



Short-Term Energy Outlook (STEO)

Forecast highlights

- This edition of the *Short-Term Energy Outlook* is the first to include forecasts for 2020.
- EIA forecasts Brent prices will average \$61 per barrel (b) in 2019 and \$65/b in 2020. In 2018, Brent prices averaged \$71/b. EIA expects West Texas Intermediate (WTI) crude oil prices will average \$8/b lower than Brent prices in the first quarter of 2019 before the discount gradually falls to \$4/b in the fourth quarter of 2019 and throughout 2020. EIA's forecast for the average WTI price for December 2019 of \$59/b should be considered in the context of NYMEX futures and option contract values for December 2019 delivery. NYMEX trading during the five-day period ending January 10, 2019, suggest that a range of \$28/b to \$101/b encompasses the market expectation for December 2019 WTI prices at the 95% confidence level.
- Beginning on January 1, 2020, the International Maritime Organization (IMO) is set to enact the Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL Convention), [which lowers the maximum sulfur content of marine fuel oil](#) used in ocean-going vessels from 3.5% to 0.5%. EIA expects that, starting in the fourth quarter of 2019, this regulation will encourage global refiners to increase refinery runs and maximize upgrading of high-sulfur heavy fuel oil into low-sulfur distillate fuel to create compliant bunker fuels. EIA expects total U.S. refinery runs to increase by 4% from 2019 to reach a record level of 17.9 million barrels per day (b/d) on average in 2020, resulting in refinery utilization rates that average 96%. [EIA forecasts that one of the most significant impacts from the regulations](#) will be on diesel wholesale margins, which increase from an average of 43 cents per gallon (gal) in 2018 to 48 cents/gal in 2019 and then to 65 cents/gal in 2020. Because of the numerous and diverse set of decision makers involved in complying with the regulation and the global nature of the regulation, significant uncertainty exists about the forecast outcomes of the regulation.
- U.S. regular gasoline retail prices will average \$2.47/gal in 2019 and \$2.62/gal in 2020 in EIA's forecast, which would be a decrease from an average of \$2.73/gal in 2018.
- EIA estimates that U.S. crude oil production averaged 10.9 million b/d in 2018, up 1.6 million b/d from 2017, reaching its highest level and seeing its largest volume growth on record. EIA forecasts U.S. crude oil production to average 12.1 million b/d in 2019 and 12.9 million b/d in 2020, with most of the growth coming from the Permian region of Texas and New Mexico.

- U.S. crude oil and petroleum product net imports are estimated to have fallen from an average of 3.8 million b/d in 2017 to an average of 2.4 million b/d in 2018. EIA estimates that the United States briefly was a [net exporter of crude oil and petroleum products](#) in November 2018. EIA forecasts that net imports will continue to fall to an average of 1.1 million b/d in 2019, and to less than 0.1 million b/d in 2020. In the fourth quarter of 2020, EIA forecasts the United States will be a net exporter of crude oil and petroleum products, by about 0.9 million b/d.
- Global liquid fuels end-of-year inventories grew by an estimated 0.4 million b/d in 2018 and EIA expects they will grow by 0.2 million b/d in 2019 and by 0.4 million b/d in 2020.
- U.S. dry natural gas production averaged a record high 83.3 billion cubic feet per day (Bcf/d) in 2018. EIA forecasts dry natural gas production will average 90.2 Bcf/d in 2019 and 92.2 Bcf/d in 2020. Increases in the Appalachia and Permian regions drive the forecast growth.
- EIA forecasts that Henry Hub natural gas spot prices will average \$2.89 per million British thermal units (MMBtu) in 2019 and \$2.92/MMBtu in 2020, down from \$3.15/MMBtu in 2018. EIA's forecast for the average Henry Hub price for December 2019 of \$3.25/MMBtu should be considered in the context of NYMEX futures and option contract values for December 2019 delivery. NYMEX trading during the five-day period ending January 10, 2019, suggest that a range of \$1.85/MMBtu to \$4.80/MMBtu encompasses the market expectation for Henry Hub prices in December 2019 at the 95% confidence level.
- EIA forecasts that U.S. coal production will total 729 million short tons (MMst) in 2019, down by 25 MMst (3%) from 2018. Coal production will further decline by 50 MMst (7%) in 2020. This decrease is the result of coal's relatively weak competitiveness in the electric power sector compared with natural gas, as well as an assumption of lower demand for U.S. coal exports.
- EIA expects the share of U.S. total utility-scale electricity generation from natural gas-fired power plants to rise from 35% in 2018 to 37% in 2020. Coal's forecast share of electricity generation falls from 28% in 2018 to 24% in 2020. The nuclear share of generation was 19% in 2018 and EIA forecasts that it will be about the same share in 2020. Nonhydropower renewables provided 10% of generation in 2018 and are expected to provide 13% in 2020. Hydropower's share of generation was 7% in 2018 and is forecast to be similar in 2019 and in 2020. In 2019, EIA expects wind's annual share of generation will exceed hydropower's share for the first time.
- After increasing by 2.8% in 2018, EIA forecasts that energy-related carbon dioxide (CO₂) emissions will fall by 1.2% in 2019 and by 0.8% in 2020. The declines reflect a forecast of more typical weather compared with 2018 and shifts in fuel use. Energy-related CO₂ emissions are sensitive to changes in weather, economic growth, energy prices, and fuel mix.

Global Liquid Fuels

EIA estimates that global petroleum and other liquid fuels inventories increased by 1.0 million barrels per day (b/d) in the fourth quarter of 2018, contributing to downward pressure on oil prices. EIA forecasts global liquid fuels balances will continue to build in the first half of 2019 at a pace of 0.3 million b/d, before oil markets become more balanced during the second half of 2019. EIA expects inventory builds to average 0.2 million b/d in 2019 and 0.4 million b/d in 2020. The higher builds in 2020 occur as U.S. production continues to grow and the 2019 forecast declines in Organization of the Petroleum Exporting Countries (OPEC) moderate.

EIA forecasts global liquid fuels production to average 101.8 million b/d in 2019 and consumption to average 101.5 million b/d, which contributes to modest inventory builds. Production growth in 2019 is led by non-OPEC countries, particularly the United States and Brazil. EIA expects non-OPEC producers will increase oil supply by 2.4 million b/d in 2019, which will offset forecast supply declines of 1.0 million b/d from OPEC members. In 2020, the main drivers of oil production growth are expected to be the United States, Canada, Brazil, and Russia, while OPEC crude oil production is expected to remain flat.

Marine distillate use in countries outside of the Organization for Economic Cooperation and Development (OECD) will likely increase through 2020, when more stringent International Maritime Organization (IMO) specifications on sulfur levels in bunkering fuel will come into effect. Likewise, the use of high-sulfur residual fuel oil use currently used for bunkering fuel will likely decline. Also, EIA does not expect a significant switch to liquefied natural gas in 2020 as a result of the regulation. As a result, EIA does not anticipate the regulations will have a significant effect on total global liquid fuels consumption in 2020. The switch from highly energy-dense residual fuel to marine distillate will likely result in an increase in total liquid fuels consumption of no more than 0.1 million b/d, as the use of less energy-dense fuel will require some increase in volume to serve an equivalent level of shipping traffic.

Brent crude oil spot prices averaged \$71 per barrel (b) in 2018, an increase of \$17/b from 2017 levels. Daily Brent spot prices last year reached a peak of \$86/b in October 2018, which was the highest level since October 2014, before falling to nearly \$50/b by the end of the year. The price decrease in the latter part of 2018 reflected global oil inventory builds and record levels of oil production from the world's three largest producers—the United States, Russia, and Saudi Arabia—along with uncertainties about global demand growth for the coming year. EIA forecasts that Brent spot prices will gradually increase from an average of \$57/b in December 2018 to \$65/b by December 2020. Forecast Brent spot prices average \$61/b in 2019 and \$65/b in 2020.

Global Petroleum and Other Liquid Fuels Consumption. Global consumption of petroleum and other liquid fuels grew by 1.4 million b/d in 2018, reaching an average of 100.0 million b/d for the year. EIA expects consumption growth to average slightly above 1.5 million b/d in 2019 and in 2020. The relatively stable consumption growth reflects small forecast declines in the rate of global gross domestic product (GDP) growth from 2018, which EIA expects will be generally

offset by lower oil prices in 2019 and 2020 compared with 2018, along with increases in petrochemical related demand and IMO-related volume gain.

Non-OECD countries continue to drive demand growth in the forecast. Non-OECD liquid fuels consumption growth accounts for 1.1 million b/d of the global growth in 2019 and 1.2 million b/d in 2020, with China and India accounting for most of this growth. EIA forecasts that China's consumption will increase by 0.5 million b/d in 2019 and in 2020. EIA does not expect growth in Chinese oil consumption to slow by as much as slowing GDP growth because of the addition of a number of petrochemical plants, which will add an estimated 75,000 b/d of consumption in 2019 and an additional 70,000 b/d in 2020. EIA's forecast liquid fuels consumption in India grows by more than 0.2 million b/d in both 2019 and 2020, driven by rising use of gasoline, jet fuel, and hydrocarbon gas liquids.

OECD petroleum and other liquid fuels consumption is forecast by EIA to grow by 0.4 million b/d in 2019 and by 0.3 million b/d in 2020. The United States is the leading contributor to this forecast growth, with consumption rising by 0.3 million b/d in 2019 and by 0.2 million b/d in 2020. EIA forecasts that Europe's liquid fuels consumption will grow by 90,000 b/d in 2019 and in 2020. Japan is expected to see liquid fuels consumption decline by an average of 80,000 b/d in both years.

Non-OPEC Petroleum and Other Liquid Fuels Supply. EIA estimates that non-OPEC petroleum and other liquid fuels supply increased by 2.5 million b/d in 2018. Production growth of 2.2 million b/d in the United States accounted for most of the 2018 supply growth, with Canada, Russia, Kazakhstan, and Brazil collectively adding an additional 0.6 million b/d. EIA expects non-OPEC petroleum and other liquid fuels production to rise by 2.4 million b/d in 2019 and by 1.9 million b/d in 2020. Forecast growth in the United States contributes 1.7 million b/d and 1.2 million b/d, respectively, in each year, with Brazil providing another 0.3 million b/d in 2019 and 0.2 million b/d in 2020.

EIA expects Canada's total liquid fuels production to decrease by 0.1 million b/d in 2019 as a result of government-mandated production cuts in Alberta. In 2020, EIA expects Canadian production to increase by 0.2 million b/d after the cuts end in late 2019. Oil sands projects, including Horizon, Fort Hills, and Hebron, continue to drive production growth in the forecast. EIA does not expect any additional production from new upstream projects to come online during the forecast period, only expansions of existing projects.

EIA expects Brazil's petroleum and other liquid fuels production to grow by more than 0.3 million b/d in 2019 and by 0.2 million b/d in 2020. The main driver of growth in 2018 was the addition of four floating, production, storage, and offloading vessels (FPSOs). Similarly, the addition of at least five more FPSOs will continue to drive growth through 2020. Continued emphasis on the development of pre-salt resources and implementation of previous reforms, including those to local content rules, could result in higher production growth during the forecast period. EIA believes the Santos Basin, particularly the Lula field, will produce enough

crude oil in the next two years to offset declines in Brazil's more mature onshore and offshore areas.

EIA expects that during the first several months of 2019, Russia will gradually reduce production from record high levels reached during the fourth quarter of 2018. The expected reductions are a result of the agreement that Russia and other non-OPEC countries reached with OPEC members in December 2018. EIA then expects production growth in Russia to resume in the second half of 2019 and continue into 2020.

Another source of growth for non-OPEC petroleum and other liquid fuels production in the forecast period is Kazakhstan, where EIA forecasts production to ramp up in 2019 to peak production levels at the Kashagan field. Norway's production is expected to be mostly flat in 2019 and then increase by 0.1 million b/d in 2020 when the Martin Linge field and a number of smaller fields are scheduled to come online. Phase 1 of the Johan Sverdrup field, scheduled to come online by the end of 2019, drives most of the production growth in 2020. At its peak, Phase 1 will produce 0.4 million b/d. Australia, Qatar, and the United Kingdom are also expected to increase liquid fuels production in the forecast. EIA forecasts the largest declines among non-OPEC producers to be in Mexico, Indonesia, and Egypt.

OPEC Petroleum and Other Liquid Fuels Supply. At OPEC's meeting in June 2018, the group noted it had exceeded its previous targets for production cuts set in late 2016 and asked its members to keep reductions at targeted levels. As a result, OPEC crude oil production increased during the second half of 2018, contributing to rising global oil inventories and falling crude oil prices. In light of these market conditions, on December 7, 2018, OPEC producers and non-OPEC participants (OPEC+) announced a 1.2 million b/d cut relative to October 2018 production levels that would begin in January 2019.

EIA's production forecast does not assume full compliance with the December 2018 cuts, although EIA expects the level of production cuts will contribute to the global markets returning to more balanced conditions during the second half of 2019. EIA expects that OPEC crude oil output will decrease by 1.0 million b/d on average in 2019 and will remain flat in 2020.

Qatar left OPEC effective on January 1, 2019. Starting with this edition of STEO, Qatar's crude oil and other liquid fuels production will be included in the non-OPEC data for both history and forecast. In 2018, EIA estimates that Qatar's crude oil production averaged about 610,000 b/d, with an additional 1.3 million b/d in non-crude liquids production.

Iraq is one of the main sources of production growth among OPEC members in the extended forecast period. EIA expects increasing production capacity at the northern Kirkuk fields and a resumption of Baghdad-administered exports through the Iraqi-Kurdistan pipeline will help alleviate export capacity issues and contribute to production growth. In addition, returning capacity at domestic refineries will increase domestic crude oil demand.

After the May 2018 announcement of the U.S. withdrawal from the Joint Comprehensive Plan of Action (JCPOA) and reinstatement of sanctions on Iran in November 2018, EIA estimates that

Iranian crude oil and condensate production decreased significantly. By December 2018, Iranian crude oil production had declined by more than 1.0 million b/d from first quarter of 2018. Domestic Iranian consumption grew concurrently, as refineries increased output rates and power plants switched from natural gas to crude oil for electric power generation. For this reason, Iran's exports have fallen at a faster rate than production.

EIA assumes that U.S. sanctions on Iranian oil exports will remain in place through the end of the forecast period. Furthermore, the current forecast reflects an expectation that reduction exemption waivers issued to eight countries to continue buying Iranian oil will not be extended past May 2019.

Following reinstated sanctions on Iran and decreasing production in Venezuela, Saudi Arabia significantly increased production in the latter half of 2018, producing almost 0.8 million b/d more in November 2018 than in January 2018. On average, Saudi Arabia produced 10.4 million b/d in 2018, and EIA forecasts average Saudi production to fall below that level in 2019 and in 2020 as it complies with the latest OPEC+ production cut agreement.

As of December 2018, Venezuela's crude oil production stood at about 1.2 million b/d, near its lowest level since early 2003, when volumes fell as a result of a general strike. EIA expects Venezuela's production to continue to fall through the forecast period—albeit at a slower overall rate of decline—while the financial situation of the state-owned *Petróleos de Venezuela* (PdVSA) remains extremely precarious. Venezuela, which relies heavily on oil revenues, has seen its cash income severely constricted because only about half of its crude oil exports generate cash revenues. The rest is used for in-kind loan payments, which become less valuable with lower global oil prices. Venezuela's oil revenue is also reduced by ongoing payments to ConocoPhillips following an arbitration agreement about its seized assets and to holders of PdVSA's 2020 bonds.

In Africa, EIA expects production to increase in Angola and Nigeria through 2020. Angola's Kaombo field began production in 2018, with the second phase set to begin production in early 2019, and the Vandumbu field also came online in late 2018 ahead of schedule. Nigeria is expected to begin production at its offshore Egina project in early 2019. Libya saw production gains in 2018, albeit at marginal levels, as a result of production re-starts and development of new or previously shut-in wells. Although Libya's 2018 production level was the highest since 2012, supply disruptions will remain a significant risk during the forecast unless the security situation in the country improves.

OPEC non-crude oil liquids production averaged 5.3 million b/d in 2018 and EIA forecasts that it will remain roughly flat in 2019, and then decrease by 0.2 million b/d in 2020. The decrease in crude oil liquids next year is the result of lower expected condensate output in Iran.

OPEC unplanned crude oil supply disruptions averaged 2.2 million b/d in December 2018, an increase of 0.3 million b/d from November. The increase in outages mainly reflects new supply disruptions in Libya. In mid-December, Libya's National Oil Corporation issued a *force majeure* at El-Sharara after armed local militia attacked the oil field; the field remains occupied by local

militia. Crude oil production in Nigeria has also been affected by issues related to its oil infrastructure. In mid-2018, both the Nembe Creek Trunk Line and the Trans-Forcados pipeline were shut down to repair leaks to its pipelines, which took about three months to complete.

EIA expects that OPEC surplus crude oil production capacity, which averaged 1.5 million b/d in 2018, will increase to 1.9 million b/d in 2019 and to 2.3 million b/d in 2020. This estimate does not include additional capacity that may be available in Iran but is offline because of U.S. sanctions on Iranian oil sales.

OECD Petroleum Inventories. EIA estimates that OECD commercial crude oil and other liquid fuels inventories were 2.9 billion barrels at the end of 2018, equivalent to about 61 days of consumption. EIA expects OECD inventories to rise to just under 3.0 billion barrels at the end of 2019 and then rise to more than 3.0 billion barrels at the end of 2020.

Crude Oil Prices. The spot price of Brent crude oil averaged \$57/b in December, down from an average of \$81/b in October 2018, which was the highest level since October 2014. The price decline in late 2018 largely reflected rising oil inventories as a result of record levels of crude oil production from the United States, Russia, and Saudi Arabia. Prices also fell as a result of uncertainties about global economic indicators and future oil demand growth.

Although OPEC+ producers announced in early December plans to cut production starting in January 2019, Brent crude oil prices continued to fall after the announcement. The price declines possibly reflected market expectations that announced production decreases would not be enough to offset increasing production levels in North America, along with the potential for weakening global oil demand growth, which could lead to continued growth in global oil inventory levels.

EIA estimates that global petroleum and other liquid fuels inventories rose by an average of 0.4 million b/d in 2018 and by an estimated 1.0 million b/d in the fourth quarter of 2018. EIA expects [strong growth in U.S. and other non-OPEC liquid fuels production](#) will contribute to global oil inventory growth of 0.2 million b/d in 2019 and 0.4 million b/d in 2020. However, EIA expects some of these inventories to be unavailable to the market because they will be the result of Iran increasing floating storage of crude oil that it cannot sell as a result of U.S. sanctions.

Given the expectation of relatively balanced markets in 2019 and 2020, with modest inventory builds, EIA forecasts Brent crude oil prices will remain lower than levels experienced during most of 2018, averaging \$61/b in 2019 and \$65/b in 2020. Although prices are forecast to remain lower than those experienced during most of 2018, some upward price movements from December 2018 price levels are expected to emerge in early 2019 from the need for global oil inventories to rise slightly to keep pace with demand growth and maintain five-year average levels of demand cover. Additional upward price moves are forecast in late 2019 and early 2020 because of an increase in refinery demand for light-sweet crude oil as a result of IMO regulations.

Daily and monthly average crude oil prices could vary significantly from annual average forecasts because global economic developments and geopolitical events in the coming months have the potential to push oil prices higher or lower than the current STEO price forecast. Uncertainty remains regarding how much oil the U.S. sanctions on Iran will take off the market following the expiration of waivers in the first half of 2019. In addition, questions remain regarding the duration of, and adherence to, the current OPEC+ production cuts. Developments regarding the rate of economic growth and its effect on global oil demand growth further contribute to price uncertainty. Also, although EIA expects crude oil price impacts from IMO regulations starting in 2020 to be limited, there remain many unknowns about how the global refining and shipping industries will respond, and actual outcomes of these decisions will affect crude oil prices. Finally, the U.S. tight oil sector continues to be dynamic, and quickly evolving trends in this sector could affect both current crude oil prices and expectations for future prices.

After averaging more than \$10/b during October 2018, the discount of West Texas Intermediate (WTI) crude oil prices to Brent fell to an average of \$8/b in December. Average WTI crude oil prices are forecast to be \$6/b lower than Brent prices in 2019 and \$4/b lower than Brent prices in 2020. The price discount of WTI to Brent in the forecast is based on the assumption that [increasing crude oil production in the Permian Basin](#) and [current constraints on the capacity to transport crude oil](#) from production areas in West Texas and from Cushing, Oklahoma, to refineries and export terminals along the U.S. Gulf Coast will persist until mid-2019. At that point, EIA expects that new takeaway capacity will come online from West Texas to the Gulf Coast that will reduce current distribution bottlenecks throughout Texas and Oklahoma.

The current values of futures and options contracts suggest significant uncertainty in the oil price outlook. WTI futures contracts for April 2019 delivery that were traded during the five-day period ending January 10 averaged \$51/b, and implied volatility averaged 44%. These levels established the lower and upper limits of the 95% confidence interval for the market's expectations of monthly average WTI prices in April 2019 at \$36/b and \$73/b, respectively. The 95% confidence interval for market expectations widens over time, with lower and upper limits of \$28/b and \$101/b, respectively, for prices in December 2019.

U.S. Liquid Fuels

Consumption. EIA forecasts that total U.S. petroleum and other liquid fuels consumption will average 20.8 million barrels per day (b/d) in 2019, an increase of 310,000 b/d (1.5%) from the 2018 level. Consumption is forecast to grow by 240,000 b/d (1.1%) in 2020. Higher forecast consumption of hydrocarbon gas liquids (HGL) is the primary reason for the growth.

HGL consumption increased by an estimated 330,000 b/d (12.6%) in 2018 and EIA expects it to increase by 160,000 b/d (5.5%) in 2019 and by 180,000 b/d (5.7%) in 2020. Ethane, used as a petrochemical feedstock, is expected to be responsible for most of the growth in HGL consumption. Ethane consumption increased by an estimated 230,000 b/d in 2018 because several [new petrochemical steam cracking plants](#) ramped up operations. EIA anticipates that several more plants, which are currently under construction, will begin operations within the

forecast period, resulting in ethane consumption increasing by 180,000 b/d in 2019 and by another 160,000 b/d in 2020.

Motor gasoline consumption in the United States is forecast by EIA to increase slightly in 2019, averaging more than 9.3 million b/d. If realized, this level would represent the highest annual average U.S. motor gasoline consumption on record. Motor gasoline consumption is supported by growth in income and employment. Forecast real disposable income increases by 2.9% in 2019 and by 2.5% in 2020, and forecast employment grows by 1.5% and 1.1%, respectively, during those years. Retail gasoline prices for all grades are forecast to decline by 8.3% compared with 2018 levels, which also contributes to motor gasoline consumption growth in 2019. In 2020, gasoline prices are expected to rise by 6.2%, which, along with rising vehicle fuel efficiency, offsets employment growth effects and keeps forecast gasoline demand unchanged compared with 2019.

Distillate fuel consumption in the United States is expected by EIA to rise by 0.6% in 2019 and 0.7% in 2020, averaging about 4.2 million b/d in both years. In 2019, rising U.S. distillate fuel consumption results from forecast economic growth. In 2020, distillate consumption growth reflects expectations of rising economic growth, along with a small expected shift to use of marine diesel for bunkering purposes as a result of IMO regulations.

EIA forecasts U.S. jet fuel consumption to grow in by 4.2% in 2019 and by 1.3% in 2020, reaching more than 1.8 million b/d. Growth in the demand for air travel is a result, in part, of expectations of rising disposable income.

U.S. residual fuel use is expected to decline by 0.9% in 2020 according to the EIA forecast. The small declines in 2020 reflect a shift away from high-sulfur residual fuel oil for bunkering purposes towards marine diesel fuel.

Crude Oil Supply. EIA estimates that U.S. crude oil production averaged 10.9 million b/d in 2018, up 1.6 million b/d from 2017, surpassing the previous record level of annual production set in 1970. EIA forecasts total U.S. crude oil production to average 12.1 million b/d in 2019, up 1.1 million b/d from 2018. In 2020, crude oil production is forecast to average 12.9 million b/d. If the domestic and global forecasts are realized, crude oil production at these levels would allow the United States to maintain its status as the world's leading crude oil producer in both years.

Increased crude oil production from tight rock formations within the Permian region in Texas and New Mexico accounts for 0.6 million b/d of the U.S. total growth expected by EIA in 2019, and 0.5 million b/d in 2020. The remaining increase comes from the Bakken, Eagle Ford, Niobrara, and Anadarko regions and also from the Federal Gulf of Mexico.

EIA expects the Permian region to produce 4.8 million b/d of crude oil by the end of 2020, which is about 1.0 million b/d more than estimated December 2018 levels and would represent about 36% of total U.S. crude oil production at the end of 2020. Favorable geology and technological and operational improvements have allowed the Permian to become one of the most economic regions for oil production. However, the forecast annual growth rate in 2019 is 0.6 million b/d,

which is 0.4 million b/d slower than in 2018. The flattening of the growth rate reflects increasing pipeline capacity constraints in the Permian region, which are expected to lower wellhead prices for the region's oil producers and to have a dampening effect on Permian's full production potential in the short term. The widening spread between WTI-Cushing and WTI-Midland crude oil prices contributes to reduce drilling activity growth through the forecast period, which, in turn, slows the rate of forecasted crude oil production growth. In addition, lower forecast WTI price levels in 2019 and in 2020, compared with 2018, lead to an expectation for a slower growth rate. However, with the expectation that pipeline capacity constraints in the Permian are expected will be alleviated in the second half of 2019, EIA forecasts that growth will accelerate on a monthly basis into 2020.

Production in the Eagle Ford region is forecast by EIA to increase by almost 90,000 b/d to 1.4 million b/d in 2019 and then fall slightly in 2020. The Eagle Ford region covers a significantly smaller geographic area with fewer prolific formations and fewer opportunities to drill compared with the Permian region. Although the Eagle Ford region does not have the same pipeline capacity constraints as the Permian region, it is more strongly affected by lower overall WTI-Cushing prices because of its less favorable geology.

EIA estimates the Bakken region, located mostly in North Dakota, produced 1.3 million b/d in 2018 and that production will increase to 1.4 million b/d in 2019 and nearly 1.5 million b/d in 2020. Recent growth in the region reflects the removal of pipeline capacity constraints that affected the region before 2017. However, the Bakken region contains fewer identified prolific formations than the Permian region and is more significantly affected by lower prices and winter weather. Growing capacity constraints for natural gas capture in the region are expected to reduce production growth until the end of 2019, compared with an unconstrained environment.

EIA expects production from the Federal Gulf of Mexico to average of 1.9 million b/d in 2019 and 2.2 million b/d in 2020, up from an average of 1.7 million b/d in 2018. In 2018, 11 new projects came online contributing to record high production in the region. In 2019, 6 more projects are expected to come online, and 12 more projects are expected to start up in 2020.

Elsewhere, EIA expects growth from 2018 through 2020 in the Niobrara and Anadarko regions. Crude oil production in Alaska is expected to remain flat at 0.5 million b/d in 2019 and in 2020.

Hydrocarbon Gas Liquids Supply. EIA forecasts [HGL production at natural gas processing plants](#) will increase from an estimated 4.4 million b/d in 2018 to 5.0 million b/d in 2019 and to 5.3 million b/d in 2020. HGLs produced at natural gas plants—ethane, propane, butanes, and natural gasoline—are expected to increase along with growth in natural gas production and natural gas processing plant capacity. EIA expects ethane to contribute nearly half of the 900,000 b/d HGL production growth between 2018 and 2020. Higher rates of ethane recovery at natural gas processing plants are expected to help meet growing demand for ethane as a petrochemical feedstock in the United States and abroad.

Liquid Biofuels. On November 30, 2018, the U.S. Environmental Protection Agency (EPA) finalized a rule setting Renewable Fuel Standard (RFS) volumes for 2019 and biomass-based

diesel volumes for 2020. EIA used these final volumes to develop the forecasts for 2019 and 2020. EIA expects that the largest effect of the current RFS targets, along with recent duties placed on biodiesel imports, will be on biomass-based diesel production and net imports, which help to meet the RFS targets for use of biomass-based diesel, advanced biofuel, and total renewable fuel. Biodiesel production averaged an estimated 123,000 b/d in 2018 and is forecast to increase to an average of 144,000 b/d in 2019 and to 158,000 b/d in 2020. Largely because of duties imposed on foreign biodiesel imports from Argentina and Indonesia in late 2017, net imports of biomass-based diesel fell from an estimated 32,000 b/d in 2017 to 16,000 b/d in 2018 and are expected remain near that level in 2019 and in 2020.

U.S. ethanol production averaged an estimated 1.05 million b/d in 2018 and EIA forecasts that it will average about 1.04 million b/d in both 2018 and 2019 as a result of low ethanol producer margins and limited domestic growth potential. Ethanol consumption averaged about 940,000 b/d in 2018 and is forecast by EIA to increase slightly to 950,000 b/d in 2019 and in 2020 driven by increasing motor gasoline consumption. This level of consumption results in the ethanol share of the total gasoline pool increasing slightly from 10.1% in 2018 to 10.2% in 2020. This stable ethanol share assumes growth in higher-level ethanol blends is limited by recently waived volumes of renewable fuel required under the RFS by way of numerous Small Refinery Exemptions, depressing D6 Renewable Identification Number (RIN) prices and limiting the demand for higher levels of ethanol blending beyond 10% of gasoline (i.e., E10).

