16.5	17.2	18.0
Conventional hydropower .....	2.4	4.2	4.9	2.8	3.6	5.2	4.8	2.0	3.3	7.3	6.7	3.4	14.4	15.6	20.7
Nonhydro renewables (d) .....	15.5	21.2	19.2	15.2	16.7	22.2	20.8	16.4	17.5	23.8	23.0	18.4	71.1	76.1	82.7
Other energy sources (e) .....	-0.1	-0.1	0.0	-0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	-0.2	0.0	0.3
Total generation .....	39.3	48.9	61.5	45.3	41.2	47.1	59.0	44.8	40.3	50.5	62.7	47.7	195.0	192.1	201.2
Net energy for load (f) .....	55.6	62.6	77.5	59.5	56.0	60.9	74.1	59.7	58.2	63.3	74.0	59.4	255.1	250.7	254.9

(a) Large-scale solar generation from power plants with more than 1 megawatt of capacity. Excludes generation from small-scale solar photovoltaic systems.  
 (b) Residual fuel oil, distillate fuel oil, petroleum coke, and other petroleum liquids.  
 (c) Batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, nonrenewable waste, and miscellaneous technologies.  
 (d) Wind, large-scale solar, biomass, and geothermal  
 (e) Pumped storage hydroelectric, petroleum, other gases, batteries, and other nonrenewable fuels. See notes (b) and (c).  
 (f) Regional generation from generating units operated by electric power sector, plus energy receipts from minus energy deliveries to U.S. balancing authorities outside region.  
 Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Electric Power Sector</b>															
Geothermal .....	0.034	0.035	0.035	0.035	0.034	0.036	0.037	0.038	0.035	0.034	0.037	0.035	0.138	0.145	0.142
Hydroelectric Power (a) .....	0.603	0.577	0.533	0.560	0.671	0.649	0.575	0.515	0.628	0.723	0.588	0.541	2.272	2.410	2.480
Solar (b) .....	0.189	0.309	0.308	0.207	0.257	0.380	0.390	0.262	0.323	0.480	0.487	0.334	1.014	1.289	1.624
Waste Biomass (c) .....	0.060	0.059	0.059	0.058	0.056	0.056	0.059	0.058	0.058	0.057	0.057	0.056	0.236	0.228	0.229
Wood Biomass .....	0.051	0.046	0.054	0.048	0.052	0.042	0.050	0.044	0.048	0.042	0.050	0.044	0.199	0.188	0.184
Wind .....	0.863	0.856	0.684	0.969	1.064	1.039	0.760	1.052	1.125	1.076	0.793	1.087	3.372	3.915	4.081
Subtotal .....	1.800	1.881	1.673	1.876	2.135	2.201	1.870	1.968	2.218	2.412	2.012	2.098	7.231	8.174	8.740
<b>Industrial Sector</b>															
Biofuel Losses and Co-products (d) .....	0.179	0.199	0.196	0.216	0.203	0.211	0.205	0.208	0.197	0.201	0.201	0.207	0.789	0.828	0.806
Geothermal .....	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.004	0.004	0.004
Hydroelectric Power (a) .....	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.008	0.008	0.008
Solar (b) .....	0.007	0.011	0.011	0.007	0.008	0.011	0.012	0.008	0.009	0.012	0.013	0.009	0.036	0.039	0.042
Waste Biomass (c) .....	0.042	0.040	0.037	0.042	0.042	0.040	0.039	0.042	0.041	0.040	0.040	0.042	0.160	0.163	0.163
Wood Biomass .....	0.333	0.339	0.343	0.328	0.315	0.329	0.355	0.362	0.353	0.351	0.364	0.367	1.342	1.361	1.436