Product Prices. EIA expects the retail price of regular gasoline in the United States to average \$2.30 per gallon (gal) during the first quarter of 2019, 28 cents/gal lower than at the same time last year, primarily reflecting lower crude oil prices and lower refinery margins. EIA expects that the U.S. monthly retail price of regular gasoline will increase from an average of \$2.24/gal in January to a 2019 peak of \$2.59/gal in August before falling to \$2.42/gal in December 2019. The U.S. regular gasoline retail price, which averaged \$2.73/gal in 2018, is forecast to average \$2.47/gal in 2019 and \$2.62/gal in 2020.

Regional annual average forecast prices for 2019 range from a low of \$2.22/gal in the Gulf Coast region—[Petroleum Administration for Defense District \(PADD\) 3](#)—to a high of \$2.94/gal in the West Coast region (PADD 5).

Refinery wholesale gasoline margins in the United States (the difference between the wholesale price of gasoline and the price of Brent crude oil) averaged 13 cents/gal in December. This level was lower than the 19 cents/gal average in December 2017 and 8 cents/gal lower than the five-year (2013–17) average for December. Refinery wholesale gasoline margins averaged 28 cents/gal in 2018, which was 12 cents/gal lower than the 2017 level and 8 cents/gal lower than the five-year average. EIA expects refinery wholesale gasoline margin to average 29 cents/gal in 2019 and 33 cents/gal in 2020.

The diesel fuel retail price averaged \$3.18/gal in 2018, which was 53 cents/gal higher than the average in 2017. EIA forecasts that the diesel price will average \$2.94/gal in 2019 and \$3.13/gal in 2020. The rising prices from 2019 to 2020 reflect a forecast increase in crude oil prices, tight

distillate fuel inventory levels, and increasing diesel refinery margins driven by impending IMO 2020 regulations. EIA expects that low-sulfur IMO regulations set to begin in 2020 will drive global demand for U.S. ultra-low sulfur diesel volumes and contribute to gradually increasing diesel refinery margins. Diesel refinery margins based on Brent crude oil, which averaged 43 cents/gal in 2018, are expected to average 48 cents/gal in 2019 and 65 cents/gal in 2020.

Natural Gas

Natural Gas Consumption. Total U.S. natural gas consumption averaged an estimated 81.6 billion cubic feet per day (Bcf/d) in 2018, and EIA expects it to increase by 1.1 Bcf/d (1.3%) in 2019 and then increase by a further 0.9 Bcf/d (1.1%) in 2020.

The largest natural gas consuming sector in the United States is the electric power sector. EIA estimates that electric generation consumed an average of 29.0 Bcf/d in 2018, up 14.4% from 2017 because of warm summer temperatures in 2018 and the addition of natural gas-fired electric generation capacity. EIA forecasts power sector consumption of natural gas to remain largely unchanged in 2019 and then rise by 3.3% in 2020 because of continuing increases in natural gas-fired electric generation capacity.

In 2019, EIA expects residential and commercial natural gas consumption to average 13.4 Bcf/d and 9.3 Bcf/d, respectively, which are similar to consumption levels in 2018. Based on forecasts by the National Oceanic and Atmospheric Administration (NOAA), EIA forecasts 2019 heating degree days (HDD) to be 1% lower compared with 2018. The [cold weather](#) in the first quarter of 2018 raised natural gas consumption higher than seasonal norms in the residential and commercial sectors in the Northeast. Natural gas consumption in the residential and commercial sectors is expected to decline by 2.2% and by 3.2%, respectively, in 2020. The forecast decline in 2020 reflects NOAA's outlook for 1% fewer HDDs in 2020 compared with 2019.

EIA forecasts U.S. industrial sector consumption of natural gas to rise by 2.0% in 2019 and by 0.9% in 2020. Most of the increase in the forecast is attributable to new chemical projects. Low natural gas prices in recent years have made it economical to increase the use of natural gas as feedstock in ammonia for nitrogenous fertilizer and methanol manufacturers. According to S&P Platts, three methanol plants are currently under construction with in-service dates in 2019 and in 2020. The combined capacity of the three plants is almost 3.3 million metric tons per year, a 45% increase from the current U.S. capacity. Big Lake 1 in Louisiana and Liberty One 1 in West Virginia are expected to enter service in 2019. The Big Lake facility will convert dry natural gas into methanol, then to conventional gasoline. Liberty One 1 is a facility relocation from Rio De Janeiro, Brazil. Yuhuang's St. James 1 methanol plant is expected to enter service in mid-2020, and it would be the second-largest methanol facility in the United States, after the facility in Beaumont, Texas, which entered service in June 2018.

Natural Gas Production and Trade. EIA estimates that dry natural gas production will average 90.2 Bcf/d in 2019, an 8.3% increase from 2018 levels. In 2020, production is expected to increase by 2.2%, averaging 92.2 Bcf/d for the year. EIA's expected growth in natural gas production is largely in response to improved drilling efficiency and cost reductions, higher

associated gas production from oil-directed rigs, and increased takeaway pipeline capacity from the highly productive Appalachia and Permian production regions. Forecast natural gas production growth is supported by planned expansions in liquefied natural gas (LNG) capacity and increased pipeline exports to Mexico.

The United States exported more natural gas than it imported in 2018, with net exports averaging 2.1 Bcf/d. Rising LNG exports and pipeline exports have contributed to a shift from the United States being a net importer of natural gas as recently as the first quarter of 2017. U.S. exports of natural gas, including exports to Mexico and Canada via pipeline and as LNG, averaged 10.0 Bcf/d in 2018. EIA forecasts that gross U.S. exports will rise by 31.5% to 13.2 Bcf/d in 2019 and then by 15.1% to 15.2 Bcf/d in 2020.

EIA expects U.S. LNG exports to increase from an estimated 3.0 Bcf/d in 2018 to 5.1 Bcf/d in 2019 and to 6.8 Bcf/d in 2020, as three new liquefaction projects come online. EIA forecasts that U.S. LNG export capacity will almost double by the end of 2019 to 8.9 Bcf/d once new trains at Cameron LNG, Freeport LNG, and Elba Island LNG are commissioned, making U.S. LNG export capacity the third largest in the world behind Australia and Qatar. By mid-2020, EIA expects U.S. LNG export capacity to reach 9.6 Bcf/d once the third train at Freeport LNG comes online and to expand to 10.2 Bcf/d by mid-2020 once the third train at Corpus Christi LNG comes online.

U.S. natural gas exports to Mexico via pipeline have also increased as more infrastructure has been built to transport natural gas both to and within Mexico. U.S. pipeline exports to Mexico through October averaged 4.6 Bcf/d, increasing by 10% in 2018 compared with the same period in 2017. Exports to Mexico should continue to increase as more natural gas-fired power plants come online in Mexico and more pipeline infrastructure within Mexico is built.

U.S. net natural gas pipeline imports from Canada decreased from 2017 to 2018. This decrease in net imports is expected to continue as Appalachian production growth displaces some Canadian natural gas imports in the U.S. Midwest markets.

Natural Gas Inventories. As of January 4, 2019, U.S. working gas inventories were 2,614 Bcf, 7% lower than their year-ago level and 15% lower than the five-year (2014–18) average level. Based on an assumption of relatively normal temperatures in the first quarter of 2019, along with a forecast of growing natural gas production, EIA forecasts that inventories will be 1,405 Bcf at the end of March, which would be 15% lower than the five-year average for that time of year. EIA expects inventory injections to exceed the five-year average rate, as production outpaces consumption from the end of March through October, bringing inventories to a projected 3,758 Bcf at the end of October 2019, which would be slightly above the previous five-year average for the end of October and 16% more than at the end of October 2018.

Natural Gas Prices. Henry Hub spot prices averaged \$3.15 per million British thermal units (MMBtu) in 2018, up 16 cents/MMBtu from 2017 levels. EIA forecasts that Henry Hub natural gas spot prices will average \$2.89/MMBtu in 2019 and \$2.92/MMBtu in 2020. Forecast prices are lower than 2018 levels as expected production growth keeps pace with demand and export growth and inventories build faster than the five-year average. Natural gas futures contracts for

April 2019 delivery that were traded during the five-day period ending January 10 averaged \$2.69/MMBtu. Current options and futures prices indicate that market participants place the lower and upper bounds for the 95% confidence interval for April 2019 contracts at \$2.06/MMBtu and \$3.53/MMBtu, respectively. Last year at this time, the natural gas futures contracts for April 2018 delivery averaged \$2.75/MMBtu, and the corresponding lower and upper limits of the 95% confidence interval were \$2.01/MMBtu and \$3.75/MMBtu, respectively.

Coal

Coal Supply. EIA estimates that coal production declined by 20 million short tons (MMst) (3%) in 2018, despite a 19 MMst increase in U.S. coal exports. Appalachian region coal production, based largely on the strength of growth in coal exports, increased for the second year in a row, but Interior and Western region production declined by 5% and 3% in 2018, respectively. In both 2019 and in 2020, EIA expects total U.S. coal production to decline by 3% and 7%, respectively, because of anticipated declines in both exports and domestic consumption. The 2020 forecast production of 680 MMst would be the first time annual production totaled less than 700 MMst since 1978.

Coal Consumption. EIA estimates that coal consumption in the electric power sector for 2018 declined by 24 MMst (4%), despite a 4% increase in overall electricity generation. EIA expects power sector coal consumption to decline by 52 MMst (8%) in 2019 and by 44 MMst (7%) in 2020. The decrease in power sector consumption reflects increasing shares of electricity generation from both natural gas and renewable energy sources.

Coal Trade. The United States, with excess coal production and export terminal capacity, is a swing supplier of coal to the global market. When market conditions are favorable (high global coal prices, low shipping costs, disruptions in supply from other exporters, and/or increased demand from major consumers), U.S. coal exports often expand. However, exports often contract with a reversal of these market factors. EIA estimates that U.S. coal exports were 116 MMst in 2018, 20% higher than the amount exported in 2017, marking the fourth time on record that annual exports exceeded 110 MMst. EIA expects that some market conditions that favor U.S. coal exports will diminish and forecasts that coal exports will decline to 102 MMst in 2019 and to 94 MMst in 2020.

Despite EIA's overall forecast decline in U.S. coal exports, [exports to Asia](#), particularly to India, Japan, and South Korea, are expected to remain strong. Exports to these three countries accounted for 33% (29 MMst) of the [coal exported in 2018 through September](#). Coal exports to other countries/regions have also increased recently. U.S. coal exports to North Africa, particularly Egypt and Morocco, have risen, and they accounted for 7% of total exports in 2018 through September. Comparatively, coal exports to Canada and Mexico accounted for 9% of total exports during the same period.

Coal Prices. EIA estimates the delivered coal price to U.S. electricity generators averaged \$2.07 per million British thermal units (MMBtu) in 2018, which was 1 cent/MMBtu higher than the 2017 price. EIA forecasts that coal prices will be close to the same in 2019 and in 2020.

Electricity

Electricity Consumption. EIA expects annual retail sales of electricity to the U.S. residential sector in 2019 to be 3.1% lower than residential sales in 2018, primarily as a result of milder expected summer temperatures this year. The National Oceanic and Atmospheric Administration (NOAA) projects that total U.S. cooling degree days (CDD) during 2019 will be 13% lower than in 2018. NOAA expects that U.S. heating degree days (HDD) will be slightly lower in 2019 than in 2018, contributing to the lower residential consumption forecast in 2019.

The milder expected summer weather in 2019 also affects the forecast for retail sales of electricity to the commercial sector, which is expected to decline by 0.7% this year. Reduced need for air conditioning in the commercial sector is partly offset by continued economic growth. EIA forecasts that industrial production by electricity-intensive industries will grow 3.7% in 2019 compared with 2.8% growth last year. This accelerated expansion contributes to EIA's forecast that retail sales of electricity to the industrial sector will grow by 0.9% in 2019.

NOAA forecast temperatures in 2020 are relatively close to the 10-year average, with 2020 HDDs falling slightly from 2019 and 2020 CDDs increasing slightly from 2019. EIA forecasts that residential and commercial electricity sales in 2020 will grow by 0.9% and 0.4%, respectively, as a result of an increasing number of retail customers and continued economic growth. Forecast industrial electricity sales fall by 0.3% in 2020 as growth in electricity-intensive industrial production slows.

Overall, EIA forecasts total electricity consumption to decline by 1.2% in 2019 from 2018 levels and then rise by 0.5% in 2020.

Electricity Generation. EIA expects total U.S. electricity generation across all sectors to average 11.3 gigawatthours per day (GWh/d) in 2019, which would be 1.9% less than generation last year. From 1980 through 2005, U.S. electricity generation grew by an average of 2.3% per year. During the past decade, power generation has grown relatively little, fluctuating at an annual average of about 11.2 GWh/d since 2010 with year-to-year changes related to weather. EIA forecasts U.S. electricity generation will grow by 0.3% between 2019 and 2020.

The share of U.S. electricity generation supplied by natural gas-fired power plants has increased significantly during the past decade, rising from 24% of total generation in 2010 to an estimated 35% in 2018. This increase in the share of generation has been offset by reduced generation from coal-fired power plants. Coal supplied 45% of U.S. generation in 2010, compared with an estimated 28% in 2018. Much of this change in the mix of generation is a result of sustained low prices for natural gas, which have made that fuel competitive with coal.

EIA expects this trend in the U.S. generation mix to generally continue. EIA forecasts that the natural gas-fired share of generation will average 36% in 2019 and 37% in 2020. The forecast share of generation from coal-fired power plants averages 26% in 2019 and 24% in 2020.

EIA expects the nuclear share of generation to average 19% in 2019 and then to fall slightly in 2020 in response to the planned retirement of generating units at the Pilgrim and Three Mile Island nuclear plants.

Renewables Generation and Capacity. Renewable generation provided 17% of total electricity generation in 2018, and EIA expects the share of generation from renewable sources to increase in 2019 to 18% and to 20% in 2020. Within the renewables category, hydropower was 7% of total generation in 2018 and EIA forecasts that it will be about that share in 2019 and in 2020. The share of total generation for renewables other than hydropower, which was 10% in 2018, is forecast to rise to 11% in 2019 and to 13% in 2020.

EIA forecasts almost 5 gigawatts (GW) of utility-scale solar photovoltaic (PV) capacity will be added in 2019 and 6 GW will be added in 2020. Also, EIA expects nearly 9 GW of small-scale solar PV capacity to be installed during 2019–20, mostly in the residential sector.

Domestic PV markets are still adjusting from several factors. Tariffs on PV modules imported into the United States started at 30% in January 2018 and are expected to decline 5 percentage points annually as they phase out over four years and expire completely after 2021. In addition, revised PV installation targets in China produced a near-term surplus of PV modules that the international market is still rebalancing. The Internal Revenue Service published a safe harbor provision for PV installations to qualify for a 30% investment tax credit, which allows for a four-year construction period upon project initiation (considered to be the start of physical construction or the expenditure of 5% of project value).

EIA expects wind capacity to increase from 96 GW at the end of 2018 to 107 GW at the end of 2019 and to 114 GW by the end of 2020. Because wind capacity is often added at the end of the calendar year, increases in generation frequently lag increases in capacity for the year they occur and are reflected in the generation for the next year.

The build out of new wind capacity through 2020 is strongly affected by the phase out of the federal Production Tax Credit (PTC) for wind, which began with projects under construction starting after 2016. Such projects take several years to complete, and the last tranche of projects eligible for the full \$25 per megawatt-hour tax credit will start to enter service in significant numbers in 2019. Activity will taper off in later years as projects started in 2016 approach the limit of their safe harbor provisions and as the construction pipeline begins to shrink, reflecting reduced PTC pay offs for projects beginning construction in 2017 and later.

Electricity Retail Prices. EIA's forecast U.S. retail electricity price for the residential sector averages 13.3 cents/kilowatt-hour in 2019, which is 2.7% higher than the average retail price in 2018. Forecast residential prices increase by an additional 1.8% in 2020. EIA expects commercial sector electricity prices to increase by 0.5% in 2019 and to fall by 0.1% in 2020, while forecast industrial prices increase by 0.3% and 1.1% during the next two years, respectively.

U.S. Economic Assumptions and Energy-Related Carbon Dioxide Emissions

Recent Economic Indicators. Real gross domestic product (GDP) increased at an annual rate of 4.2% in the second quarter of 2018 and 3.4% in the third quarter, according to [recent estimates released by the Bureau of Economic Analysis](#).

Production, Income, and Employment. EIA used the December 2018 version of the IHS Markit macroeconomic model with EIA's energy price forecasts as model inputs to develop the economic forecasts in STEO.

Using the IHS Markit model, EIA forecasts real GDP to grow by 2.7% in 2019 and by 2.0% in 2020, compared with 2.9% growth in 2018. Total industrial production is forecast to increase 3.2% in 2019 and 1.7% in 2020—down from 3.9% growth in 2018. Nonfarm employment, which grew by an estimated 1.6% in 2018, is forecast to increase by 1.5% in 2019 and by 1.1% in 2020.

Expenditures. Using the IHS Markit model, EIA forecasts private real fixed investment to grow by 3.0% in 2019 and by 3.8% in 2020, compared with 5.2% growth estimated for 2018. Real consumption expenditures, which grew by an estimated 2.7% in 2018, are forecast to grow by 3.0% in 2019 and by 2.6% in 2020.

Using the IHS Markit model, EIA forecasts U.S. exports to grow by 3.9% in 2019 and by 4.7% in 2020, compared with 4.1% growth in 2018. Imports are forecast to grow by 6.4% in 2019 and by 7.1% in 2020, compared with 4.8% growth in 2018. Total government expenditures are forecast to increase by 2.6% in 2019 and by 0.9% in 2020, compared with an increase of 1.7% in 2018.

Energy-Related Carbon Dioxide Emissions. After increasing by 2.8% in 2018, EIA forecasts that energy-related carbon dioxide (CO₂) emissions will decrease by 1.2% in 2019 and further decrease by 0.8% in 2020. Energy-related CO₂ emissions are sensitive to changes in weather, economic growth, energy prices, and fuel mix. In 2018 the winter was colder and the summer hotter than in 2017, and the economy grew by almost 3%—contributing to higher CO₂ emissions. As forecast weather is closer to normal and economic growth moderates, emissions are forecast to decline. Also, the change in fuel mix for electricity generation helps to dampen CO₂ emissions growth in 2019 and 2020.

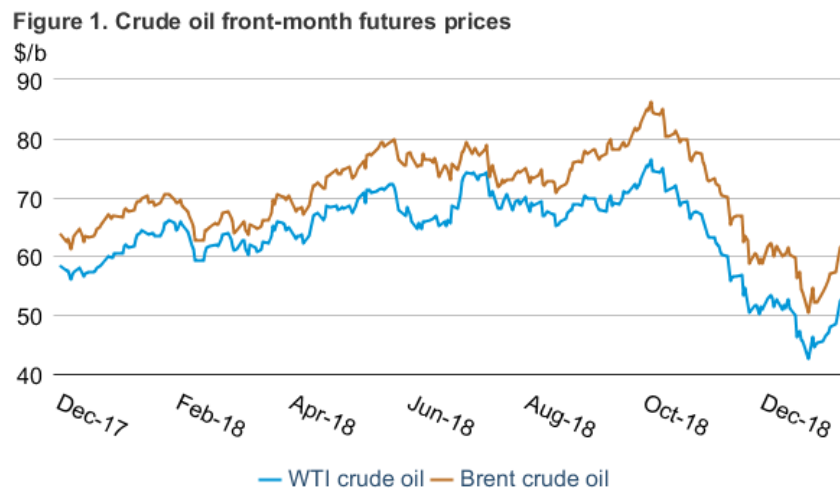
Notable forecast changes

- For more information, see the [detailed table of forecast changes](#).

Petroleum and natural gas markets review

Crude oil

Prices: The front-month futures price for Brent crude oil settled at \$61.68 per barrel (b) on January 10, 2019, a decrease of 1 cent/b from December 3, 2018. The front-month futures price for West Texas Intermediate (WTI) crude oil for delivery at Cushing, Oklahoma, decreased by 36 cents/b during the same period, settling at \$52.59/b on January 10 (**Figure 1**).

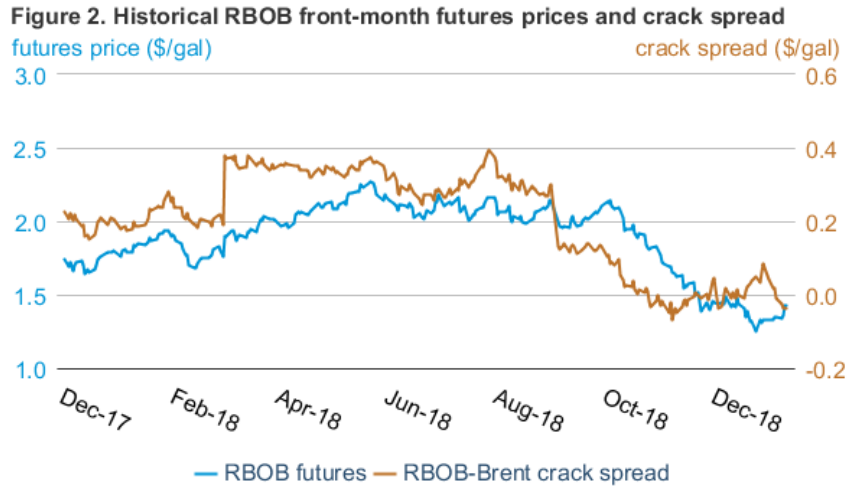


 CME Group and Intercontinental Exchange, as compiled by Bloomberg L.P.

After stabilizing briefly following the Organization of the Petroleum Exporting Countries' (OPEC) [agreement](#) in early December to voluntarily reduce oil production starting in January 2019, crude oil prices rapidly declined in the final weeks of 2018. Historical crude oil futures price volatility reached its highest levels since the first quarter of 2016. Similar to that quarter, recent weakness in global economic indicators could indicate a slowdown in economic growth and oil demand. China's manufacturing [Purchasing Managers' Index](#) for [December](#) fell to 49.7, where any reading below 50 indicates a contraction in manufacturing activity. Recent trade data show, however, that OPEC crude oil exports declined about 10% from November to December, suggesting OPEC members began reducing oil production ahead of the scheduled reductions in 2019. These supply reductions may have contributed to the oil price increase at the beginning of January, returning to levels just before the December 7 OPEC meeting.

Petroleum products

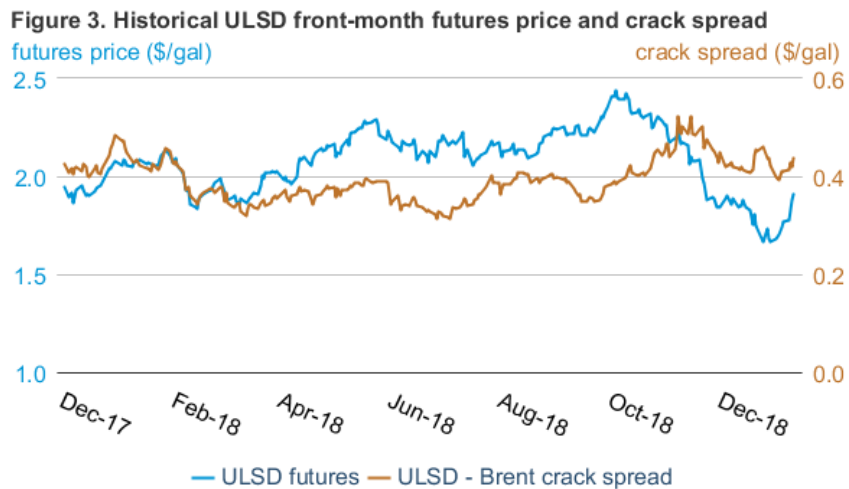
Gasoline prices: The front-month futures price of reformulated blendstock for oxygenate blending (RBOB, the petroleum component of gasoline used in many parts of the country) settled at \$1.43 per gallon (gal) on January 10 (**Figure 2**), mostly unchanged from December 3. The RBOB–Brent crack spread (the difference between the price of RBOB and the price of Brent crude oil) was also mostly unchanged during the same period, settling at -4 cents/gal.



eia CME Group, as compiled by Bloomberg L.P., RBOB=reformulated blendstock for oxygenate blending

The RBOB–Brent crack spread averaged 1 cent/gal in December, the lowest for that month since 2008. STEO estimates U.S. gasoline consumption decreased 2% year-over-year in December, bringing estimates of full-year 2018 U.S. gasoline consumption to show a decline compared with 2017, the [first annual decline](#) since 2012. Exports continue to remain an important source of demand growth for U.S. refiners, however. Weekly estimates of gasoline exports reached an [all-time high](#) in early December, totaling more than 1.3 million barrels per day.

Ultra-low sulfur diesel prices: The ultra-low sulfur diesel (ULSD) front-month futures price for delivery in New York Harbor settled at \$1.91/gal on January 10 (**Figure 3**), an increase of 2 cents/gal from December 3. The ULSD–Brent crack spread (the difference between the price of ULSD and the price of Brent crude oil) increased by 2 cents/gal to settle at 44 cents/gal during the same period.

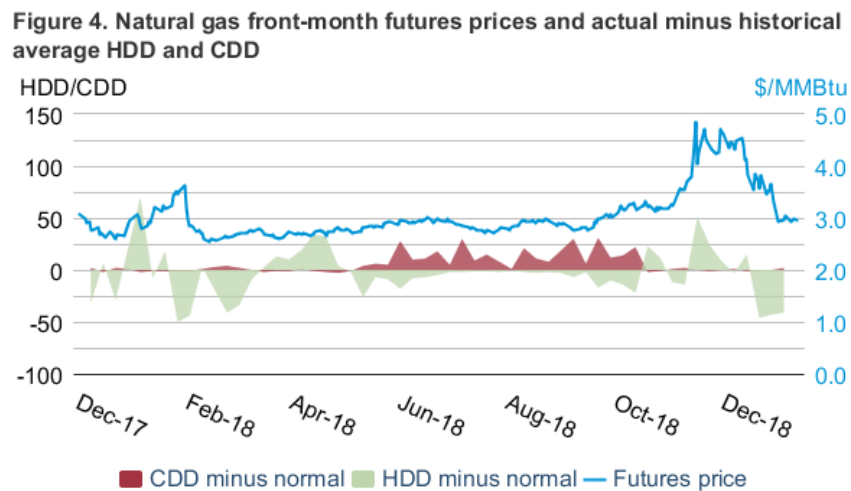


eia CME Group, as compiled by Bloomberg L.P., ULSD=ultra-low sulfur diesel

ULSD–Brent crack spreads fell in late December, but remained higher than the five-year (2013–17) average for December, averaging 43 cents/gal. STEO estimates U.S. distillate consumption was virtually unchanged year-over-year in December, at 4 million b/d, but estimates of full-year distillate consumption in 2018 were at the [highest levels since 2007](#). Distillate inventories were 5% less than the five-year average at the end 2018, which could contribute to higher distillate prices or crack spreads if colder-than-normal weather leads to higher home heating oil consumption in the coming months.

Natural Gas

Prices: The front-month natural gas futures contract for delivery at the Henry Hub settled at \$2.97/million British thermal units (MMBtu) on January 10, a decrease of \$1.37/MMBtu from December 3 (**Figure 4**). Colder-than-normal weather and below-average inventory levels resulted in higher prices and [volatility](#) in November and through early December. However, milder temperatures in the second half of December contributed to substantial decreases in prices, returning them to September levels. For the three weeks ending January 3, U.S. heating degree days were 20% less than normal. The moderate weather also helped to slow the rate of inventory withdrawals. Natural gas inventory withdrawals were 256 billion cubic feet (Bcf) less than the previous five-year average for the three weeks ending January 4, helping to narrow the deficit from the five-year average to 464 Bcf for the week ending January 4 from 725 Bcf for the week ending November 30.



 CME Group and National Oceanic and Atmospheric Administration, as compiled by Bloomberg L.P.

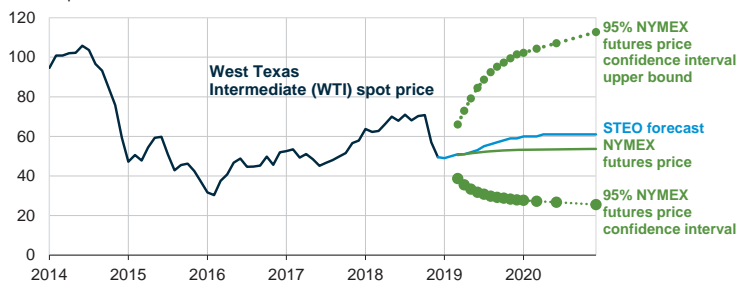
This report was prepared by the U.S. Energy Information Administration (EIA), the statistical and analytical agency within the U.S. Department of Energy. By law, EIA's data, analyses, and forecasts are independent of approval by any other officer or employee of the United States Government. The views 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 for January 2019

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

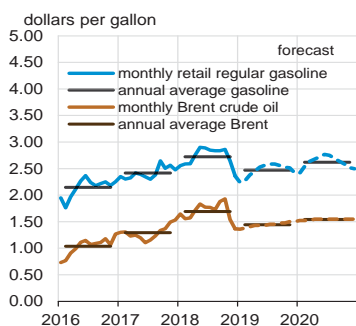


Note: Confidence interval derived from options market information for the five trading days ending Jan 10, 2019. Intervals not calculated for months with sparse trading in near-the-money options contracts.

Source: Short-Term Energy Outlook, January 2019, and CME Group

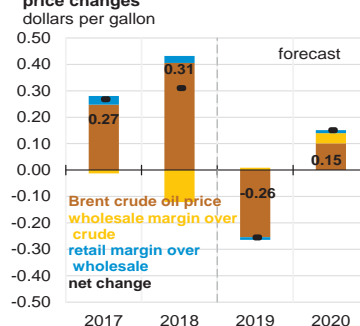


U.S. gasoline and crude oil prices

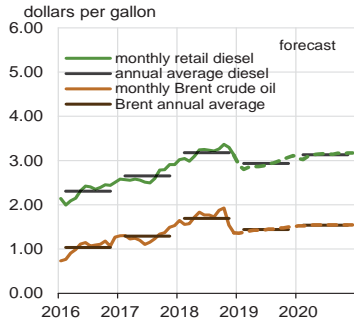


Source: Short-Term Energy Outlook, January 2019

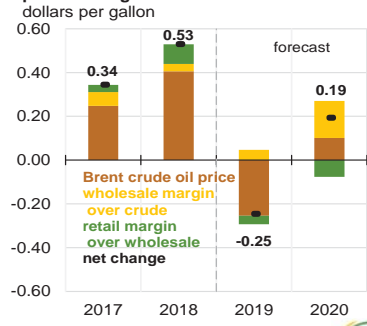
Components of annual gasoline price changes



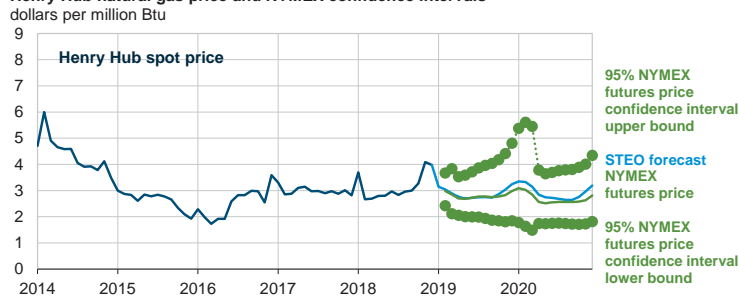
U.S. diesel and crude oil prices



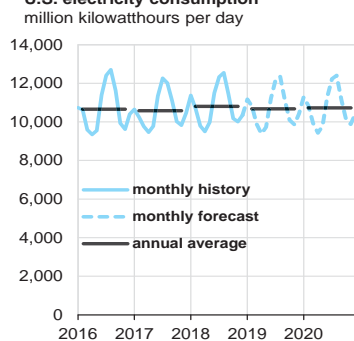
Components of annual diesel prices changes



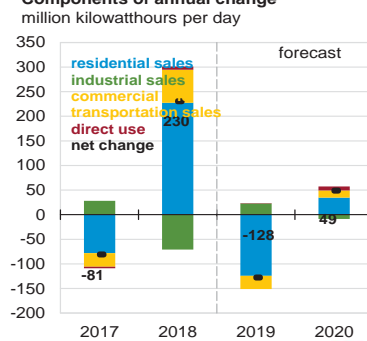
Henry Hub natural gas price and NYMEX confidence intervals



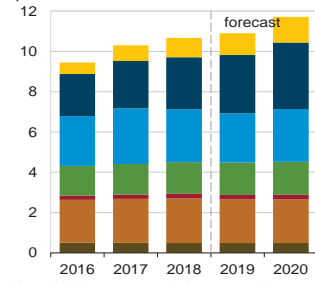
U.S. electricity consumption



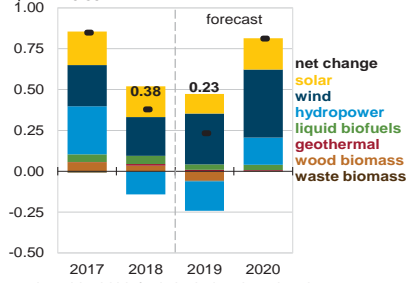
Components of annual change



U.S. renewable energy supply
quadrillion British thermal units



Components of annual change
quadrillion British thermal units

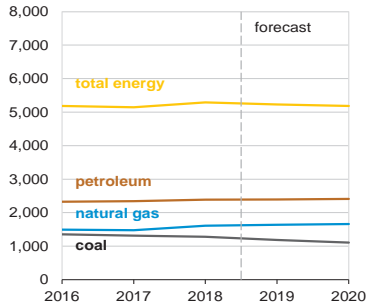


Note: Hydropower excludes pumped storage generation. Liquid biofuels include ethanol and biodiesel. Other biomass includes municipal waste from biogenic sources, landfill gas, and other non-wood waste.

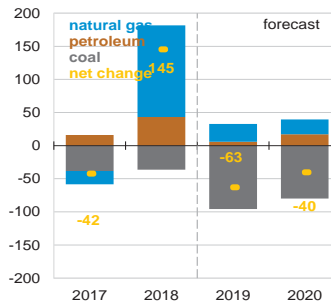
Source: Short-Term Energy Outlook, January 2019



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



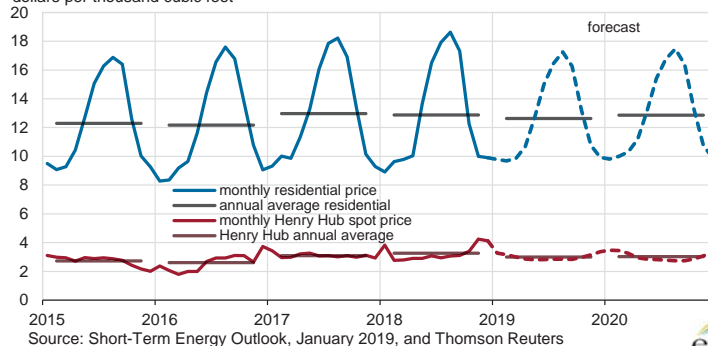
Components of annual change
million metric tons



Source: Short-Term Energy Outlook, January 2019



U.S. natural gas prices
dollars per thousand cubic feet

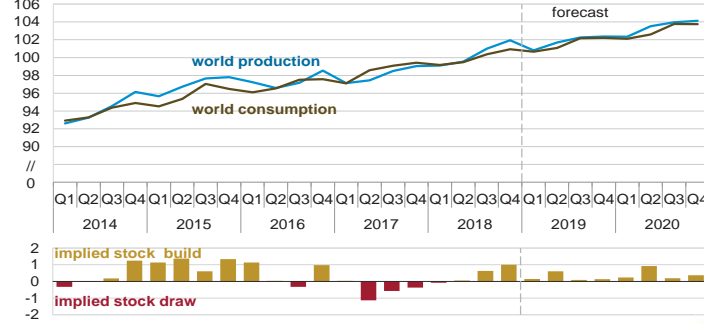


Source: Short-Term Energy Outlook, January 2019, and Thomson Reuters



World liquid fuels production and consumption balance

million barrels per day

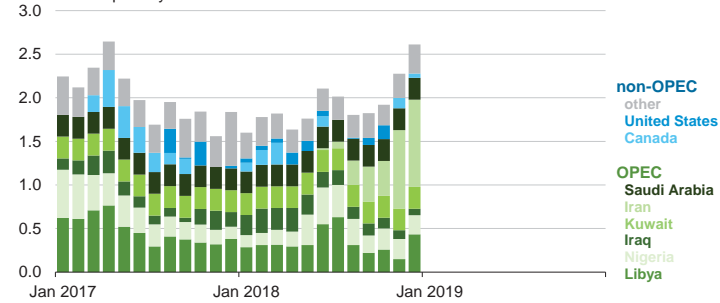


Source: Short-Term Energy Outlook, January 2019



Estimated unplanned liquid fuels production outages

million barrels per day

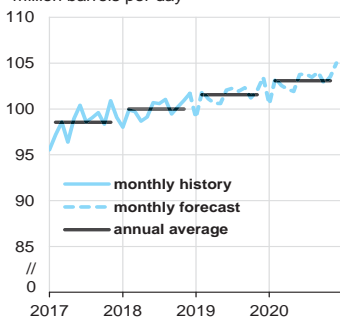


Source: Short-Term Energy Outlook, January 2019



World liquid fuels consumption

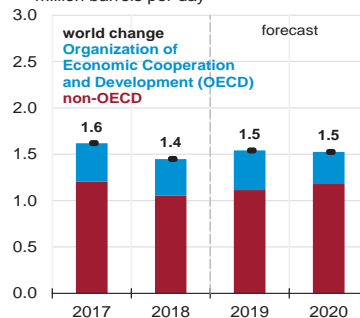
million barrels per day



Source: Short-Term Energy Outlook, January 2019

Components of annual change

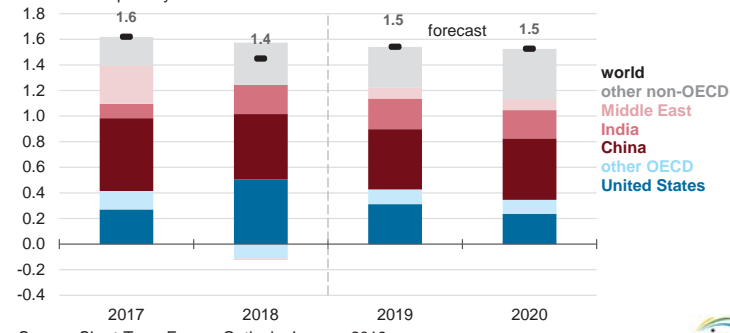
million barrels per day



Source: Short-Term Energy Outlook, January 2019



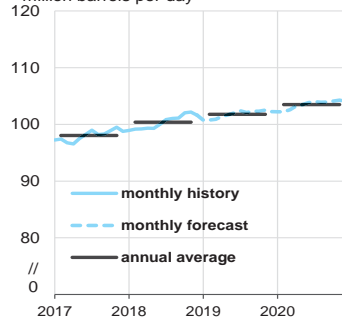
Annual change in world liquid fuels consumption
million barrels per day



Source: Short-Term Energy Outlook, January 2019

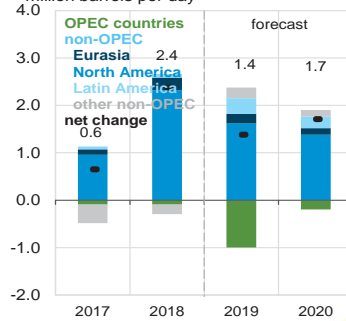


World crude oil and liquid fuels production
million barrels per day

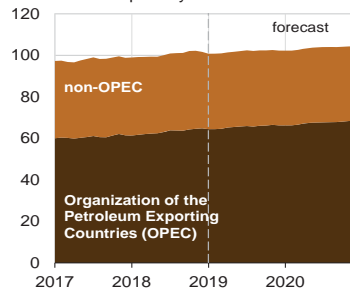


Source: Short-Term Energy Outlook, January 2019

Components of annual change
million barrels per day

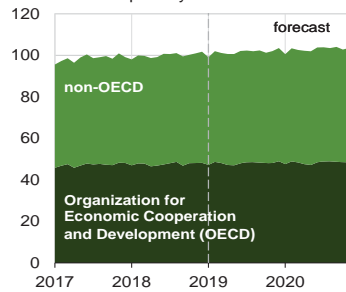


World liquid fuels production
million barrels per day

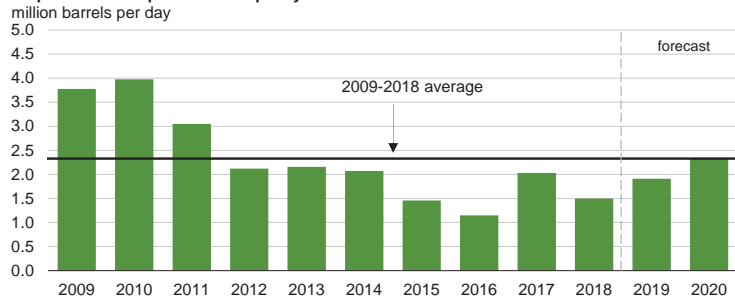


Source: Short-Term Energy Outlook, January 2019

World liquid fuels consumption
million barrels per day



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

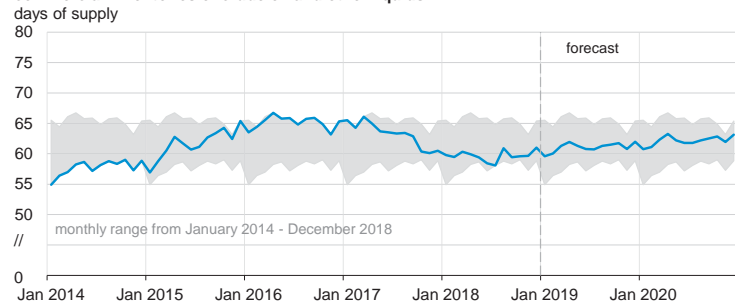


Note: Black line represents 2009-2018 average (2.3 million barrels per day).

Source: Short-Term Energy Outlook, January 2019



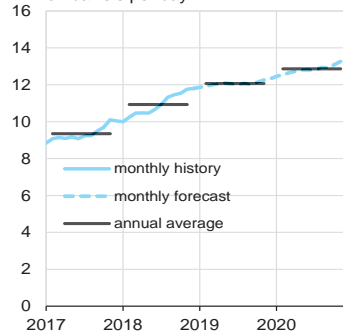
**Organization for Economic Cooperation and Development (OECD)
commercial inventories of crude oil and other liquids**



Source: Short-Term Energy Outlook, January 2019

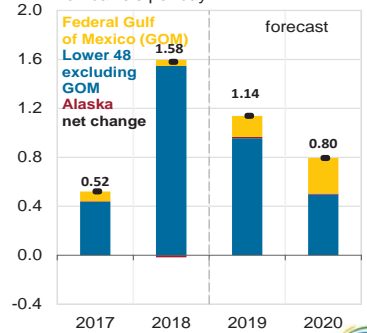


U.S. crude oil production

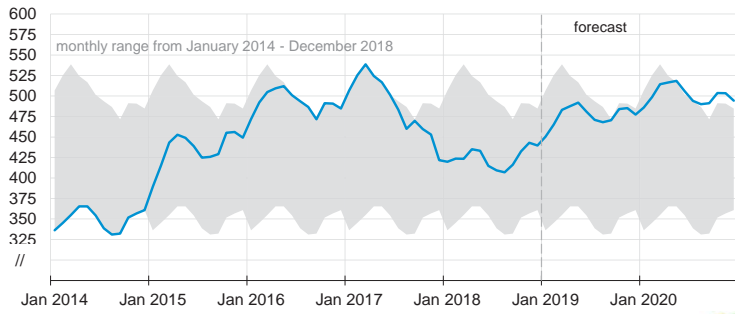


Source: Short-Term Energy Outlook, January 2019

Components of annual change



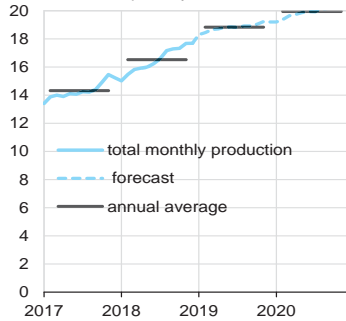
U.S. commercial crude oil inventories
million barrels



Source: Short-Term Energy Outlook, January 2019

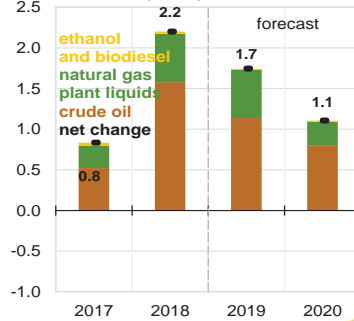


U.S. crude oil and liquid fuels production
million barrels per day

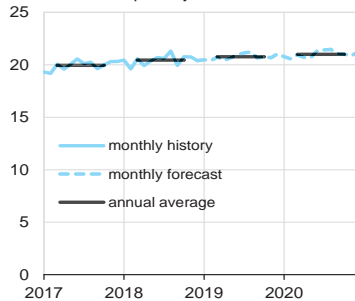


Source: Short-Term Energy Outlook, January 2019

Components of annual change
million barrels per day

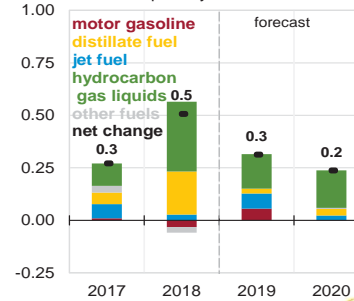


U.S. liquid fuels product supplied (consumption)
million barrels per day

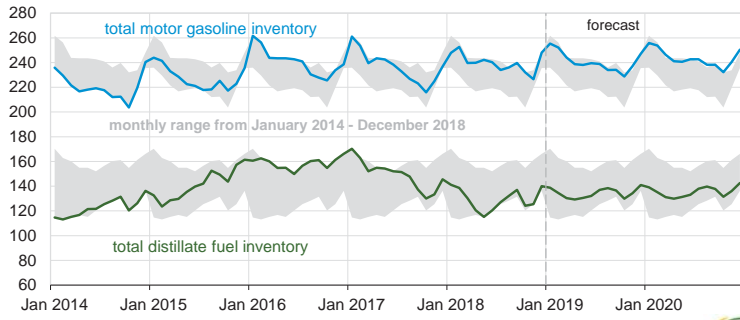


Source: Short-Term Energy Outlook, January 2019

Components of annual change
million barrels per day



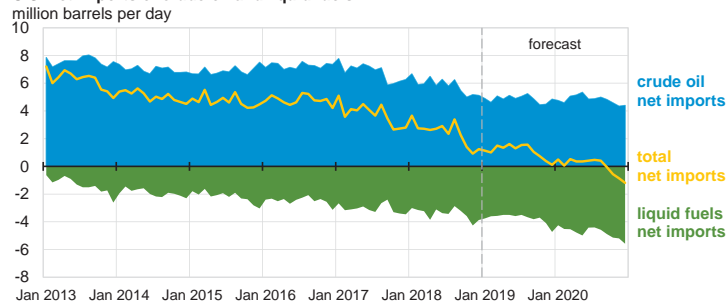
U.S. gasoline and distillate inventories
million barrels



Source: Short-Term Energy Outlook, January 2019



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

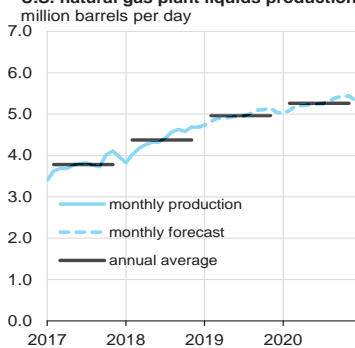


Note: Liquids fuels include: gasoline, distillate fuels, hydrocarbon gas liquids, jet fuel, residual fuel oil, unfinished oils, other hydrocarbons/oxygenates, and other oils.

Source: Short-Term Energy Outlook, January 2019

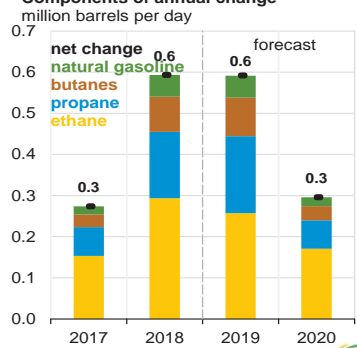


U.S. natural gas plant liquids production

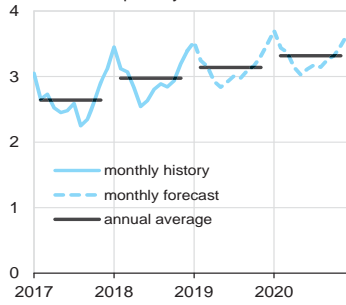


Source: Short-Term Energy Outlook, January 2019

Components of annual change

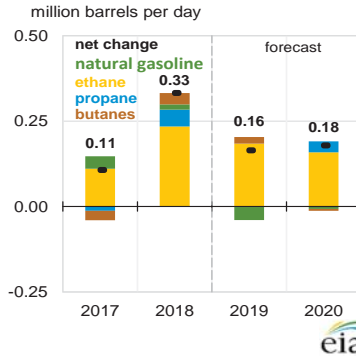


U.S. hydrocarbon gas liquids product supplied (consumption)
million barrels per day

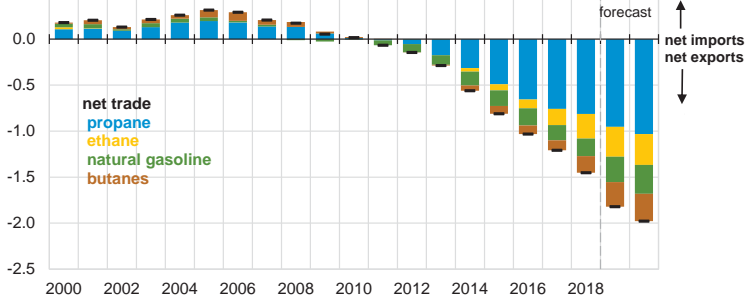


Source: Short-Term Energy Outlook, January 2019

Components of annual change



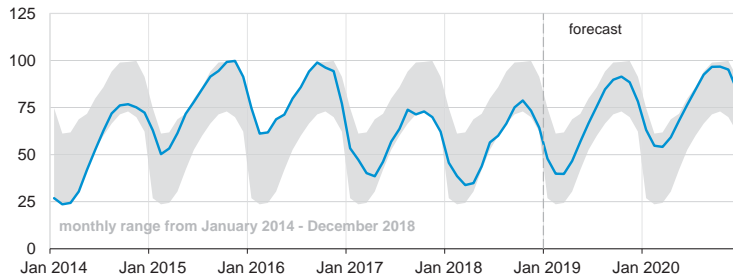
U.S. net trade of hydrocarbon gas liquids (HGL)
million barrels per day



Source: Short-Term Energy Outlook, January 2019



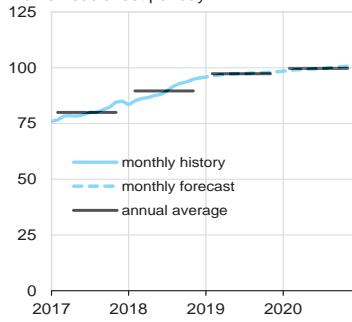
U.S. commercial propane inventories
million barrels



Source: Short-Term Energy Outlook, January 2019

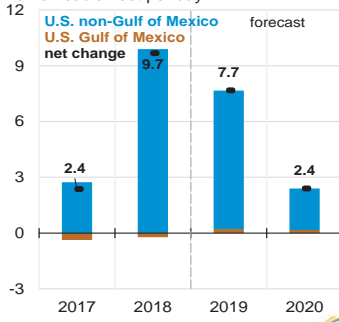


U.S. marketed natural gas production
billion cubic feet per day

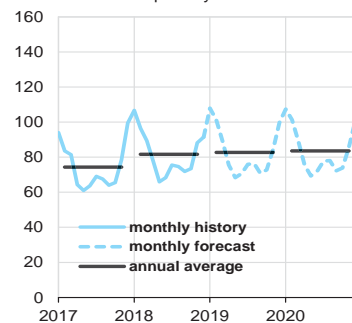


Source: Short-Term Energy Outlook, January 2019

Components of annual change
billion cubic feet per day

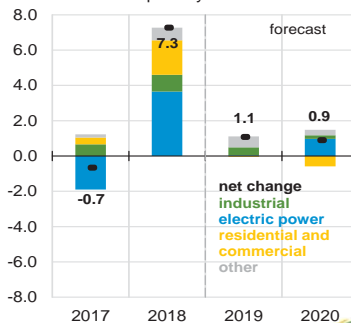


U.S. natural gas consumption
billion cubic feet per day

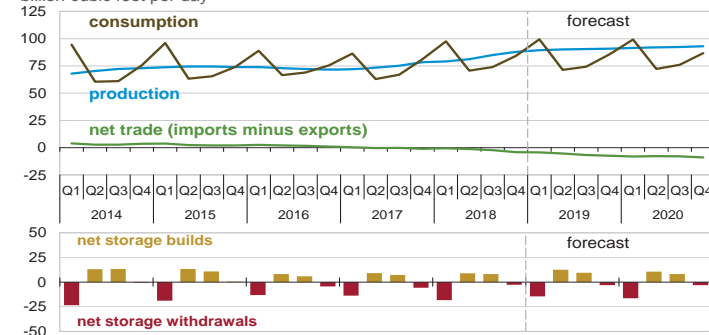


Source: Short-Term Energy Outlook, January 2019

Components of annual change
billion cubic feet per day



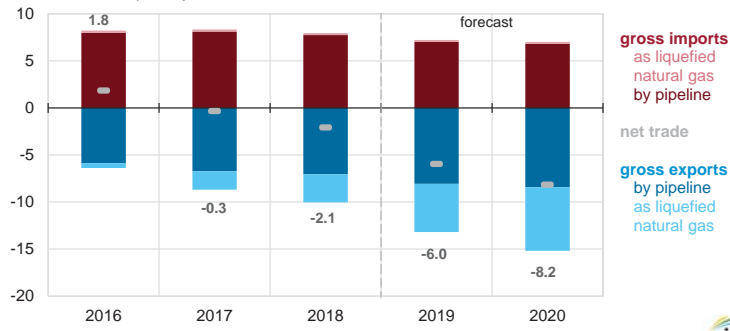
U.S. natural gas production, consumption, and net imports
billion cubic feet per day



Source: Short-Term Energy Outlook, January 2019



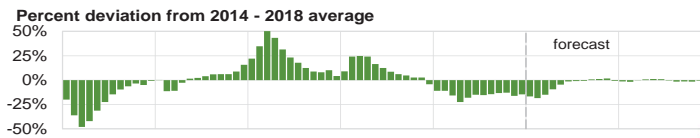
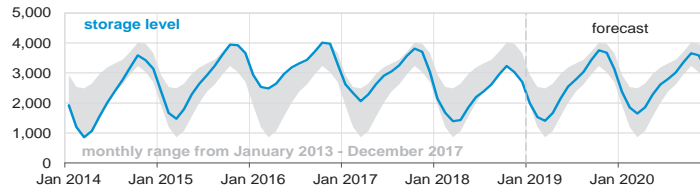
Annual natural gas trade
billion cubic feet per day



Source: Short-Term Energy Outlook, January 2019



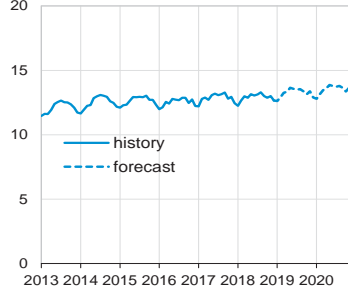
U.S. working natural gas in storage
billion cubic feet



Source: Short-Term Energy Outlook, January 2019

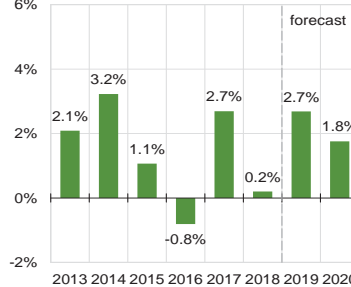


U.S. monthly residential electricity price
cents per kilowatthour

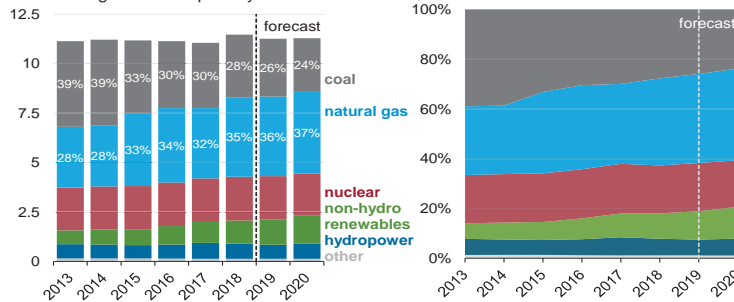


Source: Short-Term Energy Outlook, January 2019

Annual growth in residential electricity prices
percent



U.S. electricity generation by fuel, all sectors
million megawatthours per day

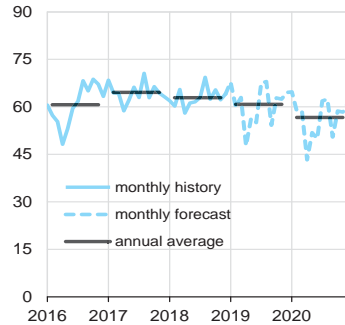


Note: Labels show percentage share of total generation provided by coal and natural gas.