Subtotal (e) .....	0.568	0.596	0.595	0.602	0.576	0.599	0.619	0.629	0.607	0.613	0.626	0.634	2.361	2.424	2.480
<b>Commercial Sector</b>															
Geothermal .....	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.024	0.025	0.025
Solar (b) .....	0.028	0.042	0.042	0.028	0.033	0.049	0.049	0.034	0.038	0.055	0.056	0.039	0.140	0.164	0.189
Waste Biomass (c) .....	0.009	0.008	0.009	0.009	0.010	0.008	0.009	0.009	0.009	0.009	0.009	0.009	0.035	0.036	0.036
Wood Biomass .....	0.020	0.020	0.021	0.021	0.020	0.020	0.021	0.021	0.020	0.020	0.021	0.021	0.083	0.083	0.083
Subtotal (e) .....	0.070	0.085	0.086	0.072	0.077	0.092	0.093	0.078	0.082	0.099	0.100	0.083	0.313	0.339	0.364
<b>Residential Sector</b>															
Geothermal .....	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.040	0.040	0.040
Solar (f) .....	0.065	0.099	0.097	0.067	0.079	0.122	0.122	0.084	0.093	0.140	0.141	0.098	0.329	0.407	0.472
Wood Biomass .....	0.114	0.116	0.117	0.117	0.119	0.116	0.117	0.117	0.119	0.116	0.117	0.117	0.464	0.469	0.469
Subtotal .....	0.189	0.225	0.224	0.194	0.208	0.247	0.249	0.211	0.222	0.266	0.268	0.224	0.832	0.915	0.980
<b>Transportation Sector</b>															
Biodiesel, Renewable Diesel, and Other (g) ...	0.080	0.095	0.089	0.108	0.094	0.119	0.119	0.145	0.135	0.136	0.132	0.159	0.372	0.477	0.562
Ethanol (g) .....	0.243	0.281	0.285	0.288	0.259	0.280	0.281	0.283	0.261	0.282	0.285	0.286	1.097	1.103	1.113
Subtotal .....	0.322	0.376	0.374	0.397	0.353	0.408	0.400	0.428	0.396	0.418	0.416	0.445	1.469	1.590	1.675
<b>All Sectors Total</b>															
Biodiesel, Renewable Diesel, and Other (g) ...	0.080	0.095	0.089	0.108	0.094	0.119	0.119	0.145	0.135	0.136	0.132	0.159	0.372	0.477	0.562
Biofuel Losses and Co-products (d) .....	0.179	0.199	0.196	0.216	0.203	0.211	0.205	0.208	0.197	0.201	0.201	0.207	0.789	0.828	0.806
Ethanol (f) .....	0.253	0.293	0.298	0.301	0.270	0.292	0.294	0.296	0.272	0.295	0.297	0.299	1.146	1.152	1.163
Geothermal .....	0.050	0.052	0.052	0.052	0.051	0.053	0.054	0.055	0.052	0.051	0.054	0.052	0.206	0.214	0.210
Hydroelectric Power (a) .....	0.605	0.580	0.535	0.562	0.674	0.651	0.577	0.518	0.631	0.725	0.590	0.544	2.283	2.420	2.491
Solar (b)(f) .....	0.290	0.461	0.458	0.310	0.378	0.562	0.572	0.387	0.463	0.688	0.696	0.479	1.519	1.899	2.327
Waste Biomass (c) .....	0.110	0.107	0.106	0.109	0.107	0.106	0.107	0.109	0.108	0.106	0.106	0.108	0.431	0.430	0.428
Wood Biomass .....	0.519	0.520	0.535	0.513	0.507	0.507	0.542	0.544	0.540	0.529	0.552	0.550	2.087	2.100	2.171
Wind .....	0.863	0.856	0.684	0.969	1.064	1.039	0.760	1.052	1.125	1.076	0.793	1.087	3.372	3.915	4.081
<b>Total Consumption</b> .....	<b>2.950</b>	<b>3.162</b>	<b>2.953</b>	<b>3.141</b>	<b>3.349</b>	<b>3.548</b>	<b>3.231</b>	<b>3.314</b>	<b>3.524</b>	<b>3.807</b>	<b>3.423</b>	<b>3.484</b>	<b>12.206</b>	<b>13.442</b>	<b>14.239</b>