Source: Short-Term Energy Outlook, January 2019

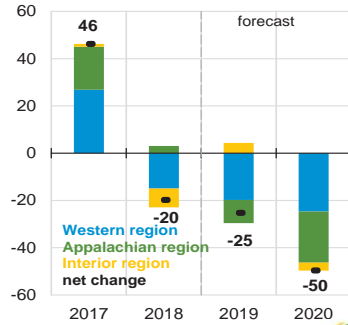


U.S. coal production
million short tons

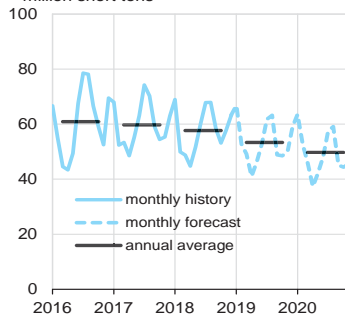


Source: Short-Term Energy Outlook, January 2019

Components of annual change
million short tons

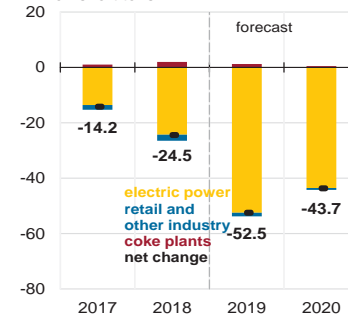


U.S. coal consumption
million short tons

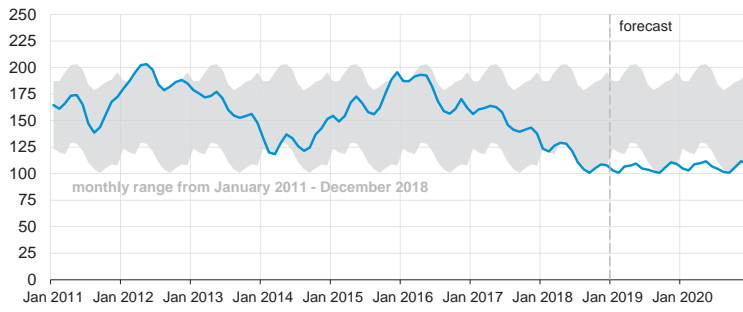


Source: Short-Term Energy Outlook, January 2019

Components of annual change
million short tons



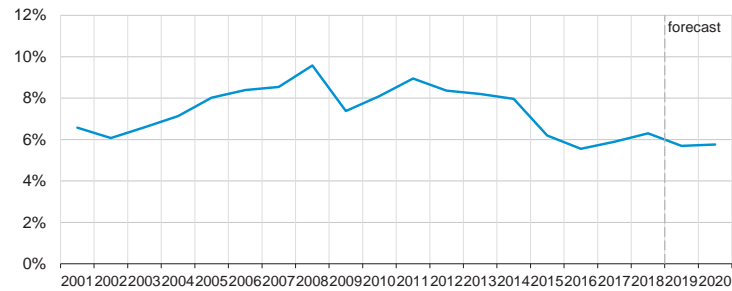
U.S. electric power coal inventories
million short tons



Source: Short-Term Energy Outlook, January 2019



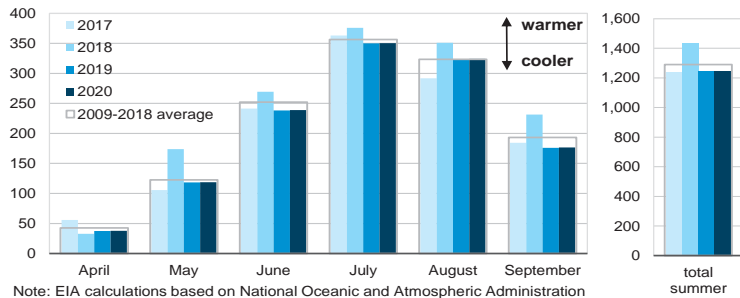
U.S. annual energy expenditures
share of gross domestic product



Source: Short-Term Energy Outlook, January 2019



U.S. summer cooling degree days
population-weighted

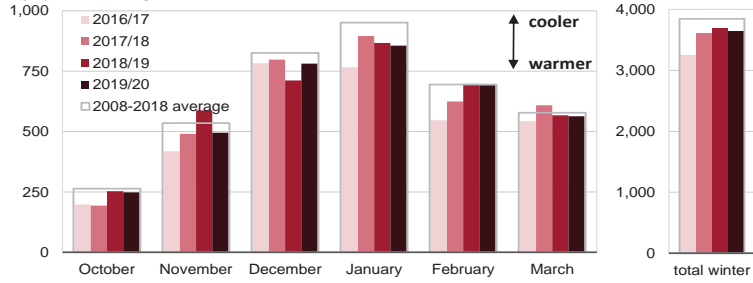


Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Projections reflect NOAA's 14-16 month outlook.

Source: Short-Term Energy Outlook, January 2019



U.S. winter heating degree days
population-weighted

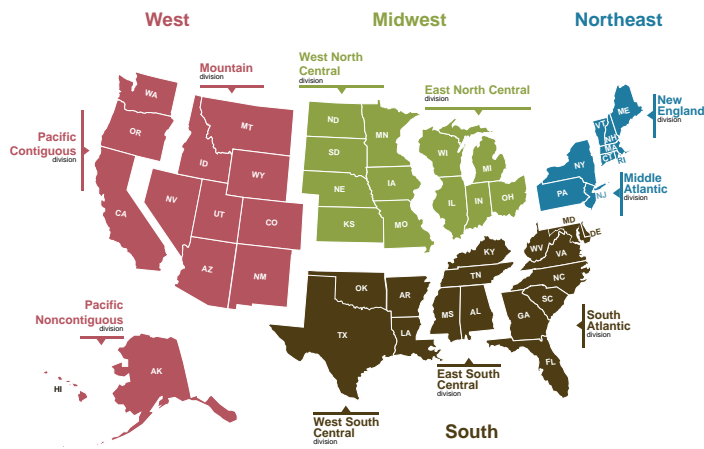


Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Projections reflect NOAA's 14-16 month outlook.

Source: Short-Term Energy Outlook, January 2019



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 - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Energy Supply															
Crude Oil Production (a) (million barrels per day)	10.23	10.54	11.24	11.70	11.93	12.07	12.04	12.24	12.55	12.78	12.89	13.23	10.93	12.07	12.86
Dry Natural Gas Production (billion cubic feet per day)	79.13	81.17	84.95	87.87	89.39	90.17	90.43	90.77	91.48	91.98	92.37	93.05	83.31	90.19	92.22
Coal Production (million short tons)	188	181	195	192	191	159	190	190	182	145	175	178	755	729	680
Energy Consumption															
Liquid Fuels (million barrels per day)	20.24	20.33	20.63	20.64	20.54	20.69	21.02	20.84	20.77	20.93	21.32	21.03	20.46	20.77	21.01
Natural Gas (billion cubic feet per day)	97.54	70.66	74.04	84.32	99.40	71.44	74.36	85.65	99.26	72.28	76.07		81.58	82.65	83.55
Coal (b) (million short tons)	168	157	194	174	169	140	174	157	162	128	162	145	692	640	596
Electricity (billion kilowatt hours per day)	10.61	10.32	12.12	10.18	10.61	10.11	11.88	10.13	10.68	10.16	11.93	10.15	10.81	10.68	10.73
Renewables (c) (quadrillion Btu)	2.89	3.06	2.69	2.77	2.81	3.08	2.83	2.90	3.05	3.32	3.00	3.05	11.40	11.62	12.42
Total Energy Consumption (d) (quadrillion Btu)	26.42	24.06	25.18	25.27	26.27	23.56	24.75	25.31	26.63	23.64	24.88	25.32	100.93	99.90	100.47
Energy Prices															
Crude Oil West Texas Intermediate Spot (dollars per barrel)	62.90	68.07	69.69	59.59	50.00	51.97	55.97	58.64	60.00	61.00	61.00	61.00	65.06	54.19	60.76
Natural Gas Henry Hub Spot (dollars per million Btu)	3.02	2.85	2.93	3.78	3.03	2.73	2.74	3.05	3.27	2.77	2.66	2.97	3.15	2.89	2.92
Coal (dollars per million Btu)	2.06	2.06	2.06	2.09	2.08	2.07	2.06	2.08	2.08	2.08	2.07	2.07	2.07	2.07	2.08
Macroeconomic															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR)	18,324	18,512	18,672	18,792	18,890	19,012	19,141	19,266	19,355	19,439	19,502	19,560	18,575	19,077	19,464
Percent change from prior year	2.6	2.9	3.0	3.1	3.1	2.7	2.5	2.5	2.5	2.2	1.9	1.5	2.9	2.7	2.0
GDP Implicit Price Deflator (Index, 2012=100)	109.3	110.2	110.6	111.1	111.7	112.2	112.8	113.4	114.1	114.8	115.5	116.2	110.3	112.6	115.2
Percent change from prior year	2.0	2.4	2.3	2.1	2.2	1.9	2.0	2.1	2.1	2.3	2.4	2.4	2.2	2.0	2.3
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	14,220	14,282	14,365	14,482	14,600	14,712	14,806	14,903	14,989	15,080	15,162	15,238	14,337	14,755	15,117
Percent change from prior year	2.8	2.7	2.7	3.0	2.7	3.0	3.1	2.9	2.7	2.5	2.4	2.2	2.8	2.9	2.5
Manufacturing Production Index (Index, 2012=100)	104.1	104.8	105.8	106.4	107.8	108.7	109.6	110.4	110.8	111.0	111.0	111.3	105.3	109.1	111.0
Percent change from prior year	2.1	2.0	3.5	2.7	3.5	3.7	3.6	3.7	2.8	2.1	1.3	0.9	2.6	3.6	1.8
Weather															
U.S. Heating Degree-Days	2,129	522	48	1,552	2,132	481	73	1,525	2,111	480	73	1,523	4,251	4,211	4,188
U.S. Cooling Degree-Days	52	476	958	98	41	394	850	91	43	395	851	91	1,584	1,375	1,381

- = no data available

Prices are not adjusted for inflation.

(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. Consequently, the historical data may not precisely match those published in the MER or the Annual Energy Review (AER).

Notes: 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; *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.

Projections: EIA Regional Short-Term Energy Model. U.S. macroeconomic projections are based on the IHS Markit model of the U.S. Economy.

Weather projections from National Oceanic and Atmospheric Administration.

Table 2. Energy Prices

U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Crude Oil (dollars per barrel)															
West Texas Intermediate Spot Average	62.90	68.07	69.69	59.59	<i>50.00</i>	<i>51.97</i>	<i>55.97</i>	<i>58.64</i>	<i>60.00</i>	<i>61.00</i>	<i>61.00</i>	<i>61.00</i>	65.06	<i>54.19</i>	<i>60.76</i>
Brent Spot Average	66.84	74.53	75.02	68.29	<i>58.00</i>	<i>60.00</i>	<i>61.31</i>	<i>62.64</i>	<i>64.00</i>	<i>65.00</i>	<i>65.00</i>	<i>65.00</i>	71.19	<i>60.52</i>	<i>64.76</i>
U.S. Imported Average	58.08	64.67	66.20	56.65	<i>45.51</i>	<i>47.00</i>	<i>50.66</i>	<i>52.50</i>	<i>53.50</i>	<i>54.50</i>	<i>54.50</i>	<i>54.50</i>	61.57	<i>48.90</i>	<i>54.25</i>
U.S. Refiner Average Acquisition Cost	61.89	67.29	69.03	58.20	<i>48.00</i>	<i>50.00</i>	<i>54.00</i>	<i>56.00</i>	<i>57.00</i>	<i>58.00</i>	<i>58.00</i>	<i>58.00</i>	64.16	<i>52.06</i>	<i>57.76</i>
U.S. Liquid Fuels (cents per gallon)															
Refiner Prices for Resale															
Gasoline	186	213	213	175	<i>158</i>	<i>178</i>	<i>182</i>	<i>172</i>	<i>182</i>	<i>197</i>	<i>192</i>	<i>176</i>	197	<i>173</i>	<i>187</i>
Diesel Fuel	199	219	222	210	<i>181</i>	<i>187</i>	<i>196</i>	<i>205</i>	<i>213</i>	<i>221</i>	<i>221</i>	<i>220</i>	213	<i>192</i>	<i>219</i>
Heating Oil	193	205	214	199	<i>178</i>	<i>176</i>	<i>186</i>	<i>198</i>	<i>209</i>	<i>210</i>	<i>212</i>	<i>213</i>	199	<i>185</i>	<i>210</i>
Refiner Prices to End Users															
Jet Fuel	197	217	220	207	<i>179</i>	<i>183</i>	<i>193</i>	<i>201</i>	<i>211</i>	<i>217</i>	<i>218</i>	<i>216</i>	211	<i>189</i>	<i>216</i>
No. 6 Residual Fuel Oil (a)	149	162	176	160	<i>123</i>	<i>122</i>	<i>131</i>	<i>124</i>	<i>116</i>	<i>116</i>	<i>117</i>	<i>117</i>	162	<i>125</i>	<i>116</i>
Retail Prices Including Taxes															
Gasoline Regular Grade (b)	258	285	284	263	<i>230</i>	<i>252</i>	<i>258</i>	<i>249</i>	<i>253</i>	<i>272</i>	<i>269</i>	<i>253</i>	273	<i>247</i>	<i>262</i>
Gasoline All Grades (b)	270	294	292	271	<i>240</i>	<i>263</i>	<i>269</i>	<i>261</i>	<i>265</i>	<i>284</i>	<i>282</i>	<i>266</i>	282	<i>259</i>	<i>275</i>
On-highway Diesel Fuel	302	320	324	327	<i>285</i>	<i>287</i>	<i>295</i>	<i>307</i>	<i>306</i>	<i>315</i>	<i>315</i>	<i>316</i>	318	<i>294</i>	<i>313</i>
Heating Oil	287	299	325	314	<i>289</i>	<i>271</i>	<i>274</i>	<i>289</i>	<i>305</i>	<i>299</i>	<i>300</i>	<i>308</i>	301	<i>285</i>	<i>304</i>
Natural Gas															
Henry Hub Spot (dollars per thousand cubic feet)	3.13	2.96	3.04	3.92	<i>3.14</i>	<i>2.83</i>	<i>2.84</i>	<i>3.16</i>	<i>3.39</i>	<i>2.87</i>	<i>2.76</i>	<i>3.08</i>	3.26	<i>2.99</i>	<i>3.02</i>
Henry Hub Spot (dollars per million Btu)	3.02	2.85	2.93	3.78	<i>3.03</i>	<i>2.73</i>	<i>2.74</i>	<i>3.05</i>	<i>3.27</i>	<i>2.77</i>	<i>2.66</i>	<i>2.97</i>	3.15	<i>2.89</i>	<i>2.92</i>
U.S. Retail Prices (dollars per thousand cubic feet)															
Industrial Sector	4.44	3.83	3.73	4.77	<i>4.71</i>	<i>3.83</i>	<i>3.75</i>	<i>4.25</i>	<i>4.74</i>	<i>3.91</i>	<i>3.68</i>	<i>4.16</i>	4.22	<i>4.16</i>	<i>4.15</i>
Commercial Sector	7.64	8.05	8.77	7.81	<i>7.98</i>	<i>8.19</i>	<i>8.50</i>	<i>7.80</i>	<i>7.85</i>	<i>8.31</i>	<i>8.55</i>	<i>7.74</i>	7.88	<i>8.02</i>	<i>7.97</i>
Residential Sector	9.37	11.94	17.93	10.33	<i>9.77</i>	<i>12.00</i>	<i>16.63</i>	<i>10.73</i>	<i>10.01</i>	<i>12.43</i>	<i>16.85</i>	<i>10.71</i>	10.61	<i>10.84</i>	<i>11.00</i>
U.S. Electricity															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	2.06	2.06	2.06	2.09	<i>2.08</i>	<i>2.07</i>	<i>2.06</i>	<i>2.08</i>	<i>2.08</i>	<i>2.08</i>	<i>2.07</i>	<i>2.07</i>	2.07	<i>2.07</i>	<i>2.08</i>
Natural Gas	3.96	3.09	3.23	4.07	<i>3.55</i>	<i>2.90</i>	<i>2.81</i>	<i>3.38</i>	<i>3.77</i>	<i>2.90</i>	<i>2.66</i>	<i>3.25</i>	3.54	<i>3.12</i>	<i>3.08</i>
Residual Fuel Oil (c)	11.47	13.02	13.87	14.03	<i>12.03</i>	<i>12.38</i>	<i>11.75</i>	<i>11.72</i>	<i>12.34</i>	<i>13.28</i>	<i>12.67</i>	<i>12.44</i>	12.82	<i>11.97</i>	<i>12.64</i>
Distillate Fuel Oil	15.83	16.61	16.82	16.21	<i>14.27</i>	<i>14.54</i>	<i>15.09</i>	<i>15.91</i>	<i>16.50</i>	<i>17.10</i>	<i>17.06</i>	<i>17.11</i>	16.19	<i>14.90</i>	<i>16.91</i>
Retail Prices (cents per kilowatthour)															
Industrial Sector	6.81	6.87	7.23	6.82	<i>6.78</i>	<i>6.91</i>	<i>7.27</i>	<i>6.83</i>	<i>6.82</i>	<i>7.00</i>	<i>7.36</i>	<i>6.91</i>	6.94	<i>6.95</i>	<i>7.03</i>
Commercial Sector	10.54	10.59	10.89	10.58	<i>10.65</i>	<i>10.69</i>	<i>10.90</i>	<i>10.57</i>	<i>10.65</i>	<i>10.62</i>	<i>10.88</i>	<i>10.63</i>	10.66	<i>10.71</i>	<i>10.70</i>
Residential Sector	12.59	13.03	13.15	12.84	<i>12.91</i>	<i>13.53</i>	<i>13.48</i>	<i>13.12</i>	<i>13.10</i>	<i>13.76</i>	<i>13.73</i>	<i>13.38</i>	12.91	<i>13.26</i>	<i>13.49</i>

- = no data available

Prices are not adjusted for inflation.

(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.

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

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.

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

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

Projections: EIA Regional Short-Term Energy Model.

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

U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Supply (million barrels per day) (a)															
OECD	29.14	29.27	30.25	30.88	<i>31.07</i>	<i>31.52</i>	<i>31.60</i>	<i>32.18</i>	<i>32.59</i>	<i>33.03</i>	<i>33.20</i>	<i>33.86</i>	29.89	<i>31.60</i>	<i>33.17</i>
U.S. (50 States)	16.77	17.39	18.40	18.91	<i>19.23</i>	<i>19.56</i>	<i>19.65</i>	<i>19.97</i>	<i>20.27</i>	<i>20.74</i>	<i>20.96</i>	<i>21.39</i>	17.87	<i>19.60</i>	<i>20.84</i>
Canada	5.32	5.10	5.18	5.25	<i>4.95</i>	<i>5.14</i>	<i>5.21</i>	<i>5.26</i>	<i>5.34</i>	<i>5.34</i>	<i>5.38</i>	<i>5.44</i>	5.21	<i>5.14</i>	<i>5.37</i>
Mexico	2.18	2.14	2.10	2.02	<i>2.10</i>	<i>2.08</i>	<i>2.06</i>	<i>2.03</i>	<i>2.01</i>	<i>1.99</i>	<i>1.97</i>	<i>1.95</i>	2.11	<i>2.07</i>	<i>1.98</i>
Other OECD	4.88	4.64	4.58	4.71	<i>4.80</i>	<i>4.74</i>	<i>4.69</i>	<i>4.91</i>	<i>4.97</i>	<i>4.97</i>	<i>4.89</i>	<i>5.09</i>	4.70	<i>4.79</i>	<i>4.98</i>
Non-OECD	69.96	70.28	70.75	71.06	<i>69.73</i>	<i>70.17</i>	<i>70.66</i>	<i>70.19</i>	<i>69.77</i>	<i>70.49</i>	<i>70.76</i>	<i>70.27</i>	70.52	<i>70.19</i>	<i>70.32</i>
OPEC	37.40	36.97	37.22	37.37	<i>36.32</i>	<i>36.22</i>	<i>36.37</i>	<i>36.06</i>	<i>35.99</i>	<i>36.06</i>	<i>36.18</i>	<i>35.96</i>	37.24	<i>36.24</i>	<i>36.05</i>
Crude Oil Portion	32.06	31.71	31.93	31.99	<i>30.87</i>	<i>30.84</i>	<i>31.04</i>	<i>30.78</i>	<i>30.78</i>	<i>30.90</i>	<i>31.07</i>	<i>30.83</i>	31.92	<i>30.88</i>	<i>30.90</i>
Other Liquids (b)	5.33	5.26	5.30	5.38	<i>5.45</i>	<i>5.38</i>	<i>5.33</i>	<i>5.29</i>	<i>5.21</i>	<i>5.16</i>	<i>5.11</i>	<i>5.14</i>	5.32	<i>5.36</i>	<i>5.16</i>
Eurasia	14.41	14.43	14.64	14.88	<i>14.85</i>	<i>14.62</i>	<i>14.77</i>	<i>14.94</i>	<i>14.97</i>	<i>14.87</i>	<i>14.87</i>	<i>14.96</i>	14.59	<i>14.79</i>	<i>14.92</i>
China	4.75	4.80	4.74	4.80	<i>4.76</i>	<i>4.80</i>	<i>4.80</i>	<i>4.85</i>	<i>4.79</i>	<i>4.81</i>	<i>4.81</i>	<i>4.84</i>	4.77	<i>4.80</i>	<i>4.81</i>
Other Non-OECD	13.40	14.08	14.15	14.01	<i>13.80</i>	<i>14.54</i>	<i>14.72</i>	<i>14.34</i>	<i>14.02</i>	<i>14.74</i>	<i>14.89</i>	<i>14.50</i>	13.91	<i>14.35</i>	<i>14.54</i>
Total World Supply	99.10	99.55	101.00	101.94	<i>100.81</i>	<i>101.69</i>	<i>102.26</i>	<i>102.36</i>	<i>102.36</i>	<i>103.52</i>	<i>103.96</i>	<i>104.13</i>	100.41	<i>101.79</i>	<i>103.49</i>
Non-OPEC Supply	61.70	62.58	63.78	64.57	<i>64.49</i>	<i>65.47</i>	<i>65.89</i>	<i>66.30</i>	<i>66.36</i>	<i>67.46</i>	<i>67.77</i>	<i>68.17</i>	63.17	<i>65.54</i>	<i>67.44</i>
Consumption (million barrels per day) (c)															
OECD	47.58	46.94	47.86	48.12	<i>47.98</i>	<i>47.38</i>	<i>48.42</i>	<i>48.42</i>	<i>48.28</i>	<i>47.72</i>	<i>48.85</i>	<i>48.74</i>	47.63	<i>48.05</i>	<i>48.40</i>
U.S. (50 States)	20.24	20.33	20.63	20.64	<i>20.54</i>	<i>20.69</i>	<i>21.02</i>	<i>20.84</i>	<i>20.77</i>	<i>20.93</i>	<i>21.32</i>	<i>21.03</i>	20.46	<i>20.77</i>	<i>21.01</i>
U.S. Territories	0.10	0.08	0.09	0.11	<i>0.12</i>	<i>0.11</i>	<i>0.12</i>	<i>0.13</i>	<i>0.12</i>	<i>0.11</i>	<i>0.12</i>	<i>0.13</i>	0.10	<i>0.12</i>	<i>0.12</i>
Canada	2.32	2.34	2.54	2.46	<i>2.41</i>	<i>2.36</i>	<i>2.47</i>	<i>2.44</i>	<i>2.42</i>	<i>2.36</i>	<i>2.46</i>	<i>2.44</i>	2.42	<i>2.42</i>	<i>2.42</i>
Europe	14.05	14.19	14.63	14.31	<i>14.04</i>	<i>14.26</i>	<i>14.77</i>	<i>14.46</i>	<i>14.13</i>	<i>14.34</i>	<i>14.86</i>	<i>14.55</i>	14.30	<i>14.38</i>	<i>14.47</i>
Japan	4.27	3.43	3.53	3.88	<i>4.15</i>	<i>3.40</i>	<i>3.47</i>	<i>3.79</i>	<i>4.05</i>	<i>3.32</i>	<i>3.39</i>	<i>3.73</i>	3.78	<i>3.70</i>	<i>3.62</i>
Other OECD	6.60	6.57	6.43	6.71	<i>6.71</i>	<i>6.56</i>	<i>6.59</i>	<i>6.76</i>	<i>6.81</i>	<i>6.67</i>	<i>6.70</i>	<i>6.86</i>	6.58	<i>6.66</i>	<i>6.76</i>
Non-OECD	51.60	52.55	52.52	52.83	<i>52.68</i>	<i>53.71</i>	<i>53.75</i>	<i>53.80</i>	<i>53.84</i>	<i>54.88</i>	<i>54.92</i>	<i>55.03</i>	52.38	<i>53.49</i>	<i>54.67</i>
Eurasia	4.78	4.83	5.11	4.98	<i>4.80</i>	<i>4.87</i>	<i>5.24</i>	<i>5.09</i>	<i>4.90</i>	<i>4.97</i>	<i>5.36</i>	<i>5.20</i>	4.93	<i>5.00</i>	<i>5.11</i>
Europe	0.75	0.74	0.76	0.76	<i>0.75</i>	<i>0.75</i>	<i>0.77</i>	<i>0.77</i>	<i>0.76</i>	<i>0.76</i>	<i>0.78</i>	<i>0.78</i>	0.75	<i>0.76</i>	<i>0.77</i>
China	13.80	14.00	13.73	13.95	<i>14.28</i>	<i>14.47</i>	<i>14.20</i>	<i>14.41</i>	<i>14.76</i>	<i>14.95</i>	<i>14.67</i>	<i>14.90</i>	13.87	<i>14.34</i>	<i>14.82</i>
Other Asia	13.58	13.82	13.42	13.82	<i>14.06</i>	<i>14.22</i>	<i>13.81</i>	<i>14.14</i>	<i>14.44</i>	<i>14.61</i>	<i>14.18</i>	<i>14.52</i>	13.66	<i>14.05</i>	<i>14.44</i>
Other Non-OECD	18.69	19.16	19.50	19.32	<i>18.79</i>	<i>19.39</i>	<i>19.73</i>	<i>19.39</i>	<i>18.97</i>	<i>19.58</i>	<i>19.94</i>	<i>19.62</i>	19.17	<i>19.33</i>	<i>19.53</i>
Total World Consumption	99.18	99.49	100.37	100.94	<i>100.66</i>	<i>101.09</i>	<i>102.17</i>	<i>102.23</i>	<i>102.12</i>	<i>102.60</i>	<i>103.77</i>	<i>103.76</i>	100.00	<i>101.54</i>	<i>103.07</i>
Total Crude Oil and Other Liquids Inventory Net Withdrawals (million barrels per day)															
U.S. (50 States)	0.36	-0.06	-0.70	0.25	<i>-0.10</i>	<i>-0.47</i>	<i>-0.23</i>	<i>0.31</i>	<i>-0.06</i>	<i>-0.37</i>	<i>-0.13</i>	<i>0.36</i>	-0.04	<i>-0.12</i>	<i>-0.05</i>
Other OECD	-0.03	0.11	0.21	-0.43	<i>-0.02</i>	<i>-0.04</i>	<i>0.05</i>	<i>-0.15</i>	<i>-0.06</i>	<i>-0.18</i>	<i>-0.02</i>	<i>-0.24</i>	-0.03	<i>-0.04</i>	<i>-0.12</i>
Other Stock Draws and Balance	-0.26	-0.11	-0.14	-0.83	<i>-0.04</i>	<i>-0.09</i>	<i>0.10</i>	<i>-0.29</i>	<i>-0.12</i>	<i>-0.37</i>	<i>-0.04</i>	<i>-0.48</i>	-0.33	<i>-0.08</i>	<i>-0.25</i>
Total Stock Draw	0.08	-0.06	-0.63	-1.00	<i>-0.15</i>	<i>-0.61</i>	<i>-0.09</i>	<i>-0.13</i>	<i>-0.24</i>	<i>-0.92</i>	<i>-0.19</i>	<i>-0.36</i>	-0.41	<i>-0.24</i>	<i>-0.43</i>
End-of-period Commercial Crude Oil and Other Liquids Inventories (million barrels)															
U.S. Commercial Inventory	1,196	1,207	1,272	1,259	<i>1,268</i>	<i>1,316</i>	<i>1,337</i>	<i>1,312</i>	<i>1,321</i>	<i>1,359</i>	<i>1,372</i>	<i>1,341</i>	1,259	<i>1,312</i>	<i>1,341</i>
OECD Commercial Inventory	2,806	2,806	2,856	2,883	<i>2,893</i>	<i>2,945</i>	<i>2,962</i>	<i>2,951</i>	<i>2,965</i>	<i>3,018</i>	<i>3,033</i>	<i>3,025</i>	2,883	<i>2,951</i>	<i>3,025</i>

- = 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, 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), Ecuador, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Saudi Arabia, the United Arab Emirates,

(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.

Notes: 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.

Projections: EIA Regional Short-Term Energy Model.

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

U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
North America	24.26	24.63	25.67	26.18	<i>26.27</i>	<i>26.78</i>	<i>26.91</i>	<i>27.26</i>	<i>27.62</i>	<i>28.07</i>	<i>28.31</i>	<i>28.77</i>	25.19	<i>26.81</i>	<i>28.19</i>
Canada	5.32	5.10	5.18	5.25	<i>4.95</i>	<i>5.14</i>	<i>5.21</i>	<i>5.26</i>	<i>5.34</i>	<i>5.34</i>	<i>5.38</i>	<i>5.44</i>	5.21	<i>5.14</i>	<i>5.37</i>
Mexico	2.18	2.14	2.10	2.02	<i>2.10</i>	<i>2.08</i>	<i>2.06</i>	<i>2.03</i>	<i>2.01</i>	<i>1.99</i>	<i>1.97</i>	<i>1.95</i>	2.11	<i>2.07</i>	<i>1.98</i>
United States	16.77	17.39	18.40	18.91	<i>19.23</i>	<i>19.56</i>	<i>19.65</i>	<i>19.97</i>	<i>20.27</i>	<i>20.74</i>	<i>20.96</i>	<i>21.39</i>	17.87	<i>19.60</i>	<i>20.84</i>
Central and South America	4.89	5.64	5.71	5.44	<i>5.17</i>	<i>5.93</i>	<i>6.14</i>	<i>5.77</i>	<i>5.43</i>	<i>6.19</i>	<i>6.39</i>	<i>6.01</i>	5.42	<i>5.76</i>	<i>6.01</i>
Argentina	0.67	0.69	0.69	0.70	<i>0.66</i>	<i>0.68</i>	<i>0.68</i>	<i>0.69</i>	<i>0.67</i>	<i>0.69</i>	<i>0.69</i>	<i>0.70</i>	0.69	<i>0.68</i>	<i>0.69</i>
Brazil	2.95	3.64	3.74	3.42	<i>3.24</i>	<i>3.95</i>	<i>4.19</i>	<i>3.77</i>	<i>3.49</i>	<i>4.21</i>	<i>4.43</i>	<i>4.01</i>	3.44	<i>3.79</i>	<i>4.04</i>
Colombia	0.86	0.89	0.88	0.90	<i>0.87</i>	<i>0.89</i>	<i>0.88</i>	<i>0.90</i>	<i>0.86</i>	<i>0.88</i>	<i>0.88</i>	<i>0.89</i>	0.88	<i>0.88</i>	<i>0.88</i>
Other Central and S. America	0.41	0.42	0.40	0.42	<i>0.41</i>	<i>0.41</i>	<i>0.39</i>	<i>0.41</i>	<i>0.40</i>	<i>0.41</i>	<i>0.39</i>	<i>0.41</i>	0.41	<i>0.41</i>	<i>0.40</i>
Europe	4.35	4.14	4.04	4.23	<i>4.31</i>	<i>4.23</i>	<i>4.16</i>	<i>4.36</i>	<i>4.39</i>	<i>4.38</i>	<i>4.29</i>	<i>4.49</i>	4.19	<i>4.26</i>	<i>4.39</i>
Norway	1.97	1.80	1.80	1.89	<i>1.92</i>	<i>1.86</i>	<i>1.88</i>	<i>1.91</i>	<i>1.93</i>	<i>1.92</i>	<i>1.95</i>	<i>2.06</i>	1.87	<i>1.89</i>	<i>1.96</i>
United Kingdom	1.13	1.10	1.01	1.10	<i>1.15</i>	<i>1.15</i>	<i>1.06</i>	<i>1.19</i>	<i>1.22</i>	<i>1.23</i>	<i>1.11</i>	<i>1.20</i>	1.08	<i>1.14</i>	<i>1.19</i>
Eurasia	14.41	14.43	14.64	14.88	<i>14.85</i>	<i>14.62</i>	<i>14.77</i>	<i>14.94</i>	<i>14.97</i>	<i>14.87</i>	<i>14.87</i>	<i>14.96</i>	14.59	<i>14.79</i>	<i>14.92</i>
Azerbaijan	0.82	0.81	0.79	0.79	<i>0.80</i>	<i>0.80</i>	<i>0.79</i>	<i>0.78</i>	<i>0.79</i>	<i>0.79</i>	<i>0.78</i>	<i>0.77</i>	0.80	<i>0.79</i>	<i>0.78</i>
Kazakhstan	1.98	1.96	1.92	2.02	<i>2.08</i>	<i>1.98</i>	<i>2.07</i>	<i>2.13</i>	<i>2.13</i>	<i>2.02</i>	<i>2.04</i>	<i>2.11</i>	1.97	<i>2.07</i>	<i>2.08</i>
Russia	11.19	11.23	11.49	11.63	<i>11.56</i>	<i>11.42</i>	<i>11.49</i>	<i>11.62</i>	<i>11.65</i>	<i>11.67</i>	<i>11.67</i>	<i>11.70</i>	11.39	<i>11.52</i>	<i>11.67</i>
Turkmenistan	0.27	0.28	0.28	0.27	<i>0.25</i>	<i>0.25</i>	<i>0.25</i>	<i>0.25</i>	<i>0.24</i>	<i>0.24</i>	<i>0.24</i>	<i>0.24</i>	0.27	<i>0.25</i>	<i>0.24</i>
Other Eurasia	0.16	0.15	0.15	0.17	<i>0.16</i>	<i>0.16</i>	<i>0.16</i>	<i>0.16</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	0.16	<i>0.16</i>	<i>0.15</i>
Middle East	3.02	3.03	3.04	3.03	<i>3.13</i>	<i>3.13</i>	<i>3.13</i>	<i>3.13</i>	<i>3.18</i>	<i>3.18</i>	<i>3.19</i>	<i>3.19</i>	3.03	<i>3.13</i>	<i>3.19</i>
Oman	0.98	0.98	0.99	0.99	<i>0.99</i>	<i>0.99</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>	<i>1.01</i>	<i>1.01</i>	0.98	<i>1.00</i>	<i>1.01</i>
Qatar	1.94	1.94	1.95	1.93	<i>2.00</i>	<i>2.00</i>	<i>2.00</i>	<i>2.00</i>	<i>2.06</i>	<i>2.06</i>	<i>2.06</i>	<i>2.06</i>	1.94	<i>2.00</i>	<i>2.06</i>
Asia and Oceania	9.26	9.20	9.16	9.28	<i>9.25</i>	<i>9.28</i>	<i>9.28</i>	<i>9.33</i>	<i>9.31</i>	<i>9.30</i>	<i>9.26</i>	<i>9.27</i>	9.23	<i>9.28</i>	<i>9.28</i>
Australia	0.37	0.35	0.38	0.42	<i>0.44</i>	<i>0.46</i>	<i>0.47</i>	<i>0.50</i>	<i>0.52</i>	<i>0.53</i>	<i>0.54</i>	<i>0.54</i>	0.38	<i>0.47</i>	<i>0.53</i>
China	4.75	4.80	4.74	4.80	<i>4.76</i>	<i>4.80</i>	<i>4.80</i>	<i>4.85</i>	<i>4.79</i>	<i>4.81</i>	<i>4.81</i>	<i>4.84</i>	4.77	<i>4.80</i>	<i>4.81</i>
India	1.01	1.01	0.99	0.97	<i>0.98</i>	<i>0.97</i>	<i>0.96</i>	<i>0.97</i>	<i>1.00</i>	<i>0.99</i>	<i>0.98</i>	<i>0.98</i>	0.99	<i>0.97</i>	<i>0.99</i>
Indonesia	0.89	0.90	0.90	0.89	<i>0.87</i>	<i>0.86</i>	<i>0.84</i>	<i>0.83</i>	<i>0.81</i>	<i>0.80</i>	<i>0.79</i>	<i>0.77</i>	0.89	<i>0.85</i>	<i>0.79</i>
Malaysia	0.77	0.74	0.72	0.74	<i>0.74</i>	<i>0.74</i>	<i>0.73</i>	<i>0.72</i>	<i>0.72</i>	<i>0.71</i>	<i>0.70</i>	<i>0.68</i>	0.74	<i>0.73</i>	<i>0.70</i>
Vietnam	0.27	0.25	0.25	0.25	<i>0.26</i>	<i>0.26</i>	<i>0.26</i>	<i>0.26</i>	<i>0.26</i>	<i>0.25</i>	<i>0.24</i>	<i>0.24</i>	0.25	<i>0.26</i>	<i>0.25</i>
Africa	1.51	1.50	1.51	1.53	<i>1.50</i>	<i>1.50</i>	<i>1.51</i>	<i>1.51</i>	<i>1.47</i>	<i>1.47</i>	<i>1.47</i>	<i>1.47</i>	1.51	<i>1.50</i>	<i>1.47</i>
Egypt	0.66	0.66	0.65	0.66	<i>0.61</i>	<i>0.61</i>	<i>0.61</i>	<i>0.61</i>	<i>0.58</i>	<i>0.58</i>	<i>0.58</i>	<i>0.58</i>	0.66	<i>0.61</i>	<i>0.58</i>
South Sudan	0.12	0.12	0.12	0.14	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	0.13	<i>0.15</i>	<i>0.15</i>
Total non-OPEC liquids	61.70	62.58	63.78	64.57	<i>64.49</i>	<i>65.47</i>	<i>65.89</i>	<i>66.30</i>	<i>66.36</i>	<i>67.46</i>	<i>67.77</i>	<i>68.17</i>	63.17	<i>65.54</i>	<i>67.44</i>
OPEC non-crude liquids	5.33	5.26	5.30	5.38	<i>5.45</i>	<i>5.38</i>	<i>5.33</i>	<i>5.29</i>	<i>5.21</i>	<i>5.16</i>	<i>5.11</i>	<i>5.14</i>	5.32	<i>5.36</i>	<i>5.16</i>
Non-OPEC + OPEC non-crude	67.03	67.84	69.08	69.95	<i>69.94</i>	<i>70.85</i>	<i>71.22</i>	<i>71.59</i>	<i>71.58</i>	<i>72.62</i>	<i>72.89</i>	<i>73.30</i>	68.48	<i>70.90</i>	<i>72.60</i>
Unplanned non-OPEC Production Outages	0.53	0.40	0.30	0.39	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	0.40	<i>n/a</i>	<i>n/a</i>

- = no data available

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

Notes: 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.

Projections: EIA Regional Short-Term Energy Model.

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

U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Crude Oil															
Algeria	1.02	1.02	1.03	1.00	-	-	-	-	-	-	-	-	1.02	-	-
Angola	1.59	1.56	1.56	1.57	-	-	-	-	-	-	-	-	1.57	-	-
Congo (Brazzaville)	0.34	0.35	0.33	0.33	-	-	-	-	-	-	-	-	0.34	-	-
Ecuador	0.51	0.52	0.53	0.54	-	-	-	-	-	-	-	-	0.53	-	-
Equatorial Guinea	0.14	0.13	0.14	0.13	-	-	-	-	-	-	-	-	0.13	-	-
Gabon	0.20	0.20	0.19	0.19	-	-	-	-	-	-	-	-	0.20	-	-
Iran	3.83	3.80	3.55	3.03	-	-	-	-	-	-	-	-	3.55	-	-
Iraq	4.46	4.50	4.66	4.77	-	-	-	-	-	-	-	-	4.60	-	-
Kuwait	2.71	2.71	2.80	2.80	-	-	-	-	-	-	-	-	2.76	-	-
Libya	1.00	0.92	0.91	1.03	-	-	-	-	-	-	-	-	0.96	-	-
Nigeria	1.72	1.53	1.55	1.61	-	-	-	-	-	-	-	-	1.60	-	-
Saudi Arabia	10.10	10.20	10.47	10.68	-	-	-	-	-	-	-	-	10.37	-	-
United Arab Emirates	2.88	2.86	2.94	3.04	-	-	-	-	-	-	-	-	2.93	-	-
Venezuela	1.57	1.42	1.26	1.27	-	-	-	-	-	-	-	-	1.38	-	-
OPEC Total	32.06	31.71	31.93	31.99	30.87	30.84	31.04	30.78	30.78	30.90	31.07	30.83	31.92	30.88	30.90
Other Liquids (a)	5.33	5.26	5.30	5.38	5.45	5.38	5.33	5.29	5.21	5.16	5.11	5.14	5.32	5.36	5.16
Total OPEC Supply	37.40	36.97	37.22	37.37	36.32	36.22	36.37	36.06	35.99	36.06	36.18	35.96	37.24	36.24	36.05
Crude Oil Production Capacity															
Africa	6.00	5.70	5.72	5.86	5.76	5.80	5.84	5.88	5.94	5.99	6.04	6.08	5.82	5.82	6.01
Middle East	25.84	25.85	25.76	25.35	25.43	25.33	25.33	25.33	25.81	25.85	25.86	25.87	25.70	25.35	25.85
South America	2.08	1.94	1.80	1.81	1.73	1.66	1.59	1.51	1.45	1.39	1.33	1.27	1.90	1.62	1.36
OPEC Total	33.92	33.49	33.27	33.02	32.92	32.78	32.75	32.72	33.20	33.22	33.22	33.21	33.42	32.79	33.21
Surplus Crude Oil Production Capacity															
Africa	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
Middle East	1.86	1.78	1.34	1.03	2.05	1.95	1.71	1.94	2.42	2.32	2.15	2.39	1.50	1.91	2.32
South America	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
OPEC Total	1.86	1.78	1.34	1.03	2.05	1.95	1.71	1.94	2.42	2.32	2.15	2.39	1.50	1.91	2.32
Unplanned OPEC Production Outages	1.21	1.43	1.59	1.88	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.53	n/a	n/a

- = no data available

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

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

Notes: 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.

Projections: EIA Regional Short-Term Energy Model.

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

U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				2018	2019	2020
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
North America	24.56	24.71	25.15	25.08	24.93	25.05	25.48	25.30	25.16	25.30	25.79	25.49	24.88	25.19	25.44
Canada	2.32	2.34	2.54	2.46	2.41	2.36	2.47	2.44	2.42	2.36	2.46	2.44	2.42	2.42	2.42
Mexico	1.99	2.02	1.97	1.97	1.96	1.98	1.98	2.01	1.97	2.00	2.00	2.01	1.99	1.98	1.99
United States	20.24	20.33	20.63	20.64	20.54	20.69	21.02	20.84	20.77	20.93	21.32	21.03	20.46	20.77	21.01
Central and South America	6.72	6.76	6.95	6.94	6.69	6.82	6.94	6.93	6.70	6.85	6.97	6.99	6.84	6.84	6.88
Brazil	2.98	2.95	3.11	3.14	2.97	3.04	3.12	3.11	2.99	3.06	3.15	3.15	3.05	3.06	3.09
Europe	14.80	14.93	15.39	15.08	14.79	15.01	15.54	15.24	14.89	15.11	15.64	15.34	15.05	15.15	15.25
Eurasia	4.78	4.83	5.11	4.98	4.80	4.87	5.24	5.09	4.90	4.97	5.36	5.20	4.93	5.00	5.11
Russia	3.63	3.70	3.91	3.78	3.64	3.73	4.04	3.88	3.73	3.83	4.14	3.99	3.75	3.82	3.92
Middle East	8.28	8.71	8.96	8.56	8.34	8.80	9.12	8.61	8.42	8.88	9.21	8.70	8.63	8.72	8.81
Asia and Oceania	35.68	35.20	34.56	35.85	36.68	36.11	35.51	36.54	37.53	36.97	36.36	37.43	35.32	36.21	37.07
China	13.80	14.00	13.73	13.95	14.28	14.47	14.20	14.41	14.76	14.95	14.67	14.90	13.87	14.34	14.82
Japan	4.27	3.43	3.53	3.88	4.15	3.40	3.47	3.79	4.05	3.32	3.39	3.73	3.78	3.70	3.62
India	4.73	4.89	4.57	4.94	5.07	5.13	4.79	5.10	5.29	5.36	5.00	5.32	4.78	5.02	5.24
Africa	4.34	4.35	4.26	4.45	4.42	4.43	4.36	4.53	4.51	4.51	4.44	4.62	4.35	4.43	4.52
Total OECD Liquid Fuels Consumption	47.58	46.94	47.86	48.12	47.98	47.38	48.42	48.42	48.28	47.72	48.85	48.74	47.63	48.05	48.40
Total non-OECD Liquid Fuels Consumption	51.60	52.55	52.52	52.83	52.68	53.71	53.75	53.80	53.84	54.88	54.92	55.03	52.38	53.49	54.67
Total World Liquid Fuels Consumption	99.18	99.49	100.37	100.94	100.66	101.09	102.17	102.23	102.12	102.60	103.77	103.76	100.00	101.54	103.07
Oil-weighted Real Gross Domestic Product (a)															
World Index, 2015 Q1 = 100	109.2	109.9	110.6	111.4	112.3	113.0	113.8	114.6	114.8	116.6	117.4	118.3	110.3	113.4	116.8
Percent change from prior year	3.3	3.2	3.0	2.9	2.8	2.8	2.9	2.9	2.2	3.2	3.1	3.2	3.1	2.9	2.9
OECD Index, 2015 Q1 = 100	106.5	107.1	107.5	108.1	108.9	109.2	109.7	110.2	109.9	111.5	111.9	112.4	107.3	109.5	111.4
Percent change from prior year	2.5	2.5	2.3	2.2	2.2	2.0	2.0	1.9	1.0	2.1	2.0	2.0	2.4	2.0	1.8
Non-OECD Index, 2015 Q1 = 100	111.8	112.6	113.5	114.4	115.6	116.6	117.7	118.9	119.6	121.6	122.7	123.9	113.1	117.2	121.9
Percent change from prior year	4.1	3.9	3.7	3.6	3.4	3.6	3.7	3.9	3.4	4.2	4.3	4.3	3.8	3.6	4.0
Real U.S. Dollar Exchange Rate (a)															
Index, 2015 Q1 = 100	100.71	102.72	105.49	105.83	105.47	105.01	104.32	103.61	102.81	102.30	101.59	101.02	103.69	104.60	101.93
Percent change from prior year	-4.0	-0.8	3.4	3.3	4.7	2.2	-1.1	-2.1	-2.5	-2.6	-2.6	-2.5	0.4	0.9	-2.6

- = 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, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Slovenia, South Korea, Spain, Sweden, Switzerland, Turkey, the United Kingdom, the United States.

(a) Weighted geometric mean of real indices for various countries with weights equal to each country's share of world oil consumption in the base period. Exchange rate is measured in foreign currency per U.S. dollar. GDP and exchange rate data are from Oxford Economics, and oil consumption data are from EIA.

Notes: 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.

Projections: EIA Regional Short-Term Energy Model.

Table 4a. U.S. Petroleum and Other Liquids Supply, Consumption, and Inventories
U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Supply (million barrels per day)															
Crude Oil Supply															
Domestic Production (a)	10.23	10.54	11.24	11.70	11.93	12.07	12.04	12.24	12.55	12.78	12.89	13.23	10.93	12.07	12.86
Alaska	0.51	0.48	0.43	0.49	0.50	0.49	0.46	0.49	0.52	0.50	0.48	0.49	0.48	0.49	0.49
Federal Gulf of Mexico (b)	1.67	1.58	1.85	1.81	1.89	1.91	1.83	1.97	2.12	2.20	2.14	2.31	1.73	1.90	2.19
Lower 48 States (excl GOM)	8.05	8.47	8.96	9.40	9.54	9.66	9.74	9.78	9.91	10.09	10.26	10.44	8.73	9.68	10.18
Crude Oil Net Imports (c)	6.18	6.19	5.84	5.09	4.86	4.95	5.05	4.59	4.80	5.11	4.90	4.44	5.82	4.87	4.81
SPR Net Withdrawals	-0.03	0.06	0.00	0.12	0.00	0.05	0.00	0.04	0.04	0.04	0.01	0.03	0.04	0.02	0.03
Commercial Inventory Net Withdrawals	-0.02	0.09	-0.01	-0.26	-0.48	0.03	0.11	-0.08	-0.41	0.09	0.16	-0.04	-0.05	-0.10	-0.05
Crude Oil Adjustment (d)	0.05	0.26	0.26	0.29	0.19	0.19	0.21	0.15	0.19	0.19	0.21	0.15	0.22	0.19	0.19
Total Crude Oil Input to Refineries	16.41	17.14	17.32	16.94	16.50	17.29	17.42	16.95	17.17	18.21	18.16	17.82	16.96	17.04	17.84
Other Supply															
Refinery Processing Gain	1.11	1.12	1.17	1.13	1.08	1.11	1.14	1.17	1.20	1.25	1.26	1.27	1.13	1.13	1.25
Natural Gas Plant Liquids Production	4.01	4.30	4.54	4.65	4.82	4.93	5.02	5.10	5.10	5.23	5.32	5.40	4.38	4.97	5.26
Renewables and Oxygenate Production (e)	1.21	1.22	1.25	1.22	1.19	1.22	1.23	1.23	1.19	1.24	1.25	1.24	1.22	1.22	1.23
Fuel Ethanol Production	1.05	1.04	1.06	1.04	1.04	1.05	1.04	1.04	1.04	1.05	1.05	1.04	1.05	1.04	1.04
Petroleum Products Adjustment (f)	0.21	0.21	0.21	0.21	0.21	0.22	0.22	0.23	0.22	0.24	0.24	0.24	0.21	0.22	0.24
Product Net Imports (c)	-3.13	-3.44	-3.17	-3.90	-3.64	-3.53	-3.66	-4.18	-4.43	-4.73	-4.62	-5.31	-3.41	-3.76	-4.77
Hydrocarbon Gas Liquids	-1.22	-1.53	-1.49	-1.56	-1.81	-1.78	-1.77	-1.92	-1.91	-1.95	-1.96	-2.09	-1.45	-1.82	-1.98
Unfinished Oils	0.39	0.32	0.35	0.33	0.28	0.37	0.40	0.37	0.51	0.58	0.59	0.54	0.35	0.36	0.55
Other HC/Oxygenates	-0.18	-0.15	-0.13	-0.11	-0.14	-0.12	-0.12	-0.10	-0.13	-0.12	-0.12	-0.12	-0.14	-0.12	-0.12
Motor Gasoline Blend Comp.	0.50	0.78	0.66	0.31	0.35	0.66	0.49	0.45	0.44	0.67	0.50	0.45	0.56	0.49	0.51
Finished Motor Gasoline	-0.94	-0.71	-0.72	-0.94	-0.69	-0.62	-0.60	-0.97	-1.06	-0.95	-0.80	-1.29	-0.83	-0.72	-1.02
Jet Fuel	-0.10	-0.10	-0.06	-0.14	0.01	0.00	-0.03	-0.01	-0.03	-0.08	-0.09	-0.07	-0.10	-0.01	-0.07
Distillate Fuel Oil	-0.87	-1.30	-1.14	-1.21	-1.03	-1.30	-1.34	-1.20	-1.48	-1.95	-1.90	-1.78	-1.13	-1.22	-1.78
Residual Fuel Oil	-0.10	-0.14	-0.10	-0.09	-0.01	-0.09	-0.06	-0.08	-0.02	-0.09	-0.05	-0.08	-0.11	-0.06	-0.06
Other Oils (g)	-0.62	-0.61	-0.53	-0.49	-0.61	-0.65	-0.63	-0.70	-0.74	-0.82	-0.79	-0.85	-0.56	-0.65	-0.80
Product Inventory Net Withdrawals	0.41	-0.21	-0.69	0.20	0.39	-0.55	-0.35	0.35	0.31	-0.51	-0.30	0.37	-0.07	-0.04	-0.03
Total Supply	20.23	20.33	20.63	20.60	20.54	20.69	21.02	20.84	20.77	20.93	21.32	21.03	20.45	20.77	21.01
Consumption (million barrels per day)															
Hydrocarbon Gas Liquids	3.22	2.67	2.85	3.17	3.31	2.89	3.03	3.32	3.50	3.10	3.19	3.48	2.98	3.14	3.32
Unfinished Oils	0.13	-0.04	-0.10	0.02	0.00	-0.03	-0.03	0.01	0.00	-0.03	-0.03	0.01	0.01	-0.01	-0.01
Motor Gasoline	9.01	9.51	9.51	9.15	9.06	9.58	9.55	9.21	9.03	9.57	9.62	9.17	9.29	9.35	9.35
Fuel Ethanol blended into Motor Gasoline	0.91	0.94	0.96	0.96	0.92	0.97	0.97	0.94	0.91	0.98	0.97	0.94	0.94	0.95	0.95
Jet Fuel	1.64	1.73	1.78	1.69	1.71	1.79	1.83	1.80	1.74	1.81	1.85	1.83	1.71	1.78	1.81
Distillate Fuel Oil	4.18	4.13	4.05	4.19	4.20	4.10	4.10	4.23	4.24	4.12	4.15	4.26	4.14	4.16	4.19
Residual Fuel Oil	0.28	0.32	0.34	0.34	0.37	0.33	0.34	0.31	0.36	0.33	0.34	0.31	0.32	0.34	0.34
Other Oils (g)	1.78	2.01	2.22	2.08	1.88	2.03	2.19	1.97	1.89	2.04	2.18	1.99	2.02	2.02	2.03
Total Consumption	20.24	20.33	20.63	20.64	20.54	20.69	21.02	20.84	20.77	20.93	21.32	21.03	20.46	20.77	21.01
Total Petroleum and Other Liquids Net Imports	3.05	2.75	2.67	1.19	1.22	1.42	1.39	0.42	0.37	0.38	0.28	-0.87	2.41	1.11	0.04
End-of-period Inventories (million barrels)															
Commercial Inventory															
Crude Oil (excluding SPR)	423.4	414.8	416.1	439.7	483.2	480.8	470.4	477.4	514.3	505.7	491.1	494.4	439.7	477.4	494.4
Hydrocarbon Gas Liquids	139.3	180.8	224.8	185.0	147.6	202.4	243.3	199.9	162.6	212.2	250.2	205.8	185.0	199.9	205.8
Unfinished Oils	98.3	92.6	92.0	89.5	93.1	90.4	88.2	81.6	92.7	91.7	88.5	82.0	89.5	81.6	82.0
Other HC/Oxygenates	30.5	28.8	30.5	29.2	31.0	30.0	29.2	29.9	31.6	30.6	29.9	30.5	29.2	29.9	30.5
Total Motor Gasoline	239.6	240.3	239.7	248.1	244.1	239.6	234.1	247.1	246.2	242.7	238.2	250.4	248.1	247.1	250.4
Finished Motor Gasoline	23.1	24.7	24.8	25.7	25.3	24.1	24.9	25.5	25.1	24.0	25.1	25.3	25.7	25.5	25.3
Motor Gasoline Blend Comp.	216.5	215.6	214.9	222.4	218.8	215.5	209.2	221.6	221.1	218.6	213.1	225.2	222.4	221.6	225.2
Jet Fuel	40.4	40.8	46.9	40.5	40.7	42.3	43.9	41.9	41.8	43.3	44.7	42.7	40.5	41.9	42.7
Distillate Fuel Oil	130.4	120.4	137.1	140.0	130.3	132.1	136.5	140.9	131.1	133.1	137.8	142.6	140.0	140.9	142.6
Residual Fuel Oil	35.0	30.0	28.6	28.3	34.0	36.5	35.9	36.2	38.3	38.5	36.6	36.0	28.3	36.2	36.0
Other Oils (g)	59.3	58.8	56.1	58.9	63.8	61.9	55.6	57.5	62.7	61.0	55.0	57.0	58.9	57.5	57.0
Total Commercial Inventory	1,196	1,207	1,272	1,259	1,268	1,316	1,337	1,312	1,321	1,359	1,372	1,341	1,259	1,312	1,341
Crude Oil in SPR	665	660	660	649	649	644	644	641	637	634	633	630	649	641	630

- = no data available

(a) Includes lease condensate.

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

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

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

(e) Renewables and oxygenate production includes pentanes plus, oxygenates (excluding fuel ethanol), and renewable fuels.

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

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

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

SPR: Strategic Petroleum Reserve

HC: Hydrocarbons

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

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

Projections: EIA Regional Short-Term Energy Model.