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

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

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

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

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

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

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

- = no data available

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

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

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

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

**Table 8b. U.S. Renewable Electricity Generation and Capacity**  
 U.S. Energy Information Administration | Short-Term Energy Outlook - July 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Renewable Energy Electric Generating Capacity (megawatts, end of period)</b>															
<b>Electric Power Sector (a)</b>															
Biomass .....	6,161	5,997	5,980	5,977	5,972	5,976	5,976	6,001	5,977	5,979	5,920	5,920	5,977	6,001	5,920
Waste .....	3,700	3,680	3,677	3,674	3,669	3,674	3,674	3,698	3,674	3,676	3,618	3,618	3,674	3,698	3,618
Wood .....	2,461	2,318	2,303	2,303	2,303	2,303	2,303	2,303	2,303	2,303	2,303	2,303	2,303	2,303	2,303
Conventional Hydroelectric .....	78,736	78,796	78,798	78,798	78,843	78,850	78,893	78,916	78,916	78,924	78,951	78,961	78,798	78,916	78,961
Geothermal .....	2,483	2,483	2,483	2,483	2,483	2,517	2,517	2,542	2,542	2,542	2,542	2,542	2,483	2,542	2,542
Large-Scale Solar (b) .....	50,368	52,359	55,609	60,671	63,117	67,604	71,202	80,093	83,111	88,795	91,236	103,482	60,671	80,093	103,482
Wind .....	121,201	124,742	126,696	132,243	135,041	137,972	139,199	142,818	142,968	144,119	144,119	147,184	132,243	142,818	147,184
<b>Other Sectors (c)</b>															
Biomass .....	6,206	6,210	6,214	6,214	6,217	6,225	6,217	6,217	6,217	6,209	6,209	6,209	6,214	6,217	6,209
Waste .....	827	830	829	829	828	828	828	828	828	828	828	828	829	828	828
Wood .....	5,380	5,380	5,385	5,385	5,389	5,397	5,389	5,389	5,389	5,381	5,381	5,381	5,385	5,389	5,381
Conventional Hydroelectric .....	291	291	288	288	288	291	291	291	291	291	291	291	288	291	291
Large-Scale Solar (b) .....	473	475	511	529	551	563	563	587	587	635	635	635	529	587	635
Small-Scale Solar (d) .....	28,846	30,325	31,515	32,972	34,720	36,215	37,624	39,091	40,710	42,440	44,245	46,264	32,972	39,091	46,264
Residential Sector .....	18,023	19,102	20,039	21,022	22,260	23,415	24,435	25,502	26,666	27,884	29,158	30,580	21,022	25,502	30,580
Commercial Sector .....	8,734	9,086	9,300	9,728	10,220	10,508	10,842	11,188	11,587	12,039	12,511	13,045	9,728	11,188	13,045
Industrial Sector .....	2,089	2,137	2,176	2,223	2,240	2,292	2,346	2,401	2,457	2,517	2,577	2,639	2,223	2,401	2,639
Wind .....	121	121	121	121	122	122	122	122	122	122	122	122	121	122	122
<b>Renewable Electricity Generation (billion kilowatthours)</b>															
<b>Electric Power Sector (a)</b>															
Biomass .....	7.2	6.8	7.2	6.7	6.7	6.2	6.9	6.5	6.7	6.3	6.8	6.4	27.9	26.3	26.1
Waste .....	4.0	3.9	3.8	3.8	3.5	3.7	3.8	3.7	3.7	3.7	3.7	3.6	15.5	14.7	14.8
Wood .....	3.2	2.8	3.4	2.9	3.2	2.6	3.1	2.7	3.0	2.6	3.1	2.7	12.4	11.5	11.3
Conventional Hydroelectric .....	68.7	65.8	60.7	63.8	76.5	71.6	64.5	57.8	70.6	81.2	66.0	60.8	259.0	270.5	278.5
Geothermal .....	3.8	3.9	4.0	4.0	3.9	4.1	4.2	4.3	4.0	3.9	4.2	4.0	15.7	16.5	16.2
Large-Scale Solar (b) .....	21.3	34.7	34.6	23.3	28.9	42.7	43.8	29.4	36.3	53.9	54.6	37.5	113.9	144.7	182.4
Wind .....	97.0	96.1	76.8	108.8	119.5	116.6	85.4	118.1	126.4	120.8	89.0	122.1	378.6	439.6	458.3
<b>Other Sectors (c)</b>															
Biomass .....	6.9	6.8	7.1	6.8	6.7	6.7	7.1	6.8	6.7	6.7	7.1	6.8	27.6	27.3	27.3
Waste .....	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	2.8	2.8	2.8
Wood .....	6.2	6.1	6.4	6.1	5.9	6.1	6.4	6.1	5.9	6.1	6.4	6.1	24.8	24.5	24.5
Conventional Hydroelectric .....	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.2	1.2	1.2
Large-Scale Solar (b) .....	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.8	1.0	1.1
Small-Scale Solar (d) .....	9.8	14.7	14.5	10.0	12.0	17.9	18.0	12.4	14.0	20.9	21.1	14.6	49.0	60.2	70.5
Residential Sector .....	5.9	9.1	8.9	6.1	7.6	11.5	11.5	7.9	8.9	13.6	13.6	9.5	30.1	38.4	45.6
Commercial Sector .....	3.1	4.5	4.5	3.0	3.6	5.2	5.2	3.6	4.1	6.0	6.0	4.2	15.1	17.7	20.3
Industrial Sector .....	0.8	1.1	1.1	0.8	0.8	1.2	1.2	0.9	0.9	1.3	1.4	1.0	3.8	4.2	4.6
Wind .....	0.3	0.3	0.2	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.1	0.3	0.3

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

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

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

(d) Solar photovoltaic systems smaller than one megawatt.