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 - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
HGL Production															
Natural Gas Processing Plants															
Ethane	1.59	1.70	1.76	1.83	1.93	1.95	1.98	2.05	2.10	2.13	2.15	2.20	1.72	1.98	2.15
Propane	1.29	1.37	1.44	1.49	1.55	1.58	1.60	1.62	1.61	1.64	1.67	1.70	1.40	1.58	1.65
Butanes	0.69	0.74	0.78	0.81	0.82	0.84	0.86	0.86	0.85	0.88	0.89	0.90	0.75	0.85	0.88
Natural Gasoline (Pentanes Plus)	0.44	0.50	0.55	0.53	0.52	0.56	0.58	0.57	0.54	0.58	0.61	0.59	0.51	0.56	0.58
Refinery and Blender Net Production															
Ethane/Ethylene	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Propane	0.30	0.31	0.31	0.29	0.28	0.30	0.29	0.29	0.29	0.31	0.30	0.31	0.30	0.29	0.30
Propylene (refinery-grade)	0.28	0.29	0.29	0.29	0.28	0.28	0.28	0.29	0.28	0.29	0.29	0.29	0.29	0.28	0.29
Butanes/Butylenes	-0.11	0.24	0.19	-0.21	-0.08	0.26	0.19	-0.20	-0.08	0.26	0.19	-0.20	0.03	0.04	0.04
Renewable Fuels and Oxygenate Plant Net Production															
Natural Gasoline (Pentanes Plus)	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
HGL Net Imports															
Ethane	-0.22	-0.29	-0.26	-0.30	-0.33	-0.32	-0.32	-0.34	-0.34	-0.34	-0.33	-0.34	-0.27	-0.33	-0.34
Propane/Propylene	-0.72	-0.81	-0.87	-0.84	-0.96	-0.91	-0.90	-1.04	-0.98	-1.01	-1.00	-1.14	-0.81	-0.95	-1.03
Butanes/Butylenes	-0.10	-0.20	-0.19	-0.23	-0.27	-0.28	-0.26	-0.26	-0.30	-0.30	-0.29	-0.29	-0.18	-0.27	-0.30
Natural Gasoline (Pentanes Plus)	-0.18	-0.23	-0.17	-0.18	-0.25	-0.26	-0.30	-0.29	-0.29	-0.31	-0.33	-0.32	-0.19	-0.27	-0.31
HGL Refinery and Blender Net Inputs															
Butanes/Butylenes	0.45	0.30	0.32	0.53	0.41	0.30	0.33	0.51	0.42	0.31	0.34	0.52	0.40	0.39	0.40
Natural Gasoline (Pentanes Plus)	0.15	0.16	0.18	0.18	0.17	0.18	0.18	0.18	0.16	0.17	0.18	0.17	0.17	0.18	0.17
HGL Consumption															
Ethane/Ethylene	1.44	1.45	1.51	1.50	1.60	1.61	1.69	1.74	1.76	1.78	1.84	1.89	1.48	1.66	1.82
Propane	1.16	0.60	0.65	1.04	1.12	0.64	0.72	0.98	1.16	0.67	0.73	0.98	0.86	0.86	0.88
Propylene (refinery-grade)	0.32	0.31	0.31	0.29	0.31	0.31	0.30	0.29	0.31	0.33	0.31	0.30	0.30	0.30	0.31
Butanes/Butylenes	0.20	0.21	0.21	0.23	0.20	0.27	0.25	0.22	0.19	0.26	0.25	0.22	0.22	0.23	0.23
Natural Gasoline (Pentanes Plus)	0.10	0.09	0.16	0.12	0.09	0.07	0.07	0.08	0.09	0.06	0.06	0.08	0.12	0.08	0.07
HGL Inventories (million barrels)															
Ethane	51.41	47.90	46.07	50.01	48.72	51.77	49.91	49.40	47.65	50.73	48.87	48.36	48.84	49.95	48.90
Propane	33.83	56.51	75.16	64.30	39.74	66.65	89.79	78.26	54.06	76.50	96.67	84.54	64.30	78.26	84.54
Propylene (refinery-grade)	3.82	3.64	3.86	5.94	5.06	4.89	4.85	5.96	5.37	4.70	4.73	5.51	5.94	5.96	5.51
Butanes/Butylenes	32.02	55.37	78.52	43.09	31.80	55.47	73.91	43.28	31.49	55.16	73.60	42.98	43.09	43.28	42.98
Natural Gasoline (Pentanes Plus)	19.36	18.59	20.34	22.63	21.37	23.53	24.87	24.56	23.05	25.07	26.32	25.99	22.63	24.56	25.99
Refinery and Blender Net Inputs															
Crude Oil	16.41	17.14	17.32	16.94	16.50	17.29	17.42	16.95	17.17	18.21	18.16	17.82	16.96	17.04	17.84
Hydrocarbon Gas Liquids	0.61	0.47	0.50	0.71	0.58	0.48	0.51	0.69	0.58	0.48	0.52	0.70	0.57	0.57	0.57
Other Hydrocarbons/Oxygenates	1.16	1.23	1.22	1.23	1.20	1.27	1.26	1.27	1.22	1.30	1.30	1.27	1.21	1.25	1.27
Unfinished Oils	0.12	0.42	0.45	0.33	0.24	0.43	0.46	0.43	0.38	0.62	0.65	0.60	0.33	0.39	0.56
Motor Gasoline Blend Components	0.34	0.70	0.58	0.34	0.52	0.84	0.66	0.49	0.57	0.84	0.66	0.49	0.49	0.63	0.64
Aviation Gasoline Blend Components	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Refinery and Blender Net Inputs	18.63	19.96	20.08	19.55	19.03	20.31	20.31	19.83	19.93	21.45	21.29	20.87	19.56	19.87	20.89
Refinery Processing Gain															
.....	1.11	1.12	1.17	1.13	1.08	1.11	1.14	1.17	1.20	1.25	1.26	1.27	1.13	1.13	1.25
Refinery and Blender Net Production															
Hydrocarbon Gas Liquids	0.48	0.84	0.80	0.38	0.48	0.85	0.76	0.38	0.50	0.87	0.78	0.40	0.63	0.62	0.64
Finished Motor Gasoline	9.79	10.14	10.11	10.16	9.86	10.30	10.24	10.33	10.18	10.62	10.51	10.60	10.05	10.19	10.48
Jet Fuel	1.72	1.83	1.90	1.76	1.70	1.81	1.88	1.79	1.76	1.91	1.96	1.88	1.81	1.79	1.88
Distillate Fuel	4.81	5.25	5.29	5.35	5.08	5.36	5.41	5.41	5.57	6.03	6.03	6.02	5.18	5.32	5.92
Residual Fuel	0.44	0.40	0.42	0.42	0.45	0.45	0.40	0.39	0.41	0.42	0.38	0.39	0.42	0.42	0.40
Other Oils (a)	2.49	2.61	2.72	2.60	2.55	2.65	2.75	2.69	2.69	2.85	2.90	2.85	2.61	2.66	2.82
Total Refinery and Blender Net Production	19.74	21.08	21.25	20.68	20.11	21.42	21.45	21.00	21.13	22.70	22.56	22.15	20.69	21.00	22.13
Refinery Distillation Inputs															
.....	16.76	17.50	17.69	17.31	16.70	17.41	17.60	17.14	17.31	18.24	18.28	17.93	17.32	17.22	17.94
Refinery Operable Distillation Capacity															
.....	18.57	18.60	18.60	18.60	18.60	18.60	18.64	18.65	18.65	18.65	18.65	18.65	18.59	18.62	18.65
Refinery Distillation Utilization Factor															
.....	0.90	0.94	0.95	0.93	0.90	0.94	0.94	0.92	0.93	0.98	0.98	0.96	0.93	0.92	0.96

- = no data available

(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.

Notes: 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.

Projections: EIA Regional Short-Term Energy Model.

Table 4c. U.S. Regional Motor Gasoline Prices and Inventories

U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Prices (cents per gallon)															
Refiner Wholesale Price	186	213	213	175	<i>158</i>	<i>178</i>	<i>182</i>	<i>172</i>	<i>182</i>	<i>197</i>	<i>192</i>	<i>176</i>	197	<i>173</i>	<i>187</i>
Gasoline Regular Grade Retail Prices Including Taxes															
PADD 1	255	279	278	257	<i>228</i>	<i>244</i>	<i>252</i>	<i>248</i>	<i>251</i>	<i>265</i>	<i>264</i>	<i>253</i>	268	<i>243</i>	<i>258</i>
PADD 2	246	274	276	245	<i>219</i>	<i>243</i>	<i>250</i>	<i>240</i>	<i>246</i>	<i>264</i>	<i>261</i>	<i>246</i>	261	<i>239</i>	<i>254</i>
PADD 3	230	261	258	231	<i>206</i>	<i>227</i>	<i>231</i>	<i>222</i>	<i>230</i>	<i>247</i>	<i>241</i>	<i>226</i>	245	<i>222</i>	<i>236</i>
PADD 4	247	288	297	281	<i>222</i>	<i>244</i>	<i>258</i>	<i>246</i>	<i>238</i>	<i>264</i>	<i>271</i>	<i>251</i>	279	<i>243</i>	<i>256</i>
PADD 5	312	342	335	333	<i>276</i>	<i>304</i>	<i>307</i>	<i>289</i>	<i>294</i>	<i>326</i>	<i>321</i>	<i>294</i>	330	<i>294</i>	<i>309</i>
U.S. Average	258	285	284	263	<i>230</i>	<i>252</i>	<i>258</i>	<i>249</i>	<i>253</i>	<i>272</i>	<i>269</i>	<i>253</i>	273	<i>247</i>	<i>262</i>
Gasoline All Grades Including Taxes	270	294	292	271	<i>240</i>	<i>263</i>	<i>269</i>	<i>261</i>	<i>265</i>	<i>284</i>	<i>282</i>	<i>266</i>	282	<i>259</i>	<i>275</i>
End-of-period Inventories (million barrels)															
Total Gasoline Inventories															
PADD 1	58.4	66.5	70.2	63.5	<i>66.3</i>	<i>67.5</i>	<i>64.2</i>	<i>68.1</i>	<i>67.5</i>	<i>68.5</i>	<i>65.6</i>	<i>69.1</i>	63.5	<i>68.1</i>	<i>69.1</i>
PADD 2	57.3	53.5	53.1	57.0	<i>56.0</i>	<i>53.4</i>	<i>51.7</i>	<i>53.8</i>	<i>56.4</i>	<i>53.9</i>	<i>52.4</i>	<i>54.3</i>	57.0	<i>53.8</i>	<i>54.3</i>
PADD 3	84.2	82.3	80.5	89.4	<i>84.1</i>	<i>82.6</i>	<i>82.2</i>	<i>85.8</i>	<i>84.4</i>	<i>83.9</i>	<i>83.8</i>	<i>87.3</i>	89.4	<i>85.8</i>	<i>87.3</i>
PADD 4	7.7	7.3	7.0	7.5	<i>7.6</i>	<i>7.6</i>	<i>7.4</i>	<i>7.8</i>	<i>7.7</i>	<i>7.7</i>	<i>7.6</i>	<i>8.0</i>	7.5	<i>7.8</i>	<i>8.0</i>
PADD 5	32.0	30.7	28.8	30.7	<i>30.0</i>	<i>28.6</i>	<i>28.6</i>	<i>31.7</i>	<i>30.3</i>	<i>28.7</i>	<i>28.8</i>	<i>31.7</i>	30.7	<i>31.7</i>	<i>31.7</i>
U.S. Total	239.6	240.3	239.7	248.1	<i>244.1</i>	<i>239.6</i>	<i>234.1</i>	<i>247.1</i>	<i>246.2</i>	<i>242.7</i>	<i>238.2</i>	<i>250.4</i>	248.1	<i>247.1</i>	<i>250.4</i>
Finished Gasoline Inventories															
U.S. Total	23.1	24.7	24.8	25.7	<i>25.3</i>	<i>24.1</i>	<i>24.9</i>	<i>25.5</i>	<i>25.1</i>	<i>24.0</i>	<i>25.1</i>	<i>25.3</i>	25.7	<i>25.5</i>	<i>25.3</i>
Gasoline Blending Components Inventories															
U.S. Total	216.5	215.6	214.9	222.4	<i>218.8</i>	<i>215.5</i>	<i>209.2</i>	<i>221.6</i>	<i>221.1</i>	<i>218.6</i>	<i>213.1</i>	<i>225.2</i>	222.4	<i>221.6</i>	<i>225.2</i>

- = no data available

Prices are not adjusted for inflation.

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

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.

Projections: EIA Regional Short-Term Energy Model.

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

U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Supply (billion cubic feet per day)															
Total Marketed Production	84.93	87.39	91.50	94.64	96.33	97.23	97.56	97.98	98.80	99.39	99.87	100.66	89.65	97.28	99.68
Alaska	1.00	0.92	0.86	0.94	1.00	0.86	0.79	0.94	1.01	0.87	0.81	0.95	0.93	0.90	0.91
Federal GOM (a)	2.57	2.48	2.85	2.81	2.91	2.90	2.86	2.92	3.01	3.06	3.05	3.14	2.68	2.90	3.06
Lower 48 States (excl GOM)	81.37	83.98	87.79	90.88	92.42	93.46	93.91	94.11	94.79	95.46	96.01	96.58	86.04	93.48	95.71
Total Dry Gas Production	79.13	81.17	84.95	87.87	89.39	90.17	90.43	90.77	91.48	91.98	92.37	93.05	83.31	90.19	92.22
LNG Gross Imports	0.33	0.10	0.15	0.20	0.32	0.17	0.17	0.21	0.32	0.18	0.18	0.20	0.20	0.22	0.22
LNG Gross Exports	2.64	2.79	2.95	3.49	4.11	4.27	5.55	6.52	7.01	6.16	6.47	7.38	2.97	5.12	6.76
Pipeline Gross Imports	8.76	7.63	7.50	7.14	8.32	6.58	6.13	7.01	8.18	6.34	6.17	6.53	7.75	7.01	6.80
Pipeline Gross Exports	7.02	6.15	7.04	8.00	8.90	7.85	7.45	8.06	9.51	8.17	7.75	8.26	7.05	8.06	8.42
Supplemental Gaseous Fuels	0.21	0.17	0.19	0.20	0.20	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.19	0.21	0.21
Net Inventory Withdrawals	18.31	-8.86	-8.22	2.69	14.42	-12.57	-9.55	3.09	16.39	-10.58	-8.09	3.02	0.91	-1.21	0.17
Total Supply	97.09	71.27	74.59	86.60	99.64	72.45	74.39	86.71	100.06	73.81	76.63	87.36	82.34	83.24	84.45
Balancing Item (b)	0.45	-0.61	-0.55	-2.28	-0.23	-1.01	-0.03	-1.06	-0.80	-1.52	-0.56	-0.74	-0.75	-0.59	-0.90
Total Primary Supply	97.54	70.66	74.04	84.32	99.40	71.44	74.36	85.65	99.26	72.28	76.07	86.63	81.58	82.65	83.55
Consumption (billion cubic feet per day)															
Residential	25.75	7.97	3.44	16.69	25.95	7.59	3.50	16.72	25.33	7.34	3.29	16.46	13.41	13.39	13.09
Commercial	15.34	6.61	4.58	10.78	15.31	6.75	4.64	10.54	14.93	6.35	4.60	10.12	9.30	9.29	8.99
Industrial	24.27	21.78	21.23	23.66	24.75	22.11	21.50	24.38	25.02	22.37	21.62	24.55	22.73	23.18	23.39
Electric Power (c)	24.91	27.61	37.80	25.73	25.41	27.63	37.14	26.03	25.58	28.53	38.73	27.27	29.04	29.07	30.04
Lease and Plant Fuel	4.55	4.68	4.90	5.07	5.16	5.21	5.23	5.25	5.29	5.33	5.35	5.39	4.80	5.21	5.34
Pipeline and Distribution Use	2.60	1.88	1.97	2.28	2.70	2.03	2.23	2.60	2.98	2.24	2.36	2.71	2.18	2.39	2.57
Vehicle Use	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Total Consumption	97.54	70.66	74.04	84.32	99.40	71.44	74.36	85.65	99.26	72.28	76.07	86.63	81.58	82.65	83.55
End-of-period Inventories (billion cubic feet)															
Working Gas Inventory	1,391	2,196	2,951	2,702	1,405	2,548	3,427	3,142	1,651	2,613	3,357	3,079	2,702	3,142	3,079
East Region (d)	229	465	778	657	232	586	908	804	292	576	826	752	657	804	752
Midwest Region (d)	261	459	846	783	285	568	937	797	263	526	870	752	783	797	752
South Central Region (d)	614	846	846	872	619	955	1,057	1,079	758	1,025	1,108	1,099	872	1,079	1,099
Mountain Region (d)	87	140	179	141	85	133	181	152	109	154	195	159	141	152	159
Pacific Region (d)	169	253	263	213	148	270	308	273	191	295	322	281	213	273	281
Alaska	31	33	38	36	36	36	36	36	36	36	36	36	36	36	36

- = no data available

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

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

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

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

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

LNG: liquefied natural gas.

Historical data: Latest data available from Energy Information Administration databases supporting the following reports: *Natural Gas Monthly* , DOE/EIA-0130; and *Electric Power Monthly* , DOE/EIA-0226.

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

Projections: EIA Regional Short-Term Energy Model.

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

U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Wholesale/Spot															
Henry Hub Spot Price	3.13	2.96	3.04	3.92	<i>3.14</i>	<i>2.83</i>	<i>2.84</i>	<i>3.16</i>	<i>3.39</i>	<i>2.87</i>	<i>2.76</i>	<i>3.08</i>	3.26	2.99	3.02
Residential Retail															
New England	14.38	16.60	19.08	14.36	<i>13.44</i>	<i>13.86</i>	<i>17.02</i>	<i>13.58</i>	<i>13.25</i>	<i>14.11</i>	<i>17.04</i>	<i>13.42</i>	15.02	13.78	13.69
Middle Atlantic	10.17	11.92	18.30	11.69	<i>10.11</i>	<i>11.77</i>	<i>16.58</i>	<i>11.48</i>	<i>10.68</i>	<i>12.45</i>	<i>16.57</i>	<i>11.05</i>	11.37	11.18	11.47
E. N. Central	7.20	9.77	18.40	8.53	<i>8.12</i>	<i>10.76</i>	<i>16.43</i>	<i>8.78</i>	<i>8.04</i>	<i>10.91</i>	<i>16.47</i>	<i>8.70</i>	8.59	9.24	9.19
W. N. Central	8.15	10.48	18.55	9.08	<i>8.81</i>	<i>11.74</i>	<i>17.45</i>	<i>9.50</i>	<i>8.74</i>	<i>11.63</i>	<i>17.31</i>	<i>9.46</i>	9.30	9.96	9.89
S. Atlantic	11.07	15.63	24.90	13.68	<i>11.61</i>	<i>16.14</i>	<i>22.45</i>	<i>13.13</i>	<i>11.81</i>	<i>16.69</i>	<i>22.49</i>	<i>12.79</i>	13.35	13.47	13.53
E. S. Central	9.61	12.70	21.52	11.68	<i>9.98</i>	<i>14.17</i>	<i>20.44</i>	<i>13.02</i>	<i>10.86</i>	<i>15.51</i>	<i>21.49</i>	<i>13.63</i>	11.23	11.93	12.88
W. S. Central	9.27	14.25	22.03	10.87	<i>8.47</i>	<i>13.54</i>	<i>20.12</i>	<i>12.23</i>	<i>9.27</i>	<i>14.74</i>	<i>20.67</i>	<i>12.41</i>	11.20	11.18	11.93
Mountain	8.22	10.41	14.03	8.12	<i>8.64</i>	<i>9.87</i>	<i>13.54</i>	<i>8.96</i>	<i>8.84</i>	<i>10.23</i>	<i>13.81</i>	<i>9.11</i>	8.95	9.34	9.55
Pacific	11.62	12.02	12.88	11.47	<i>12.56</i>	<i>12.42</i>	<i>12.63</i>	<i>11.54</i>	<i>12.74</i>	<i>13.02</i>	<i>13.16</i>	<i>11.94</i>	11.79	12.22	12.58
U.S. Average	9.37	11.94	17.93	10.33	<i>9.77</i>	<i>12.00</i>	<i>16.63</i>	<i>10.73</i>	<i>10.01</i>	<i>12.43</i>	<i>16.85</i>	<i>10.71</i>	10.61	10.84	11.00
Commercial Retail															
New England	11.05	11.73	10.85	10.59	<i>10.69</i>	<i>10.36</i>	<i>9.90</i>	<i>9.51</i>	<i>9.67</i>	<i>9.71</i>	<i>9.63</i>	<i>9.65</i>	11.00	10.22	9.67
Middle Atlantic	8.13	7.67	7.47	7.80	<i>7.87</i>	<i>7.56</i>	<i>6.95</i>	<i>7.60</i>	<i>7.90</i>	<i>7.75</i>	<i>7.04</i>	<i>7.53</i>	7.88	7.62	7.66
E. N. Central	6.19	6.95	9.01	6.92	<i>6.97</i>	<i>7.69</i>	<i>8.90</i>	<i>6.91</i>	<i>6.76</i>	<i>7.77</i>	<i>8.93</i>	<i>6.85</i>	6.74	7.21	7.10
W. N. Central	6.96	7.13	8.92	7.29	<i>7.70</i>	<i>7.87</i>	<i>8.80</i>	<i>7.24</i>	<i>7.55</i>	<i>7.88</i>	<i>8.76</i>	<i>7.18</i>	7.23	7.67	7.58
S. Atlantic	8.29	9.14	9.73	8.82	<i>8.75</i>	<i>9.39</i>	<i>9.85</i>	<i>9.12</i>	<i>9.18</i>	<i>9.95</i>	<i>9.99</i>	<i>8.85</i>	8.75	9.10	9.31
E. S. Central	8.62	9.32	10.51	9.09	<i>8.96</i>	<i>9.66</i>	<i>9.98</i>	<i>8.83</i>	<i>8.49</i>	<i>9.49</i>	<i>9.84</i>	<i>8.69</i>	9.06	9.14	8.85
W. S. Central	7.21	7.90	8.55	7.73	<i>7.70</i>	<i>7.66</i>	<i>8.11</i>	<i>7.52</i>	<i>7.29</i>	<i>7.70</i>	<i>8.06</i>	<i>7.42</i>	7.65	7.71	7.52
Mountain	7.00	7.52	7.92	6.43	<i>7.07</i>	<i>7.40</i>	<i>8.18</i>	<i>7.18</i>	<i>7.43</i>	<i>7.70</i>	<i>8.35</i>	<i>7.23</i>	7.00	7.28	7.51
Pacific	8.90	8.58	9.11	8.60	<i>8.95</i>	<i>8.74</i>	<i>8.88</i>	<i>8.56</i>	<i>8.88</i>	<i>8.98</i>	<i>9.05</i>	<i>8.61</i>	8.78	8.77	8.84
U.S. Average	7.64	8.05	8.77	7.81	<i>7.98</i>	<i>8.19</i>	<i>8.50</i>	<i>7.80</i>	<i>7.85</i>	<i>8.31</i>	<i>8.55</i>	<i>7.74</i>	7.88	8.02	7.97
Industrial Retail															
New England	8.95	8.62	6.49	7.90	<i>8.57</i>	<i>7.55</i>	<i>6.98</i>	<i>8.15</i>	<i>8.84</i>	<i>8.03</i>	<i>7.08</i>	<i>7.89</i>	8.16	7.96	8.11
Middle Atlantic	8.33	8.07	7.73	7.78	<i>8.21</i>	<i>7.35</i>	<i>7.24</i>	<i>7.51</i>	<i>8.03</i>	<i>7.40</i>	<i>7.24</i>	<i>7.43</i>	8.07	7.78	7.69
E. N. Central	5.69	5.02	5.20	5.99	<i>6.77</i>	<i>6.08</i>	<i>5.76</i>	<i>5.69</i>	<i>6.37</i>	<i>5.96</i>	<i>5.69</i>	<i>5.70</i>	5.59	6.21	6.02
W. N. Central	5.05	4.23	4.21	5.24	<i>5.83</i>	<i>4.69</i>	<i>4.38</i>	<i>5.03</i>	<i>5.66</i>	<i>4.69</i>	<i>4.31</i>	<i>4.98</i>	4.73	5.05	4.97
S. Atlantic	5.34	4.67	4.68	5.54	<i>5.59</i>	<i>4.69</i>	<i>4.68</i>	<i>5.19</i>	<i>5.69</i>	<i>4.88</i>	<i>4.61</i>	<i>5.03</i>	5.08	5.06	5.08
E. S. Central	4.93	4.21	4.14	5.09	<i>5.06</i>	<i>4.27</i>	<i>4.24</i>	<i>4.82</i>	<i>5.21</i>	<i>4.54</i>	<i>4.27</i>	<i>4.79</i>	4.63	4.62	4.73
W. S. Central	3.32	3.09	3.12	4.10	<i>3.53</i>	<i>3.04</i>	<i>3.10</i>	<i>3.34</i>	<i>3.60</i>	<i>3.06</i>	<i>2.99</i>	<i>3.24</i>	3.42	3.26	3.23
Mountain	5.44	5.38	4.73	5.48	<i>6.06</i>	<i>5.75</i>	<i>5.93</i>	<i>5.97</i>	<i>6.16</i>	<i>5.77</i>	<i>5.81</i>	<i>5.78</i>	5.30	5.94	5.90
Pacific	6.97	6.03	6.72	6.58	<i>7.25</i>	<i>6.36</i>	<i>6.38</i>	<i>6.49</i>	<i>7.13</i>	<i>6.57</i>	<i>6.49</i>	<i>6.49</i>	6.59	6.65	6.69
U.S. Average	4.44	3.83	3.73	4.77	<i>4.71</i>	<i>3.83</i>	<i>3.75</i>	<i>4.25</i>	<i>4.74</i>	<i>3.91</i>	<i>3.68</i>	<i>4.16</i>	4.22	4.16	4.15

- = no data available

Prices are not adjusted for inflation.

Notes: 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 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.

Projections: EIA Regional Short-Term Energy Model.

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

U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Supply (million short tons)															
Production	187.6	180.8	194.7	191.7	190.8	159.2	189.8	189.8	181.7	145.1	174.8	178.1	754.8	729.5	679.7
Appalachia	50.0	51.6	49.0	51.0	55.4	46.6	46.2	43.5	46.9	39.4	41.6	42.1	201.5	191.7	170.1
Interior	34.0	34.6	34.7	34.1	36.6	29.2	36.7	39.2	35.7	29.0	36.0	37.6	137.3	141.6	138.3
Western	103.7	94.6	111.0	106.6	98.8	83.4	106.8	107.1	99.2	76.7	97.2	98.4	415.9	396.1	371.4
Primary Inventory Withdrawals	-2.8	2.3	1.1	-0.7	0.6	1.2	0.9	-3.4	-1.1	1.2	0.9	-3.6	-0.1	-0.7	-2.6
Imports	1.4	1.5	1.4	1.3	1.2	1.4	1.7	1.7	1.4	1.4	1.7	1.4	5.7	6.0	6.0
Exports	27.2	30.9	29.1	28.9	27.6	25.4	24.7	24.7	23.0	24.0	23.7	23.7	116.1	102.4	94.4
Metallurgical Coal	14.9	16.9	14.5	15.5	13.8	12.9	13.3	13.3	12.0	12.5	13.3	13.1	61.8	53.3	51.0
Steam Coal	12.3	13.9	14.5	13.4	13.8	12.5	11.4	11.4	11.0	11.5	10.4	10.6	54.2	49.1	43.4
Total Primary Supply	159.0	153.7	168.1	163.5	165.1	136.3	167.7	163.3	159.0	123.7	153.8	152.2	644.3	632.4	588.7
Secondary Inventory Withdrawals	11.9	4.9	20.4	-7.0	1.4	1.4	3.8	-8.4	0.5	1.7	5.7	-9.5	30.2	-1.8	-1.6
Waste Coal (a)	2.8	2.3	2.6	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	10.0	9.2	9.1
Total Supply	173.6	160.9	191.1	158.9	168.7	140.1	173.8	157.2	161.8	127.6	161.7	145.0	684.5	639.9	596.2
Consumption (million short tons)															
Coke Plants	4.2	4.6	4.7	5.9	5.0	4.4	5.1	6.2	4.8	4.5	5.4	6.6	19.5	20.8	21.3
Electric Power Sector (b)	154.8	144.2	181.6	160.1	155.7	128.0	161.1	143.4	148.9	115.6	149.1	131.1	640.7	588.2	544.7
Retail and Other Industry	8.5	7.9	7.7	8.0	8.0	7.6	7.5	7.7	8.1	7.5	7.2	7.3	32.2	30.9	30.2
Residential and Commercial	0.4	0.2	0.2	0.3	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.2	1.0	0.7	0.7
Other Industrial	8.2	7.7	7.5	7.8	7.8	7.5	7.4	7.5	7.9	7.4	7.1	7.1	31.2	30.1	29.5
Total Consumption	167.6	156.6	194.1	174.1	168.7	140.1	173.8	157.2	161.8	127.6	161.7	145.0	692.4	639.9	596.2
Discrepancy (c)	6.1	4.2	-2.9	-15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-7.8	0.0	0.0
End-of-period Inventories (million short tons)															
Primary Inventories (d)	26.8	24.5	23.4	24.1	23.5	22.3	21.4	24.8	25.9	24.6	23.8	27.4	24.1	24.8	27.4
Secondary Inventories	131.1	126.2	105.8	112.8	111.4	110.0	106.1	114.6	114.0	112.4	106.7	116.2	112.8	114.6	116.2
Electric Power Sector	126.4	121.4	100.7	107.7	106.6	104.8	100.7	109.0	108.8	106.9	100.8	110.4	107.7	109.0	110.4
Retail and General Industry	2.9	2.9	3.0	2.9	3.1	3.1	3.2	3.2	3.3	3.3	3.4	3.4	2.9	3.2	3.4
Coke Plants	1.5	1.6	1.8	1.9	1.5	1.9	2.0	2.1	1.6	2.0	2.1	2.2	1.9	2.1	2.2
Coal Market Indicators															
Coal Miner Productivity															
(Tons per hour)	6.10	6.10	6.10	6.10	6.02	6.02	6.02	6.02	6.01	6.01	6.01	6.01	6.10	6.02	6.01
Total Raw Steel Production															
(Million short tons per day)	0.251	0.253	0.263	0.270	0.310	0.298	0.278	0.246	0.305	0.300	0.277	0.240	0.260	0.283	0.280
Cost of Coal to Electric Utilities															
(Dollars per million Btu)	2.06	2.06	2.06	2.09	2.08	2.07	2.06	2.08	2.08	2.08	2.07	2.07	2.07	2.07	2.08

- = no data available

(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.

Notes: 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*, DOE/EIA-0226.

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

Projections: EIA Regional Short-Term Energy Model.

Table 7a. U.S. Electricity Industry Overview

U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Electricity Supply (billion kilowatthours per day)															
Electricity Generation	11.13	11.14	12.82	10.79	<i>11.10</i>	<i>10.79</i>	<i>12.45</i>	<i>10.68</i>	<i>11.12</i>	<i>10.84</i>	<i>12.49</i>	<i>10.70</i>	11.47	<i>11.26</i>	<i>11.29</i>
Electric Power Sector (a)	10.69	10.71	12.37	10.35	<i>10.66</i>	<i>10.36</i>	<i>12.00</i>	<i>10.25</i>	<i>10.67</i>	<i>10.39</i>	<i>12.04</i>	<i>10.26</i>	11.04	<i>10.82</i>	<i>10.84</i>
Comm. and Indus. Sectors (b)	0.43	0.43	0.45	0.44	<i>0.44</i>	<i>0.43</i>	<i>0.44</i>	<i>0.43</i>	<i>0.45</i>	<i>0.44</i>	<i>0.46</i>	<i>0.44</i>	0.44	<i>0.44</i>	<i>0.45</i>
Net Imports	0.13	0.12	0.14	0.10	<i>0.13</i>	<i>0.14</i>	<i>0.17</i>	<i>0.13</i>	<i>0.14</i>	<i>0.15</i>	<i>0.17</i>	<i>0.13</i>	0.12	<i>0.14</i>	<i>0.15</i>
Total Supply	11.26	11.27	12.96	10.89	<i>11.23</i>	<i>10.93</i>	<i>12.61</i>	<i>10.81</i>	<i>11.27</i>	<i>10.98</i>	<i>12.67</i>	<i>10.83</i>	11.60	<i>11.40</i>	<i>11.44</i>
Losses and Unaccounted for (c)	0.65	0.94	0.84	0.70	<i>0.62</i>	<i>0.82</i>	<i>0.73</i>	<i>0.68</i>	<i>0.59</i>	<i>0.82</i>	<i>0.73</i>	<i>0.68</i>	0.78	<i>0.71</i>	<i>0.71</i>
Electricity Consumption (billion kilowatthours per day unless noted)															
Retail Sales	10.23	9.95	11.72	9.80	<i>10.22</i>	<i>9.73</i>	<i>11.49</i>	<i>9.74</i>	<i>10.28</i>	<i>9.77</i>	<i>11.53</i>	<i>9.76</i>	10.43	<i>10.30</i>	<i>10.34</i>
Residential Sector	4.10	3.61	4.72	3.59	<i>4.07</i>	<i>3.41</i>	<i>4.52</i>	<i>3.52</i>	<i>4.11</i>	<i>3.44</i>	<i>4.56</i>	<i>3.55</i>	4.00	<i>3.88</i>	<i>3.91</i>
Commercial Sector	3.61	3.71	4.21	3.58	<i>3.61</i>	<i>3.65</i>	<i>4.15</i>	<i>3.58</i>	<i>3.63</i>	<i>3.68</i>	<i>4.16</i>	<i>3.58</i>	3.77	<i>3.75</i>	<i>3.76</i>
Industrial Sector	2.50	2.62	2.77	2.61	<i>2.52</i>	<i>2.64</i>	<i>2.80</i>	<i>2.63</i>	<i>2.52</i>	<i>2.64</i>	<i>2.78</i>	<i>2.61</i>	2.63	<i>2.65</i>	<i>2.64</i>
Transportation Sector	0.02	0.02	0.02	0.02	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	0.02	<i>0.02</i>	<i>0.02</i>
Direct Use (d)	0.38	0.38	0.40	0.38	<i>0.39</i>	<i>0.38</i>	<i>0.39</i>	<i>0.38</i>	<i>0.40</i>	<i>0.39</i>	<i>0.40</i>	<i>0.39</i>	0.39	<i>0.39</i>	<i>0.39</i>
Total Consumption	10.61	10.32	12.12	10.18	<i>10.61</i>	<i>10.11</i>	<i>11.88</i>	<i>10.13</i>	<i>10.68</i>	<i>10.16</i>	<i>11.93</i>	<i>10.15</i>	10.81	<i>10.68</i>	<i>10.73</i>
Average residential electricity usage per customer (kWh)	2,754	2,447	3,238	2,482	<i>2,702</i>	<i>2,287</i>	<i>3,068</i>	<i>2,388</i>	<i>2,727</i>	<i>2,281</i>	<i>3,061</i>	<i>2,380</i>	10,920	<i>10,445</i>	<i>10,450</i>
Prices															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	2.06	2.06	2.06	2.09	<i>2.08</i>	<i>2.07</i>	<i>2.06</i>	<i>2.08</i>	<i>2.08</i>	<i>2.08</i>	<i>2.07</i>	<i>2.07</i>	2.07	<i>2.07</i>	<i>2.08</i>
Natural Gas	3.96	3.09	3.23	4.07	<i>3.55</i>	<i>2.90</i>	<i>2.81</i>	<i>3.38</i>	<i>3.77</i>	<i>2.90</i>	<i>2.66</i>	<i>3.25</i>	3.54	<i>3.12</i>	<i>3.08</i>
Residual Fuel Oil	11.47	13.02	13.87	14.03	<i>12.03</i>	<i>12.38</i>	<i>11.75</i>	<i>11.72</i>	<i>12.34</i>	<i>13.28</i>	<i>12.67</i>	<i>12.44</i>	12.82	<i>11.97</i>	<i>12.64</i>
Distillate Fuel Oil	15.83	16.61	16.82	16.21	<i>14.27</i>	<i>14.54</i>	<i>15.09</i>	<i>15.91</i>	<i>16.50</i>	<i>17.10</i>	<i>17.06</i>	<i>17.11</i>	16.19	<i>14.90</i>	<i>16.91</i>
Retail Prices (cents per kilowatthour)															
Residential Sector	12.59	13.03	13.15	12.84	<i>12.91</i>	<i>13.53</i>	<i>13.48</i>	<i>13.12</i>	<i>13.10</i>	<i>13.76</i>	<i>13.73</i>	<i>13.38</i>	12.91	<i>13.26</i>	<i>13.49</i>
Commercial Sector	10.54	10.59	10.89	10.58	<i>10.65</i>	<i>10.69</i>	<i>10.90</i>	<i>10.57</i>	<i>10.65</i>	<i>10.62</i>	<i>10.88</i>	<i>10.63</i>	10.66	<i>10.71</i>	<i>10.70</i>
Industrial Sector	6.81	6.87	7.23	6.82	<i>6.78</i>	<i>6.91</i>	<i>7.27</i>	<i>6.83</i>	<i>6.82</i>	<i>7.00</i>	<i>7.36</i>	<i>6.91</i>	6.94	<i>6.95</i>	<i>7.03</i>

- = no data available. kWh = kilowatthours. Btu = British thermal units.

Prices are not adjusted for inflation.

(a) Generation supplied by electricity-only and combined-heat-and-power (CHP) plants operated by electric utilities and independent power producers.

(b) Generation supplied by CHP and electricity-only plants 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*.

Notes: 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: *Electric Power Monthly*, DOE/EIA-0226; and *Electric Power Annual*, DOE/EIA-0348.

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

Projections: EIA Regional Short-Term Energy Model.

Table 7b. U.S. Regional Electricity Retail Sales (Million Kilowatthours per Day)

U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Residential Sector															
New England	140	111	153	122	141	111	139	119	141	111	140	120	131	127	128
Middle Atlantic	394	323	453	332	391	313	417	324	392	313	417	325	375	361	362
E. N. Central	552	480	604	483	541	441	570	474	546	442	572	476	530	507	509
W. N. Central	327	274	318	270	316	243	315	264	323	247	320	269	297	284	290
S. Atlantic	1,040	920	1,184	927	1,036	876	1,147	893	1,045	884	1,157	900	1,018	988	997
E. S. Central	368	301	396	299	364	277	382	285	366	278	384	286	341	327	329
W. S. Central	608	582	803	527	600	541	782	521	603	550	795	529	631	611	620
Mountain	239	263	360	233	245	257	351	236	248	260	355	239	274	272	276
Pacific contiguous	422	339	435	383	424	338	408	390	432	339	410	392	395	390	393
AK and HI	14	12	13	13	14	12	13	13	14	12	12	13	13	13	13
Total	4,103	3,605	4,719	3,588	4,072	3,407	4,522	3,519	4,109	3,437	4,563	3,547	4,004	3,880	3,915
Commercial Sector															
New England	141	136	160	138	141	135	152	135	137	131	146	129	144	141	136
Middle Atlantic	431	411	480	415	430	407	463	412	427	404	460	411	434	428	426
E. N. Central	499	501	556	484	498	487	544	483	498	487	543	482	510	503	503
W. N. Central	282	282	308	271	282	273	309	271	285	276	311	273	286	284	286
S. Atlantic	811	862	975	816	810	851	958	806	809	852	959	806	866	857	857
E. S. Central	242	253	296	236	240	246	291	234	242	247	292	234	257	253	254
W. S. Central	501	549	637	515	512	548	647	526	528	568	667	538	551	559	575
Mountain	249	270	310	252	251	267	307	256	253	269	309	257	270	270	272
Pacific contiguous	435	424	470	436	435	426	459	436	435	426	460	436	441	439	439
AK and HI	16	15	16	16	16	15	16	15	16	15	15	15	16	16	15
Total	3,606	3,705	4,205	3,578	3,614	3,654	4,147	3,575	3,630	3,675	4,164	3,581	3,775	3,748	3,763
Industrial Sector															
New England	42	43	47	44	41	42	45	42	39	41	44	42	44	42	42
Middle Atlantic	196	194	214	198	199	197	216	200	200	196	215	198	201	203	202
E. N. Central	499	517	530	509	505	523	535	510	502	518	528	502	514	518	513
W. N. Central	232	242	258	250	239	249	265	256	244	253	268	258	245	252	256
S. Atlantic	366	388	404	375	365	386	401	372	359	378	391	361	383	381	372
E. S. Central	257	261	286	264	252	258	284	262	249	252	277	255	267	264	258
W. S. Central	467	500	511	516	474	511	523	525	484	519	529	530	498	509	516
Mountain	208	229	251	216	213	233	258	221	216	236	260	222	226	231	233
Pacific contiguous	216	231	258	228	217	233	259	229	217	233	259	229	233	234	235
AK and HI	13	13	14	13	13	13	14	14	13	13	14	14	13	13	13
Total	2,498	2,618	2,773	2,612	2,517	2,645	2,800	2,630	2,523	2,640	2,784	2,611	2,626	2,649	2,640
Total All Sectors (a)															
New England	325	292	361	304	324	289	337	298	319	285	332	292	321	312	307
Middle Atlantic	1,033	939	1,157	955	1,031	926	1,106	946	1,030	923	1,102	943	1,021	1,002	1,000
E. N. Central	1,552	1,500	1,691	1,478	1,546	1,452	1,650	1,469	1,549	1,448	1,644	1,461	1,555	1,529	1,526
W. N. Central	841	798	883	790	837	765	888	792	852	776	899	800	828	821	832
S. Atlantic	2,220	2,174	2,567	2,121	2,214	2,116	2,510	2,074	2,217	2,117	2,511	2,070	2,271	2,229	2,229
E. S. Central	867	815	979	800	856	780	957	781	857	778	953	775	865	844	841
W. S. Central	1,577	1,632	1,951	1,559	1,587	1,600	1,953	1,573	1,615	1,638	1,992	1,597	1,680	1,679	1,711
Mountain	697	762	921	702	709	758	917	712	717	765	925	718	771	774	781
Pacific contiguous	1,075	996	1,166	1,048	1,078	998	1,128	1,057	1,087	1,001	1,131	1,060	1,072	1,066	1,070
AK and HI	42	41	42	42	42	40	42	42	42	40	42	42	42	42	42
Total	10,230	9,948	11,718	9,799	10,224	9,726	11,489	9,744	10,284	9,772	11,531	9,759	10,426	10,298	10,338

- = no data available

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

Notes: 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 Power Annual*, DOE/EIA-0348.

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

Projections: EIA Regional Short-Term Energy Model.

Table 7c. U.S. Regional Retail Electricity Prices (Cents per Kilowatt-hour)
 U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Residential Sector															
New England	20.56	20.58	20.38	20.42	<i>21.45</i>	<i>21.56</i>	<i>21.66</i>	<i>21.17</i>	<i>21.96</i>	<i>22.05</i>	<i>22.27</i>	<i>21.90</i>	20.48	<i>21.46</i>	<i>22.05</i>
Middle Atlantic	15.62	16.22	16.33	16.03	<i>15.95</i>	<i>16.64</i>	<i>16.75</i>	<i>16.26</i>	<i>16.17</i>	<i>16.92</i>	<i>17.10</i>	<i>16.59</i>	16.06	<i>16.40</i>	<i>16.69</i>
E. N. Central	12.94	13.48	13.09	13.47	<i>13.38</i>	<i>14.08</i>	<i>13.59</i>	<i>13.86</i>	<i>13.73</i>	<i>14.46</i>	<i>13.99</i>	<i>14.29</i>	13.23	<i>13.70</i>	<i>14.09</i>
W. N. Central	10.90	12.63	13.10	11.67	<i>11.26</i>	<i>13.24</i>	<i>13.46</i>	<i>11.98</i>	<i>11.50</i>	<i>13.55</i>	<i>13.79</i>	<i>12.27</i>	12.07	<i>12.47</i>	<i>12.75</i>
S. Atlantic	11.66	11.91	11.82	11.62	<i>11.81</i>	<i>12.23</i>	<i>12.11</i>	<i>11.85</i>	<i>11.92</i>	<i>12.33</i>	<i>12.24</i>	<i>12.01</i>	11.75	<i>12.00</i>	<i>12.13</i>
E. S. Central	10.86	11.40	11.16	11.25	<i>11.13</i>	<i>11.92</i>	<i>11.47</i>	<i>11.50</i>	<i>11.29</i>	<i>12.14</i>	<i>11.75</i>	<i>11.83</i>	11.15	<i>11.48</i>	<i>11.72</i>
W. S. Central	10.53	11.01	10.97	10.81	<i>10.74</i>	<i>11.37</i>	<i>11.13</i>	<i>10.77</i>	<i>10.65</i>	<i>11.36</i>	<i>11.23</i>	<i>10.89</i>	10.84	<i>11.01</i>	<i>11.05</i>
Mountain	11.58	12.25	12.26	11.94	<i>11.83</i>	<i>12.55</i>	<i>12.52</i>	<i>12.17</i>	<i>12.06</i>	<i>12.81</i>	<i>12.80</i>	<i>12.44</i>	12.04	<i>12.30</i>	<i>12.56</i>
Pacific	14.88	15.28	17.20	14.75	<i>15.25</i>	<i>15.85</i>	<i>17.75</i>	<i>15.25</i>	<i>15.75</i>	<i>16.50</i>	<i>18.15</i>	<i>15.49</i>	15.58	<i>16.04</i>	<i>16.47</i>
U.S. Average	12.59	13.03	13.15	12.84	<i>12.91</i>	<i>13.53</i>	<i>13.48</i>	<i>13.12</i>	<i>13.10</i>	<i>13.76</i>	<i>13.73</i>	<i>13.38</i>	12.91	<i>13.26</i>	<i>13.49</i>
Commercial Sector															
New England	16.61	15.91	16.18	16.33	<i>16.72</i>	<i>15.49</i>	<i>15.77</i>	<i>15.74</i>	<i>16.48</i>	<i>14.82</i>	<i>15.20</i>	<i>15.50</i>	16.26	<i>15.93</i>	<i>15.50</i>
Middle Atlantic	12.08	12.22	13.15	12.14	<i>12.08</i>	<i>12.19</i>	<i>13.07</i>	<i>12.15</i>	<i>11.96</i>	<i>12.07</i>	<i>13.07</i>	<i>12.30</i>	12.42	<i>12.39</i>	<i>12.37</i>
E. N. Central	10.10	10.15	10.08	10.21	<i>10.26</i>	<i>10.36</i>	<i>10.25</i>	<i>10.35</i>	<i>10.34</i>	<i>10.47</i>	<i>10.40</i>	<i>10.53</i>	10.13	<i>10.30</i>	<i>10.43</i>
W. N. Central	9.18	10.03	10.38	9.32	<i>9.32</i>	<i>10.30</i>	<i>10.60</i>	<i>9.56</i>	<i>9.44</i>	<i>10.49</i>	<i>10.87</i>	<i>9.87</i>	9.75	<i>9.96</i>	<i>10.18</i>
S. Atlantic	9.61	9.30	9.18	9.38	<i>9.90</i>	<i>9.48</i>	<i>9.27</i>	<i>9.41</i>	<i>10.06</i>	<i>9.49</i>	<i>9.26</i>	<i>9.46</i>	9.36	<i>9.50</i>	<i>9.55</i>
E. S. Central	10.51	10.48	10.34	10.56	<i>10.40</i>	<i>10.62</i>	<i>10.41</i>	<i>10.60</i>	<i>10.20</i>	<i>10.55</i>	<i>10.48</i>	<i>10.79</i>	10.46	<i>10.50</i>	<i>10.50</i>
W. S. Central	8.37	8.17	8.11	7.97	<i>7.92</i>	<i>7.78</i>	<i>7.69</i>	<i>7.67</i>	<i>7.45</i>	<i>7.28</i>	<i>7.39</i>	<i>7.61</i>	8.15	<i>7.76</i>	<i>7.43</i>
Mountain	9.26	9.87	9.99	9.44	<i>9.22</i>	<i>9.89</i>	<i>10.02</i>	<i>9.46</i>	<i>9.22</i>	<i>9.89</i>	<i>10.05</i>	<i>9.53</i>	9.66	<i>9.67</i>	<i>9.70</i>
Pacific	12.90	14.02	15.87	13.98	<i>13.59</i>	<i>14.59</i>	<i>16.48</i>	<i>14.11</i>	<i>14.09</i>	<i>14.93</i>	<i>16.72</i>	<i>14.13</i>	14.24	<i>14.72</i>	<i>15.00</i>
U.S. Average	10.54	10.59	10.89	10.58	<i>10.65</i>	<i>10.69</i>	<i>10.90</i>	<i>10.57</i>	<i>10.65</i>	<i>10.62</i>	<i>10.88</i>	<i>10.63</i>	10.66	<i>10.71</i>	<i>10.70</i>
Industrial Sector															
New England	13.48	12.61	12.82	12.99	<i>14.03</i>	<i>12.96</i>	<i>13.05</i>	<i>13.11</i>	<i>14.58</i>	<i>13.29</i>	<i>13.26</i>	<i>13.25</i>	12.97	<i>13.27</i>	<i>13.57</i>
Middle Atlantic	7.20	6.80	6.85	6.86	<i>6.94</i>	<i>6.66</i>	<i>6.72</i>	<i>6.69</i>	<i>6.83</i>	<i>6.58</i>	<i>6.68</i>	<i>6.66</i>	6.92	<i>6.75</i>	<i>6.69</i>
E. N. Central	7.10	6.96	6.99	7.12	<i>7.11</i>	<i>7.02</i>	<i>7.03</i>	<i>7.15</i>	<i>7.17</i>	<i>7.11</i>	<i>7.10</i>	<i>7.23</i>	7.04	<i>7.08</i>	<i>7.15</i>
W. N. Central	7.05	7.38	7.99	6.87	<i>7.18</i>	<i>7.52</i>	<i>8.12</i>	<i>6.97</i>	<i>7.29</i>	<i>7.65</i>	<i>8.26</i>	<i>7.08</i>	7.33	<i>7.46</i>	<i>7.58</i>
S. Atlantic	6.54	6.40	6.60	6.42	<i>6.50</i>	<i>6.44</i>	<i>6.62</i>	<i>6.39</i>	<i>6.50</i>	<i>6.53</i>	<i>6.69</i>	<i>6.46</i>	6.49	<i>6.49</i>	<i>6.55</i>
E. S. Central	5.74	5.93	5.87	5.90	<i>5.80</i>	<i>6.05</i>	<i>5.96</i>	<i>5.95</i>	<i>5.91</i>	<i>6.22</i>	<i>6.10</i>	<i>6.07</i>	5.86	<i>5.94</i>	<i>6.08</i>
W. S. Central	5.42	5.41	5.67	5.27	<i>5.15</i>	<i>5.32</i>	<i>5.60</i>	<i>5.19</i>	<i>5.04</i>	<i>5.33</i>	<i>5.61</i>	<i>5.25</i>	5.44	<i>5.32</i>	<i>5.31</i>
Mountain	6.10	6.48	6.93	6.12	<i>6.18</i>	<i>6.60</i>	<i>7.09</i>	<i>6.27</i>	<i>6.36</i>	<i>6.80</i>	<i>7.29</i>	<i>6.44</i>	6.43	<i>6.56</i>	<i>6.75</i>
Pacific	8.63	9.53	11.19	9.65	<i>8.73</i>	<i>9.58</i>	<i>11.28</i>	<i>9.72</i>	<i>8.86</i>	<i>9.66</i>	<i>11.37</i>	<i>9.79</i>	9.81	<i>9.89</i>	<i>9.98</i>
U.S. Average	6.81	6.87	7.23	6.82	<i>6.78</i>	<i>6.91</i>	<i>7.27</i>	<i>6.83</i>	<i>6.82</i>	<i>7.00</i>	<i>7.36</i>	<i>6.91</i>	6.94	<i>6.95</i>	<i>7.03</i>
All Sectors (a)															
New England	17.88	17.16	17.49	17.45	<i>18.41</i>	<i>17.41</i>	<i>17.81</i>	<i>17.51</i>	<i>18.63</i>	<i>17.39</i>	<i>17.89</i>	<i>17.76</i>	17.50	<i>17.80</i>	<i>17.94</i>
Middle Atlantic	12.48	12.46	13.22	12.39	<i>12.54</i>	<i>12.51</i>	<i>13.20</i>	<i>12.39</i>	<i>12.55</i>	<i>12.54</i>	<i>13.33</i>	<i>12.58</i>	12.67	<i>12.68</i>	<i>12.77</i>
E. N. Central	10.14	10.11	10.18	10.22	<i>10.32</i>	<i>10.28</i>	<i>10.36</i>	<i>10.37</i>	<i>10.50</i>	<i>10.48</i>	<i>10.59</i>	<i>10.62</i>	10.16	<i>10.33</i>	<i>10.55</i>
W. N. Central	9.26	10.12	10.67	9.35	<i>9.44</i>	<i>10.33</i>	<i>10.88</i>	<i>9.53</i>	<i>9.61</i>	<i>10.54</i>	<i>11.13</i>	<i>9.77</i>	9.87	<i>10.06</i>	<i>10.28</i>
S. Atlantic	10.06	9.88	9.99	9.83	<i>10.23</i>	<i>10.06</i>	<i>10.14</i>	<i>9.92</i>	<i>10.36</i>	<i>10.15</i>	<i>10.23</i>	<i>10.05</i>	9.94	<i>10.09</i>	<i>10.20</i>
E. S. Central	9.24	9.36	9.37	9.28	<i>9.35</i>	<i>9.57</i>	<i>9.52</i>	<i>9.36</i>	<i>9.42</i>	<i>9.71</i>	<i>9.72</i>	<i>9.62</i>	9.32	<i>9.45</i>	<i>9.62</i>
W. S. Central	8.33	8.34	8.65	8.06	<i>8.16</i>	<i>8.21</i>	<i>8.51</i>	<i>7.87</i>	<i>7.92</i>	<i>8.03</i>	<i>8.45</i>	<i>7.92</i>	8.36	<i>8.20</i>	<i>8.10</i>
Mountain	9.11	9.67	10.04	9.24	<i>9.21</i>	<i>9.78</i>	<i>10.15</i>	<i>9.37</i>	<i>9.34</i>	<i>9.93</i>	<i>10.33</i>	<i>9.54</i>	9.56	<i>9.67</i>	<i>9.83</i>
Pacific	12.81	13.39	15.32	13.31	<i>13.26</i>	<i>13.83</i>	<i>15.73</i>	<i>13.57</i>	<i>13.69</i>	<i>14.21</i>	<i>16.00</i>	<i>13.68</i>	13.76	<i>14.13</i>	<i>14.42</i>
U.S. Average	10.45	10.50	10.94	10.41	<i>10.59</i>	<i>10.66</i>	<i>11.03</i>	<i>10.48</i>	<i>10.69</i>	<i>10.75</i>	<i>11.16</i>	<i>10.63</i>	10.59	<i>10.70</i>	<i>10.82</i>

- = no data available

Prices are not adjusted for inflation.

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

Notes: 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 Energy Information Administration databases supporting the following reports: *Electric Power Monthly*, DOE/EIA-0226; and *Electric Power Annual*, DOE/EIA-0348.

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

Projections: EIA Regional Short-Term Energy Model.

Table 7d. U.S. Regional Electricity Generation, All Sectors (Thousand megawatthours per day)

U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
United States															
Coal	3,127	2,859	3,559	3,146	3,161	2,551	3,157	2,794	2,976	2,292	2,908	2,542	3,174	2,915	2,680
Natural Gas	3,456	3,806	5,160	3,625	3,575	3,818	5,042	3,664	3,606	3,946	5,256	3,838	4,016	4,028	4,164
Petroleum (a)	102	53	61	53	75	57	64	56	73	57	64	57	67	63	63
Other Gases	34	33	36	31	33	32	36	31	34	32	36	31	33	33	33
Nuclear	2,294	2,155	2,277	2,117	2,239	2,097	2,271	2,135	2,180	2,023	2,180	2,061	2,210	2,185	2,111
Renewable Energy Sources:	2,094	2,212	1,718	1,792	1,999	2,211	1,860	1,979	2,233	2,461	2,031	2,149	1,953	2,012	2,218
Conventional Hydropower	856	944	696	632	720	830	714	642	789	903	742	664	781	727	774
Wind	869	821	582	800	901	917	677	945	1,041	1,055	771	1,058	767	860	981
Wood Biomass	119	113	115	113	117	115	122	116	119	115	123	117	115	118	119
Waste Biomass	61	58	57	60	58	58	59	59	58	58	59	60	59	58	59
Geothermal	46	45	46	45	45	45	45	46	46	45	46	48	46	45	46
Solar	142	232	222	143	157	245	243	170	179	285	291	203	185	204	239
Pumped Storage Hydropower	-15	-13	-22	-15	-13	-12	-18	-14	-13	-12	-18	-14	-16	-14	-14
Other Nonrenewable Fuels (b)	36	35	32	37	35	36	36	37	35	36	36	37	35	36	36
Total Generation	11,128	11,141	12,822	10,787	11,104	10,788	12,448	10,681	11,123	10,835	12,494	10,700	11,472	11,258	11,290
Northeast Census Region															
Coal	149	120	132	157	179	73	71	127	171	62	61	102	140	112	99
Natural Gas	500	527	783	568	553	611	778	607	563	636	807	630	595	638	659
Petroleum (a)	32	3	3	3	13	2	4	4	11	2	4	5	10	6	5
Other Gases	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nuclear	552	507	525	497	512	476	507	463	473	429	459	435	520	489	449
Hydropower (c)	108	114	106	106	106	103	99	99	104	106	102	101	109	102	103
Other Renewables (d)	81	76	72	79	85	77	70	85	91	82	75	90	77	79	84
Other Nonrenewable Fuels (b)	11	10	11	12	11	11	12	12	11	11	11	12	11	12	11
Total Generation	1,435	1,359	1,635	1,424	1,460	1,355	1,543	1,399	1,424	1,329	1,521	1,377	1,464	1,439	1,413
South Census Region															
Coal	1,262	1,260	1,529	1,304	1,289	1,079	1,365	1,124	1,172	961	1,256	999	1,339	1,214	1,097
Natural Gas	2,049	2,345	2,955	2,037	2,014	2,328	2,919	2,072	2,106	2,431	3,032	2,185	2,348	2,335	2,440
Petroleum (a)	39	21	26	20	29	25	28	23	31	25	28	22	26	26	26
Other Gases	13	12	14	12	12	12	13	11	11	11	13	11	13	12	12
Nuclear	1,008	952	1,010	934	1,008	947	1,032	978	998	937	1,018	965	976	991	980
Hydropower (c)	114	127	112	109	112	114	104	102	110	118	107	104	116	108	110
Other Renewables (d)	452	494	375	424	482	527	434	490	539	597	494	544	436	483	543
Other Nonrenewable Fuels (b)	16	16	11	16	15	15	14	15	15	15	14	15	15	15	15
Total Generation	4,952	5,227	6,031	4,856	4,962	5,046	5,909	4,815	4,983	5,095	5,963	4,845	5,268	5,185	5,222
Midwest Census Region															
Coal	1,303	1,140	1,386	1,242	1,224	1,009	1,252	1,097	1,181	953	1,189	1,047	1,268	1,145	1,092
Natural Gas	403	441	552	370	432	410	567	393	421	411	606	410	442	451	463
Petroleum (a)	10	7	9	8	10	9	10	8	10	9	10	8	8	9	9
Other Gases	13	12	14	11	13	12	14	12	14	13	15	12	13	13	13
Nuclear	571	539	569	531	553	519	564	534	546	505	536	503	552	542	522
Hydropower (c)	57	58	36	39	56	54	35	36	55	55	36	37	48	45	46
Other Renewables (d)	367	303	234	360	395	368	272	441	479	447	324	507	316	369	439
Other Nonrenewable Fuels (b)	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4
Total Generation	2,727	2,505	2,804	2,565	2,688	2,384	2,717	2,527	2,709	2,396	2,720	2,529	2,650	2,579	2,588
West Census Region															
Coal	413	339	512	443	469	390	469	445	452	317	403	394	427	444	391
Natural Gas	503	493	871	650	575	469	778	591	516	468	810	612	630	604	602
Petroleum (a)	21	21	23	23	23	21	22	21	22	21	23	22	22	22	22
Other Gases	7	7	7	6	7	7	6	6	7	7	7	6	7	7	7
Nuclear	164	158	173	155	165	155	169	160	163	153	166	158	162	162	160
Hydropower (c)	562	632	420	362	433	546	458	391	508	611	478	408	493	457	501
Other Renewables (d)	338	395	341	297	317	409	370	321	334	433	397	344	343	354	377
Other Nonrenewable Fuels (b)	6	6	6	5	5	6	6	5	5	6	6	5	6	6	6
Total Generation	2,014	2,051	2,352	1,942	1,995	2,002	2,278	1,941	2,007	2,015	2,290	1,949	2,090	2,054	2,066

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

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

(c) Conventional hydroelectric and pumped storage generation.