- = no data available

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

**Historical data:** Latest data available from EIA databases supporting the Electric Power Monthly, DOE/EIA-0226.

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

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

**Table 9a. U.S. Macroeconomic Indicators and CO2 Emissions**  
 U.S. Energy Information Administration | Short-Term Energy Outlook - July 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Macroeconomic</b>															
Real Gross Domestic Product															
(billion chained 2012 dollars - SAAR)	19,056	19,368	19,479	19,806	19,731	19,818	19,930	20,093	20,190	20,313	20,448	20,586	19,427	19,893	20,384
Real Personal Consumption Expend.															
(billion chained 2012 dollars - SAAR)	13,283	13,666	13,732	13,818	13,925	14,073	14,151	14,231	14,321	14,422	14,517	14,614	13,625	14,095	14,468
Real Private Fixed Investment															
(billion chained 2012 dollars - SAAR)	3,564	3,593	3,585	3,609	3,669	3,643	3,685	3,695	3,705	3,722	3,741	3,770	3,588	3,673	3,735
Business Inventory Change															
(billion chained 2012 dollars - SAAR)	-94	-174	-60	249	193	93	61	136	126	122	134	142	-20	121	131
Real Government Expenditures															
(billion chained 2012 dollars - SAAR)	3,391	3,374	3,382	3,359	3,336	3,342	3,352	3,354	3,360	3,367	3,375	3,385	3,376	3,346	3,372
Real Exports of Goods & Services															
(billion chained 2012 dollars - SAAR)	2,262	2,304	2,273	2,391	2,358	2,445	2,474	2,504	2,540	2,580	2,620	2,659	2,308	2,445	2,600
Real Imports of Goods & Services															
(billion chained 2012 dollars - SAAR)	3,488	3,549	3,590	3,741	3,901	3,936	3,973	3,990	4,031	4,070	4,109	4,153	3,592	3,950	4,091
Real Disposable Personal Income															
(billion chained 2012 dollars - SAAR)	17,219	15,807	15,641	15,462	15,198	15,118	15,162	15,257	15,387	15,633	15,870	16,096	16,032	15,184	15,746
Non-Farm Employment															
(millions)	143.7	145.2	146.9	148.6	150.4	151.6	152.4	153.0	153.4	153.6	153.9	154.2	146.1	151.8	153.8
Civilian Unemployment Rate															
(percent)	6.2	5.9	5.1	4.2	3.8	3.6	3.6	3.7	3.8	3.9	3.9	4.0	5.4	3.7	3.9
Housing Starts															
(millions - SAAR)	1.58	1.59	1.57	1.68	1.72	1.67	1.58	1.53	1.53	1.53	1.55	1.54	1.61	1.62	1.54
<b>Industrial Production Indices (Index, 2017=100)</b>															
Total Industrial Production	98.3	99.9	100.7	101.7	103.4	106.0	107.4	108.7	109.0	109.6	110.4	110.9	100.1	106.4	109.9
Manufacturing	97.3	98.7	99.7	101.0	102.2	104.2	105.2	106.7	107.3	108.3	109.5	110.2	99.2	104.6	108.8
Food	101.2	100.5	99.7	101.5	103.3	103.8	105.1	105.4	105.9	106.2	106.7	107.2	100.7	104.4	106.5
Paper	93.9	95.0	95.2	94.0	95.9	97.3	98.0	99.3	99.3	100.3	101.2	101.9	94.5	97.6	100.7
Petroleum and Coal Products	90.5	95.9	95.0	96.3	96.7	98.9	97.9	98.6	99.0	99.7	100.2	100.3	94.4	98.0	99.8
Chemicals	91.8	99.3	99.6	100.5	101.0	102.7	103.0	104.8	105.0	106.6	108.5	109.4	97.8	102.9	107.4
Nonmetallic Mineral Products	97.4	95.4	96.7	99.1	103.5	103.7	104.9	105.3	105.2	106.0	107.1	108.2	97.1	104.3	106.6
Primary Metals	92.4	96.7	98.1	99.2	98.0	99.4	99.0	105.8	105.1	110.1	115.8	117.4	96.6	100.6	112.1
Coal-weighted Manufacturing (a)	92.3	96.4	96.4	97.4	98.4	99.6	99.6	102.7	102.4	104.9	107.6	108.5	95.6	100.1	105.9
Distillate-weighted Manufacturing (a)	101.2	102.5	102.8	104.3	106.5	108.0	108.7	110.2	110.4	111.7	113.2	114.0	102.7	108.3	112.3
Electricity-weighted Manufacturing (a)	94.2	97.6	97.7	98.6	99.7	101.3	101.7	104.3	104.6	106.5	108.8	109.7	97.0	101.7	107.4
Natural Gas-weighted Manufacturing (a)	90.7	96.8	95.9	96.4	97.5	99.1	99.2	101.7	101.8	103.7	105.9	106.6	94.9	99.4	104.5
<b>Price Indices</b>															
Consumer Price Index (all urban consumers)															
(index, 1982=1984=1.00)	2.64	2.69	2.73	2.78	2.85	2.91	2.94	2.96	2.97	2.98	3.00	3.02	2.71	2.91	2.99
Producer Price Index: All Commodities															
(index, 1982=1.00)	2.10	2.24	2.33	2.42	2.53	2.63	2.62	2.57	2.51	2.42	2.40	2.41	2.27	2.58	2.44
Producer Price Index: Petroleum															
(index, 1982=1.00)	2.00	2.36	2.55	2.72	3.16	3.98	3.37	2.96	2.82	2.84	2.82	2.78	2.41	3.37	2.81
GDP Implicit Price Deflator															
(index, 2012=100)	115.8	117.5	119.3	121.3	123.7	125.6	127.2	128.2	129.0	129.8	130.6	131.5	118.5	126.2	130.2
<b>Miscellaneous</b>															
Vehicle Miles Traveled (b)															
(million miles/day)	7,928	9,126	9,368	8,934	8,375	9,072	9,408	9,108	8,572	9,443	9,634	9,223	8,843	8,994	9,221
Air Travel Capacity															
(Available ton-miles/day, thousands)	537	597	658	667	656	697	714	673	666	695	714	699	615	685	693
Aircraft Utilization															
(Revenue ton-miles/day, thousands)	245	340	372	376	356	405	399	373	362	407	409	385	334	383	391
Airline Ticket Price Index															
(index, 1982=1984=100)	198.4	243.3	218.5	210.0	225.6	325.6	300.6	300.4	267.9	311.3	287.9	290.8	217.5	288.1	289.5
Raw Steel Production															
(million short tons per day)	0.246	0.258	0.267	0.260	0.253	0.253	0.272	0.300	0.314	0.318	0.349	0.377	0.258	0.270	0.340
<b>Carbon Dioxide (CO2) Emissions (million metric tons)</b>															
Petroleum	517	559	570	578	562	557	575	582	560	573	583	585	2,224	2,276	2,302
Natural Gas	485	354	373	426	508	368	377	443	492	358	384	450	1,637	1,696	1,684
Coal	256	229	307	209	246	216	282	219	232	204	280	215	1,001	962	931
Total Energy (c)	1,260	1,144	1,252	1,216	1,319	1,143	1,236	1,247	1,286	1,139	1,251	1,253	4,873	4,945	4,928

(a) Fuel share weights of individual sector indices based on EIA *Manufacturing Energy Consumption Survey*.

(b) Total highway travel includes gasoline and diesel fuel vehicles.

(c) Includes electric power sector use of geothermal energy and non-biomass waste.

- = no data available

SAAR = Seasonally-adjusted annual rate

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

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

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

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

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Real Gross State Product (Billion \$2012)</b>															
New England .....	979	1,001	1,008	1,026	1,020	1,025	1,031	1,037	1,040	1,045	1,049	1,055	1,004	1,028	1,047
Middle Atlantic .....	2,718	2,756	2,774	2,813	2,809	2,817	2,831	2,851	2,860	2,874	2,890	2,908	2,765	2,827	2,883
E. N. Central .....	2,485	2,514	2,520	2,553	2,536	2,543	2,558	2,579	2,592	2,609	2,626	2,643	2,518	2,554	2,618
W. N. Central .....	1,199	1,213	1,215	1,221	1,214	1,219	1,225	1,234	1,240	1,247	1,255	1,264	1,212	1,223	1,251
S. Atlantic .....	3,382	3,436	3,461	3,517	3,504	3,523	3,544	3,573	3,591	3,613	3,637	3,662	3,449	3,536	3,626
E. S. Central .....	836	842	846	861	858	860	863	868	871	876	881	886	846	862	879
W. S. Central .....	2,320	2,362	2,378	2,431	2,428	2,448	2,468	2,492	2,511	2,529	2,549	2,569	2,373	2,459	2,539
Mountain .....	1,274	1,296	1,303	1,324	1,320	1,327	1,335	1,348	1,357	1,368	1,380	1,392	1,299	1,332	1,374
Pacific .....	3,692	3,774	3,800	3,883	3,865	3,879	3,897	3,928	3,946	3,971	3,997	4,023	3,787	3,892	3,984
<b>Industrial Output, Manufacturing (Index, Year 2017=100)</b>															
New England .....	95.5	97.1	98.0	99.2	100.3	102.5	103.3	104.9	105.3	106.3	107.3	107.8	97.4	102.7	106.6
Middle Atlantic .....	93.3	94.6	95.3	96.5	97.6	99.6	100.6	101.9	102.4	103.1	104.1	104.6	94.9	99.9	103.5
E. N. Central .....	95.7	96.3	97.2	99.0	99.9	101.6	102.6	104.2	104.9	106.1	107.3	108.0	97.0	102.1	106.6
W. N. Central .....	98.5	99.7	100.7	101.5	103.1	104.7	105.6	107.1	107.6	108.7	109.9	110.7	100.1	105.1	109.2
S. Atlantic .....	99.6	100.8	102.0	103.4	104.5	106.4	107.4	108.8	109.1	110.0	111.0	111.7	101.5	106.8	110.4
E. S. Central .....	98.0	99.0	99.9	101.2	101.9	103.7	104.8	106.5	107.0	108.2	109.5	110.2	99.5	104.2	108.7
W. S. Central .....	98.8	100.4	101.3	102.9	104.5	106.6	107.8	109.4	109.9	111.1	112.4	113.2	100.8	107.1	111.7
Mountain .....	106.8	109.0	110.1	111.9	113.8	115.7	116.6	118.3	118.8	120.0	121.3	122.1	109.4	116.1	120.6
Pacific .....	94.4	96.0	96.6	97.7	98.8	101.1	102.2	104.0	104.9	105.8	107.0	107.7	96.2	101.5	106.3
<b>Real Personal Income (Billion \$2012)</b>															
New England .....	998	948	942	935	930	926	928	932	936	942	948	954	956	929	945
Middle Atlantic .....	2,614	2,449	2,436	2,388	2,395	2,378	2,383	2,397	2,407	2,422	2,438	2,453	2,472	2,388	2,430
E. N. Central .....	2,744	2,524	2,493	2,467	2,445	2,440	2,446	2,459	2,470	2,489	2,508	2,525	2,557	2,447	2,498
W. N. Central .....	1,276	1,195	1,176	1,161	1,158	1,157	1,160	1,165	1,169	1,177	1,186	1,194	1,202	1,160	1,182
S. Atlantic .....	3,721	3,444	3,427	3,430	3,410	3,405	3,412	3,432	3,450	3,479	3,508	3,535	3,505	3,415	3,493
E. S. Central .....	1,025	927	924	923	916	912	912	915	918	925	931	936	950	914	928
W. S. Central .....	2,238	2,078	2,069	2,080	2,070	2,068	2,075	2,089	2,102	2,120	2,138	2,156	2,116	2,075	2,129
Mountain .....	1,381	1,281	1,277	1,276	1,269	1,266	1,269	1,277	1,283	1,296	1,308	1,319	1,304	1,270	1,302
Pacific .....	3,268	3,086	3,085	3,053	3,032	3,026	3,027	3,042	3,053	3,076	3,098	3,118	3,123	3,032	3,086
<b>Households (Thousands)</b>															
New England .....	6,054	6,061	6,057	6,067	6,075	6,083	6,090	6,099	6,107	6,115	6,123	6,131	6,067	6,099	6,131
Middle Atlantic .....	16,405	16,405	16,387	16,404	16,416	16,433	16,446	16,468	16,491	16,514	16,537	16,557	16,404	16,468	16,557
E. N. Central .....	19,076	19,090	19,095	19,140	19,172	19,194	19,210	19,234	19,258	19,283	19,308	19,331	19,140	19,234	19,331
W. N. Central .....	8,717	8,729	8,736	8,763	8,782	8,805	8,824	8,841	8,858	8,876	8,894	8,910	8,763	8,841	8,910
S. Atlantic .....	26,284	26,358	26,405	26,516	26,611	26,709	26,795	26,883	26,970	27,057	27,142	27,227	26,516	26,883	27,227
E. S. Central .....	7,816	7,830	7,840	7,866	7,886	7,907	7,926	7,943	7,960	7,977	7,994	8,011	7,866	7,943	8,011
W. S. Central .....	15,332	15,379	15,414	15,482	15,541	15,602	15,656	15,708	15,760	15,813	15,867	15,919	15,482	15,708	15,919
Mountain .....	9,612	9,653	9,688	9,744	9,792	9,837	9,879	9,919	9,958	9,999	10,038	10,077	9,744	9,919	10,077
Pacific .....	19,002	18,992	18,979	19,010	19,039	19,067	19,092	19,113	19,136	19,161	19,188	19,215	19,010	19,113	19,215
<b>Total Non-farm Employment (Millions)</b>															
New England .....	7.1	7.1	7.2	7.3	7.4	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.2	7.5	7.5
Middle Atlantic .....	18.5	18.7	18.9	19.2	19.4	19.6	19.7	19.8	19.8	19.8	19.8	19.9	18.8	19.6	19.8
E. N. Central .....	21.1	21.2	21.4	21.6	21.9	22.0	22.1	22.2	22.2	22.3	22.3	22.4	21.3	22.0	22.3
W. N. Central .....	10.4	10.4	10.5	10.5	10.6	10.7	10.8	10.8	10.8	10.8	10.9	10.9	10.5	10.7	10.8
S. Atlantic .....	28.2	28.5	28.8	29.2	29.5	29.8	29.9	30.0	30.1	30.1	30.2	30.3	28.7	29.8	30.2
E. S. Central .....	8.1	8.1	8.2	8.3	8.4	8.4	8.4	8.5	8.5	8.5	8.5	8.5	8.2	8.4	8.5
W. S. Central .....	17.2	17.4	17.6	17.9	18.1	18.2	18.3	18.4	18.5	18.5	18.5	18.6	17.5	18.3	18.5
Mountain .....	10.8	11.0	11.1	11.3	11.4	11.5	11.6	11.6	11.7	11.7	11.7	11.8	11.1	11.5	11.7
Pacific .....	22.2	22.7	23.1	23.3	23.7	23.9	24.0	24.1	24.2	24.2	24.3	24.3	22.8	23.9	24.3

- = no data available

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

Regions refer to U.S. Census divisions.

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

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

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

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

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
<b>Heating Degree Days</b>															
New England .....	3,013	780	84	1,922	3,141	792	126	2,140	3,092	871	146	2,140	<b>5,800</b>	6,199	6,250
Middle Atlantic .....	2,820	668	57	1,726	2,939	664	81	1,976	2,868	692	91	1,976	<b>5,271</b>	5,659	5,626
E. N. Central .....	3,086	707	70	1,886	3,268	761	124	2,253	3,146	738	132	2,253	<b>5,749</b>	6,406	6,270
W. N. Central .....	3,227	718	88	2,026	3,481	790	162	2,453	3,250	716	169	2,453	<b>6,059</b>	6,885	6,588
South Atlantic .....	1,346	213	10	799	1,345	189	13	956	1,384	193	14	954	<b>2,368</b>	2,503	2,546
E. S. Central .....	1,790	314	19	1,034	1,821	249	20	1,301	1,812	255	23	1,302	<b>3,158</b>	3,391	3,392
W. S. Central .....	1,297	121	1	497	1,343	57	4	788	1,199	93	6	787	<b>1,915</b>	2,191	2,086
Mountain .....	2,310	664	110	1,635	2,297	724	146	1,848	2,248	718	163	1,847	<b>4,719</b>	5,015	4,976
Pacific .....	1,558	484	77	1,207	1,405	614	99	1,223	1,541	600	93	1,225	<b>3,325</b>	3,341	3,458
U.S. Average .....	2,107	472	51	1,307	2,150	493	75	1,529	2,112	494	80	1,528	<b>3,936</b>	4,247	4,213
<b>Heating Degree Days, Prior 10-year Average</b>															
New England .....	3,133	855	107	2,100	3,100	853	107	2,104	3,151	859	107	2,110	<b>6,195</b>	6,164	6,227
Middle Atlantic .....	2,912	677	71	1,911	2,887	684	71	1,908	2,944	691	71	1,912	<b>5,572</b>	5,550	5,619
E. N. Central .....	3,157	731	104	2,170	3,133	727	97	2,162	3,215	742	96	2,171	<b>6,161</b>	6,119	6,224
W. N. Central .....	3,248	728	133	2,368	3,219	726	125	2,357	3,317	754	126	2,367	<b>6,477</b>	6,427	6,564
South Atlantic .....	1,395	181	11	916	1,380	188	11	906	1,401	190	10	902	<b>2,503</b>	2,483	2,503
E. S. Central .....	1,771	231	16	1,249	1,763	243	15	1,228	1,809	251	14	1,226	<b>3,267</b>	3,248	3,300
W. S. Central .....	1,140	86	3	786	1,145	93	3	754	1,189	95	3	761	<b>2,015</b>	1,995	2,049
Mountain .....	2,188	704	135	1,850	2,181	685	132	1,817	2,201	700	135	1,824	<b>4,877</b>	4,816	4,860
Pacific .....	1,461	553	81	1,147	1,454	523	79	1,137	1,439	523	80	1,142	<b>3,242</b>	3,192	3,185
U.S. Average .....	2,112	483	65	1,487	2,095	479	62	1,473	2,133	486	62	1,475	<b>4,147</b>	4,110	4,157
<b>Cooling Degree Days</b>															
New England .....	0	142	457	6	0	90	441	2	0	80	389	2	<b>605</b>	533	471
Middle Atlantic .....	0	181	627	23	0	164	558	5	0	149	521	5	<b>831</b>	726	674
E. N. Central .....	2	250	627	30	1	268	540	7	0	209	517	7	<b>910</b>	816	734
W. N. Central .....	8	311	746	23	3	325	667	10	3	255	646	10	<b>1,089</b>	1,005	914
South Atlantic .....	153	614	1,167	284	154	704	1,157	234	126	642	1,137	235	<b>2,219</b>	2,249	2,139
E. S. Central .....	40	435	1,016	126	29	600	1,042	65	28	495	1,012	65	<b>1,618</b>	1,736	1,600
W. S. Central .....	90	769	1,470	315	55	1,083	1,508	207	81	819	1,458	207	<b>2,643</b>	2,853	2,565
Mountain .....	10	526	961	68	16	440	916	74	17	406	893	74	<b>1,565</b>	1,447	1,390
Pacific .....	24	254	712	57	31	204	559	62	25	164	569	62	<b>1,047</b>	855	819
U.S. Average .....	50	410	902	127	46	463	853	95	43	387	830	95	<b>1,489</b>	1,456	1,355
<b>Cooling Degree Days, Prior 10-year Average</b>															
New England .....	0	80	474	1	0	87	471	2	0	88	467	2	<b>555</b>	561	558
Middle Atlantic .....	0	163	610	6	0	162	608	8	0	160	601	8	<b>779</b>	779	770
E. N. Central .....	3	234	572	7	3	238	571	9	1	235	559	10	<b>816</b>	821	805
W. N. Central .....	7	294	686	10	7	299	681	11	4	294	667	12	<b>997</b>	999	977
South Atlantic .....	143	679	1,194	260	147	668	1,188	269	144	674	1,188	273	<b>2,276</b>	2,271	2,280
E. S. Central .....	42	532	1,065	74	44	518	1,057	84	36	521	1,057	86	<b>1,713</b>	1,702	1,700
W. S. Central .....	114	881	1,568	210	113	853	1,536	224	101	860	1,532	226	<b>2,772</b>	2,726	2,720
Mountain .....	24	441	949	85	23	458	945	84	23	453	940	82	<b>1,499</b>	1,511	1,499
Pacific .....	31	193	648	86	31	208	665	85	32	212	656	84	<b>959</b>	990	984
U.S. Average .....	52	413	892	104	53	412	889	109	50	415	884	110	<b>1,461</b>	1,463	1,459

- = no data available

Notes: EIA completed modeling and analysis for this report on July 7, 2022.

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

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