(d) Wind, biomass, geothermal, and solar generation.

Notes: Data reflect generation supplied by electricity-only and combined-heat-and-power (CHP) plants operated by electric utilities, independent power producers, and the commercial and industrial sectors. 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. Energy Information Administration *Electric Power Monthly* and *Electric Power Annual*.

Projections: EIA Regional Short-Term Energy Model.

Table 7e. U.S. Regional Fuel Consumption for Electricity Generation, All Sectors

U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Fuel Consumption for Electricity Generation, All Sectors															
United States															
Coal (thousand st/d)	1,717	1,583	1,972	1,738	1,726	1,402	1,747	1,553	1,630	1,266	1,615	1,420	1,753	1,607	1,483
Natural Gas (million cf/d)	25,473	28,252	38,455	26,402	26,080	28,333	37,823	26,727	26,301	29,292	39,455	28,000	29,672	29,765	30,778
Petroleum (thousand b/d)	180	96	111	103	139	103	116	102	133	103	116	104	122	115	114
Residual Fuel Oil	51	27	30	26	39	24	28	25	36	25	29	28	33	29	29
Distillate Fuel Oil	71	26	22	33	39	25	25	28	35	25	25	28	38	29	28
Petroleum Coke (a)	48	40	54	39	56	51	59	46	56	50	58	45	45	53	52
Other Petroleum Liquids (b)	9	4	5	4	6	3	4	4	5	3	4	4	6	4	4
Northeast Census Region															
Coal (thousand st/d)	77	63	69	81	92	38	38	66	88	32	32	54	72	58	52
Natural Gas (million cf/d)	3,815	3,894	5,823	4,126	4,079	4,539	5,890	4,452	4,166	4,733	6,123	4,629	4,419	4,744	4,915
Petroleum (thousand b/d)	53	6	6	11	26	4	7	7	19	4	7	9	19	11	9
South Census Region															
Coal (thousand st/d)	659	670	821	703	670	568	725	602	611	509	670	538	714	641	582
Natural Gas (million cf/d)	14,730	17,258	21,785	14,760	14,408	17,073	21,570	14,916	15,052	17,819	22,386	15,714	17,146	17,006	17,750
Petroleum (thousand b/d)	72	39	48	38	55	46	52	43	58	46	51	42	49	49	49
Midwest Census Region															
Coal (thousand st/d)	743	654	793	699	692	575	716	628	670	543	680	599	722	652	623
Natural Gas (million cf/d)	3,135	3,415	4,309	2,793	3,314	3,192	4,526	3,006	3,241	3,209	4,857	3,144	3,414	3,511	3,615
Petroleum (thousand b/d)	19	15	17	16	20	18	20	17	19	18	20	17	17	19	18
West Census Region															
Coal (thousand st/d)	239	195	290	256	272	222	268	257	261	182	233	229	245	255	226
Natural Gas (million cf/d)	3,793	3,685	6,538	4,723	4,279	3,529	5,837	4,353	3,842	3,530	6,088	4,513	4,692	4,503	4,498
Petroleum (thousand b/d)	36	36	39	39	38	35	37	36	37	35	38	37	37	36	37
End-of-period U.S. Fuel Inventories Held by Electric Power Sector															
Coal (million short tons)	126.4	121.4	100.7	107.7	106.6	104.8	100.7	109.0	108.8	106.9	100.8	110.4	107.7	109.0	110.4
Residual Fuel Oil (mmb)	10.1	9.9	8.5	9.3	9.8	10.3	10.5	11.0	10.8	10.7	10.6	10.9	9.3	11.0	10.9
Distillate Fuel Oil (mmb)	14.8	14.6	14.2	14.7	15.0	15.1	15.2	15.5	15.7	15.6	15.5	15.7	14.7	15.5	15.7
Petroleum Coke (mmb)	4.8	4.1	3.7	3.5	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.5	3.5	3.6

(a) Petroleum coke consumption converted from short tons to barrels by multiplying by five.

(b) Other petroleum liquids include jet fuel, kerosene, and waste oil.

Notes: Data reflect generation supplied by electricity-only and combined-heat-and-power (CHP) plants operated by electric utilities, independent power producers, and the commercial and industrial sectors. Data include fuel consumed only for generation of electricity. Values do not include consumption by CHP plants for useful thermal output.

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

Physical Units: st/d = short tons per day; b/d = barrels per day; cf/d = cubic feet per day; mmb = million barrels.

Historical data: Latest data available from U.S. Energy Information Administration *Electric Power Monthly* and *Electric Power Annual*.

Projections: EIA Regional Short-Term Energy Model.

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

U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Electric Power Sector															
Geothermal	0.038	0.038	0.039	0.038	<i>0.038</i>	<i>0.038</i>	<i>0.038</i>	<i>0.039</i>	<i>0.039</i>	<i>0.038</i>	<i>0.039</i>	<i>0.041</i>	0.153	<i>0.152</i>	<i>0.157</i>
Hydroelectric Power (a)	0.706	0.787	0.587	0.533	<i>0.595</i>	<i>0.693</i>	<i>0.603</i>	<i>0.542</i>	<i>0.659</i>	<i>0.754</i>	<i>0.626</i>	<i>0.560</i>	2.613	<i>2.434</i>	<i>2.600</i>
Solar (b)	0.116	0.193	0.186	0.120	<i>0.129</i>	<i>0.204</i>	<i>0.204</i>	<i>0.142</i>	<i>0.148</i>	<i>0.236</i>	<i>0.244</i>	<i>0.170</i>	0.616	<i>0.678</i>	<i>0.798</i>
Waste Biomass (c)	0.073	0.070	0.067	0.071	<i>0.068</i>	<i>0.069</i>	<i>0.071</i>	<i>0.070</i>	<i>0.068</i>	<i>0.069</i>	<i>0.071</i>	<i>0.071</i>	0.282	<i>0.278</i>	<i>0.280</i>
Wood Biomass	0.058	0.053	0.056	0.055	<i>0.057</i>	<i>0.055</i>	<i>0.067</i>	<i>0.060</i>	<i>0.060</i>	<i>0.056</i>	<i>0.068</i>	<i>0.061</i>	0.221	<i>0.238</i>	<i>0.245</i>
Wind	0.722	0.689	0.494	0.679	<i>0.748</i>	<i>0.770</i>	<i>0.574</i>	<i>0.802</i>	<i>0.874</i>	<i>0.885</i>	<i>0.654</i>	<i>0.897</i>	2.583	<i>2.894</i>	<i>3.310</i>
Subtotal	1.714	1.830	1.429	1.496	<i>1.633</i>	<i>1.829</i>	<i>1.557</i>	<i>1.656</i>	<i>1.848</i>	<i>2.039</i>	<i>1.703</i>	<i>1.800</i>	6.468	<i>6.675</i>	<i>7.390</i>
Industrial Sector															
Biofuel Losses and Co-products (d)	0.202	0.204	0.211	0.210	<i>0.202</i>	<i>0.206</i>	<i>0.206</i>	<i>0.206</i>	<i>0.204</i>	<i>0.207</i>	<i>0.208</i>	<i>0.206</i>	0.827	<i>0.821</i>	<i>0.824</i>
Geothermal	0.001	0.001	0.001	0.001	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	0.004	<i>0.004</i>	<i>0.004</i>
Hydroelectric Power (a)	0.003	0.003	0.003	0.003	<i>0.003</i>	<i>0.003</i>	<i>0.003</i>	<i>0.003</i>	<i>0.003</i>	<i>0.003</i>	<i>0.003</i>	<i>0.003</i>	0.012	<i>0.013</i>	<i>0.013</i>
Solar (b)	0.005	0.007	0.008	0.005	<i>0.006</i>	<i>0.008</i>	<i>0.009</i>	<i>0.006</i>	<i>0.007</i>	<i>0.010</i>	<i>0.010</i>	<i>0.007</i>	0.025	<i>0.029</i>	<i>0.033</i>
Waste Biomass (c)	0.044	0.041	0.039	0.044	<i>0.042</i>	<i>0.041</i>	<i>0.040</i>	<i>0.043</i>	<i>0.042</i>	<i>0.041</i>	<i>0.040</i>	<i>0.043</i>	0.167	<i>0.166</i>	<i>0.166</i>
Wood Biomass	0.381	0.382	0.389	0.373	<i>0.353</i>	<i>0.348</i>	<i>0.359</i>	<i>0.361</i>	<i>0.349</i>	<i>0.346</i>	<i>0.357</i>	<i>0.359</i>	1.525	<i>1.421</i>	<i>1.412</i>
Subtotal	0.636	0.635	0.647	0.635	<i>0.606</i>	<i>0.604</i>	<i>0.614</i>	<i>0.618</i>	<i>0.604</i>	<i>0.603</i>	<i>0.615</i>	<i>0.616</i>	2.554	<i>2.443</i>	<i>2.437</i>
Commercial Sector															
Geothermal	0.005	0.005	0.005	0.005	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	<i>0.005</i>	0.020	<i>0.020</i>	<i>0.020</i>
Solar (b)	0.019	0.029	0.029	0.020	<i>0.023</i>	<i>0.034</i>	<i>0.035</i>	<i>0.025</i>	<i>0.029</i>	<i>0.041</i>	<i>0.042</i>	<i>0.030</i>	0.096	<i>0.118</i>	<i>0.143</i>
Waste Biomass (c)	0.011	0.011	0.010	0.012	<i>0.011</i>	<i>0.011</i>	<i>0.011</i>	<i>0.012</i>	<i>0.011</i>	<i>0.011</i>	<i>0.011</i>	<i>0.012</i>	0.045	<i>0.044</i>	<i>0.044</i>
Wood Biomass	0.021	0.021	0.021	0.021	<i>0.021</i>	<i>0.021</i>	<i>0.022</i>	<i>0.021</i>	<i>0.021</i>	<i>0.021</i>	<i>0.022</i>	<i>0.021</i>	0.084	<i>0.084</i>	<i>0.084</i>
Subtotal	0.063	0.072	0.072	0.065	<i>0.067</i>	<i>0.078</i>	<i>0.079</i>	<i>0.070</i>	<i>0.072</i>	<i>0.085</i>	<i>0.087</i>	<i>0.075</i>	0.273	<i>0.294</i>	<i>0.319</i>
Residential Sector															
Geothermal	0.010	0.010	0.010	0.013	<i>0.013</i>	<i>0.013</i>	<i>0.013</i>	<i>0.013</i>	<i>0.013</i>	<i>0.013</i>	<i>0.013</i>	<i>0.013</i>	0.043	<i>0.053</i>	<i>0.053</i>
Solar (e)	0.043	0.066	0.066	0.046	<i>0.049</i>	<i>0.076</i>	<i>0.078</i>	<i>0.054</i>	<i>0.058</i>	<i>0.088</i>	<i>0.090</i>	<i>0.063</i>	0.221	<i>0.257</i>	<i>0.299</i>
Wood Biomass	0.095	0.096	0.097	0.104	<i>0.105</i>	<i>0.105</i>	<i>0.105</i>	<i>0.105</i>	<i>0.105</i>	<i>0.105</i>	<i>0.105</i>	<i>0.105</i>	0.392	<i>0.420</i>	<i>0.420</i>
Subtotal	0.147	0.172	0.173	0.163	<i>0.167</i>	<i>0.194</i>	<i>0.196</i>	<i>0.173</i>	<i>0.176</i>	<i>0.207</i>	<i>0.208</i>	<i>0.181</i>	0.656	<i>0.730</i>	<i>0.772</i>
Transportation Sector															
Biomass-based Diesel (f)	0.054	0.068	0.071	0.077	<i>0.063</i>	<i>0.078</i>	<i>0.083</i>	<i>0.096</i>	<i>0.072</i>	<i>0.085</i>	<i>0.089</i>	<i>0.094</i>	0.271	<i>0.320</i>	<i>0.341</i>
Ethanol (f)	0.273	0.286	0.294	0.296	<i>0.275</i>	<i>0.296</i>	<i>0.297</i>	<i>0.289</i>	<i>0.277</i>	<i>0.296</i>	<i>0.299</i>	<i>0.287</i>	1.148	<i>1.156</i>	<i>1.160</i>
Subtotal	0.327	0.354	0.365	0.377	<i>0.338</i>	<i>0.373</i>	<i>0.380</i>	<i>0.385</i>	<i>0.349</i>	<i>0.381</i>	<i>0.389</i>	<i>0.382</i>	1.423	<i>1.477</i>	<i>1.501</i>
All Sectors Total															
Biomass-based Diesel (f)	0.054	0.068	0.071	0.077	<i>0.063</i>	<i>0.078</i>	<i>0.083</i>	<i>0.096</i>	<i>0.072</i>	<i>0.085</i>	<i>0.089</i>	<i>0.094</i>	0.271	<i>0.320</i>	<i>0.341</i>
Biofuel Losses and Co-products (d)	0.202	0.204	0.211	0.210	<i>0.202</i>	<i>0.206</i>	<i>0.206</i>	<i>0.206</i>	<i>0.204</i>	<i>0.207</i>	<i>0.208</i>	<i>0.206</i>	0.827	<i>0.821</i>	<i>0.824</i>
Ethanol (f)	0.283	0.297	0.305	0.305	<i>0.286</i>	<i>0.307</i>	<i>0.308</i>	<i>0.300</i>	<i>0.288</i>	<i>0.308</i>	<i>0.311</i>	<i>0.298</i>	1.191	<i>1.201</i>	<i>1.204</i>
Geothermal	0.054	0.053	0.055	0.058	<i>0.057</i>	<i>0.057</i>	<i>0.057</i>	<i>0.058</i>	<i>0.058</i>	<i>0.057</i>	<i>0.058</i>	<i>0.060</i>	0.220	<i>0.229</i>	<i>0.233</i>
Hydroelectric Power (a)	0.710	0.791	0.590	0.536	<i>0.599</i>	<i>0.697</i>	<i>0.607</i>	<i>0.546</i>	<i>0.663</i>	<i>0.758</i>	<i>0.630</i>	<i>0.564</i>	2.628	<i>2.448</i>	<i>2.615</i>
Solar (b)(e)	0.183	0.295	0.288	0.197	<i>0.207</i>	<i>0.322</i>	<i>0.325</i>	<i>0.228</i>	<i>0.242</i>	<i>0.376</i>	<i>0.386</i>	<i>0.270</i>	0.962	<i>1.082</i>	<i>1.274</i>
Waste Biomass (c)	0.128	0.122	0.117	0.125	<i>0.120</i>	<i>0.121</i>	<i>0.122</i>	<i>0.125</i>	<i>0.121</i>	<i>0.121</i>	<i>0.123</i>	<i>0.126</i>	0.492	<i>0.488</i>	<i>0.491</i>
Wood Biomass	0.555	0.552	0.562	0.552	<i>0.536</i>	<i>0.528</i>	<i>0.552</i>	<i>0.547</i>	<i>0.535</i>	<i>0.527</i>	<i>0.552</i>	<i>0.546</i>	2.221	<i>2.163</i>	<i>2.160</i>
Wind	0.722	0.689	0.494	0.679	<i>0.748</i>	<i>0.770</i>	<i>0.574</i>	<i>0.802</i>	<i>0.874</i>	<i>0.885</i>	<i>0.654</i>	<i>0.897</i>	2.583	<i>2.894</i>	<i>3.310</i>
Total Consumption	2.887	3.064	2.687	2.766	<i>2.812</i>	<i>3.078</i>	<i>2.826</i>	<i>2.901</i>	<i>3.050</i>	<i>3.315</i>	<i>3.001</i>	<i>3.054</i>	11.405	<i>11.618</i>	<i>12.419</i>

- = no data available

(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) distributed solar photovoltaic systems.

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

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

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

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

Notes: 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 Monthly*, DOE/EIA-0109.

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

Projections: EIA Regional Short-Term Energy Model.

Table 8b. U.S. Renewable Electricity Generation and Capacity
 U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Renewable Energy Electric Generating Capacity (megawatts, end of period)															
Electric Power Sector (a)															
Biomass	7,254	7,227	7,223	7,201	7,363	7,358	7,358	7,358	7,358	7,359	7,401	7,401	7,201	7,358	7,401
Waste	4,212	4,184	4,180	4,214	4,217	4,212	4,212	4,212	4,212	4,213	4,213	4,213	4,214	4,212	4,213
Wood	3,042	3,042	3,042	2,987	3,146	3,146	3,146	3,146	3,146	3,146	3,188	3,188	2,987	3,146	3,188
Conventional Hydroelectric	79,444	79,412	79,412	79,533	79,568	79,607	79,508	79,557	79,649	79,655	79,777	79,783	79,533	79,557	79,783
Geothermal	2,499	2,499	2,499	2,499	2,507	2,507	2,507	2,542	2,542	2,542	2,632	2,657	2,499	2,542	2,657
Large-Scale Solar (b)	27,970	28,813	29,313	31,915	32,673	33,397	33,700	36,430	37,084	39,925	40,277	42,285	31,915	36,430	42,285
Wind	88,541	88,665	89,569	95,491	96,505	97,852	99,572	106,740	109,500	110,306	110,740	114,266	95,491	106,740	114,266
Other Sectors (c)															
Biomass	6,656	6,621	6,621	6,630	6,630	6,605	6,607	6,621	6,621	6,621	6,621	6,621	6,630	6,621	6,621
Waste	873	873	873	873	873	873	875	889	889	889	889	889	873	889	889
Wood	5,783	5,747	5,747	5,757	5,757	5,732	5,732	5,732	5,732	5,732	5,732	5,732	5,757	5,732	5,732
Conventional Hydroelectric	357	357	357	357	364	364	364	364	364	362	362	362	357	364	362
Large-Scale Solar (b)	359	366	371	371	373	376	376	376	376	378	378	378	371	376	378
Small-Scale Solar (d)	17,029	17,863	18,708	19,608	20,563	21,552	22,576	23,637	24,735	25,871	27,046	28,262	19,608	23,637	28,262
Residential Sector	10,155	10,657	11,180	11,750	12,333	12,932	13,547	14,180	14,830	15,498	16,182	16,883	11,750	14,180	16,883
Commercial Sector	5,490	5,761	6,020	6,296	6,609	6,939	7,285	7,649	8,031	8,433	8,855	9,299	6,296	7,649	9,299
Industrial Sector	1,385	1,445	1,509	1,562	1,621	1,682	1,744	1,807	1,873	1,940	2,009	2,080	1,562	1,807	2,080
Wind	113	110	116	116	116	116	116	116	116	116	116	116	116	116	116
Renewable Electricity Generation (thousand megawatthours per day)															
Electric Power Sector (a)															
Biomass	93	85	86	87	88	87	95	90	90	87	96	92	88	90	91
Waste	52	49	48	50	49	49	50	50	49	49	50	50	50	49	50
Wood	41	36	38	37	39	38	45	41	41	38	46	41	38	41	42
Conventional Hydroelectric	852	939	692	627	716	825	710	638	785	898	738	659	777	722	770
Geothermal	46	45	46	45	45	45	45	46	46	45	46	48	46	45	46
Large-Scale Solar (b)	140	230	219	141	155	243	240	167	177	281	287	200	183	201	236
Wind	869	820	581	799	900	917	676	945	1,040	1,054	770	1,057	767	859	980
Other Sectors (c)															
Biomass	87	86	86	85	87	86	86	85	87	86	86	85	86	86	86
Waste	78	77	77	76	78	77	77	76	78	77	77	76	77	77	77
Wood	9	9	8	10	9	9	8	10	9	9	8	10	9	9	9
Conventional Hydroelectric	5	5	4	4	5	5	4	4	5	5	4	4	4	4	4
Large-Scale Solar (b)	1	3	3	2	2	3	3	3	3	3	3	3	2	3	3
Small-Scale Solar (d)	64	97	96	67	77	116	117	82	94	140	141	99	81	98	118
Residential Sector	37	57	56	38	44	68	69	48	54	82	83	58	47	57	69
Commercial Sector	22	32	32	22	26	38	38	27	32	46	46	33	27	32	39
Industrial Sector	6	8	9	6	7	10	10	7	8	11	12	8	7	8	10
Wind	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

-- = no data available

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

(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 one 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 one megawatt).

(d) Solar photovoltaic systems smaller than one megawatt, as measured in alternating current.

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.

Projections: EIA-860M database, EIA-826 Solar PV database, and EIA Regional Short-Term Energy Model.

Table 9a. U.S. Macroeconomic Indicators and CO2 Emissions

U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Macroeconomic															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR)	18,324	18,512	18,672	18,792	<i>18,890</i>	<i>19,012</i>	<i>19,141</i>	<i>19,266</i>	<i>19,355</i>	<i>19,439</i>	<i>19,502</i>	<i>19,560</i>	18,575	<i>19,077</i>	<i>19,464</i>
Real Personal Consumption Expend. (billion chained 2012 dollars - SAAR)	12,723	12,842	12,957	13,055	<i>13,125</i>	<i>13,232</i>	<i>13,331</i>	<i>13,429</i>	<i>13,515</i>	<i>13,593</i>	<i>13,665</i>	<i>13,730</i>	12,894	<i>13,279</i>	<i>13,626</i>
Real Private Fixed Investment (billion chained 2012 dollars - SAAR)	3,271	3,322	3,334	3,350	<i>3,372</i>	<i>3,395</i>	<i>3,433</i>	<i>3,478</i>	<i>3,512</i>	<i>3,538</i>	<i>3,563</i>	<i>3,581</i>	3,319	<i>3,420</i>	<i>3,548</i>
Business Inventory Change (billion chained 2012 dollars - SAAR)	36	-10	89	92	<i>82</i>	<i>74</i>	<i>84</i>	<i>90</i>	<i>88</i>	<i>78</i>	<i>67</i>	<i>56</i>	52	<i>83</i>	<i>72</i>
Real Government Expenditures (billion chained 2012 dollars - SAAR)	3,152	3,172	3,192	3,223	<i>3,247</i>	<i>3,269</i>	<i>3,277</i>	<i>3,281</i>	<i>3,288</i>	<i>3,304</i>	<i>3,303</i>	<i>3,304</i>	3,185	<i>3,269</i>	<i>3,300</i>
Real Exports of Goods & Services (billion chained 2012 dollars - SAAR)	2,518	2,574	2,546	2,562	<i>2,598</i>	<i>2,629</i>	<i>2,665</i>	<i>2,706</i>	<i>2,739</i>	<i>2,766</i>	<i>2,787</i>	<i>2,803</i>	2,550	<i>2,650</i>	<i>2,774</i>
Real Imports of Goods & Services (billion chained 2012 dollars - SAAR)	3,420	3,415	3,491	3,538	<i>3,591</i>	<i>3,652</i>	<i>3,719</i>	<i>3,794</i>	<i>3,870</i>	<i>3,932</i>	<i>3,980</i>	<i>4,016</i>	3,466	<i>3,689</i>	<i>3,950</i>
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	14,220	14,282	14,365	14,482	<i>14,600</i>	<i>14,712</i>	<i>14,806</i>	<i>14,903</i>	<i>14,989</i>	<i>15,080</i>	<i>15,162</i>	<i>15,238</i>	14,337	<i>14,755</i>	<i>15,117</i>
Non-Farm Employment (millions)	148.1	148.7	149.3	149.9	<i>150.5</i>	<i>151.0</i>	<i>151.4</i>	<i>151.9</i>	<i>152.4</i>	<i>153.0</i>	<i>153.0</i>	<i>153.1</i>	149.0	<i>151.2</i>	<i>152.8</i>
Civilian Unemployment Rate (percent)	4.1	3.9	3.8	3.7	<i>3.6</i>	<i>3.5</i>	<i>3.4</i>	<i>3.4</i>	<i>3.4</i>	<i>3.4</i>	<i>3.5</i>	<i>3.6</i>	3.9	<i>3.5</i>	<i>3.5</i>
Housing Starts (millions - SAAR)	1.32	1.26	1.22	1.23	<i>1.25</i>	<i>1.28</i>	<i>1.32</i>	<i>1.35</i>	<i>1.38</i>	<i>1.40</i>	<i>1.41</i>	<i>1.41</i>	1.26	<i>1.30</i>	<i>1.40</i>
Industrial Production Indices (Index, 2012=100)															
Total Industrial Production	105.9	107.3	108.5	109.3	<i>110.2</i>	<i>110.8</i>	<i>111.6</i>	<i>112.3</i>	<i>112.8</i>	<i>113.0</i>	<i>113.2</i>	<i>113.6</i>	107.8	<i>111.2</i>	<i>113.1</i>
Manufacturing	104.1	104.8	105.8	106.4	<i>107.8</i>	<i>108.7</i>	<i>109.6</i>	<i>110.4</i>	<i>110.8</i>	<i>111.0</i>	<i>111.0</i>	<i>111.3</i>	105.3	<i>109.1</i>	<i>111.0</i>
Food	114.1	114.8	115.8	115.0	<i>116.9</i>	<i>117.6</i>	<i>118.3</i>	<i>118.8</i>	<i>119.3</i>	<i>119.7</i>	<i>120.2</i>	<i>120.7</i>	114.9	<i>117.9</i>	<i>120.0</i>
Paper	96.0	96.1	96.2	96.2	<i>95.8</i>	<i>95.8</i>	<i>95.9</i>	<i>95.8</i>	<i>95.5</i>	<i>95.1</i>	<i>94.8</i>	<i>94.7</i>	96.1	<i>95.8</i>	<i>95.0</i>
Petroleum and Coal Products	106.6	107.5	107.6	106.5	<i>108.8</i>	<i>109.5</i>	<i>110.1</i>	<i>110.5</i>	<i>110.8</i>	<i>110.8</i>	<i>110.9</i>	<i>110.9</i>	107.0	<i>109.7</i>	<i>110.9</i>
Chemicals	96.7	98.9	99.9	100.1	<i>101.1</i>	<i>101.8</i>	<i>102.8</i>	<i>103.7</i>	<i>104.4</i>	<i>105.1</i>	<i>105.9</i>	<i>106.7</i>	98.9	<i>102.4</i>	<i>105.5</i>
Nonmetallic Mineral Products	119.2	120.8	119.3	119.0	<i>119.9</i>	<i>120.4</i>	<i>121.1</i>	<i>121.9</i>	<i>122.5</i>	<i>123.1</i>	<i>123.7</i>	<i>124.1</i>	119.6	<i>120.8</i>	<i>123.3</i>
Primary Metals	96.1	96.4	96.7	101.0	<i>103.9</i>	<i>104.9</i>	<i>105.5</i>	<i>105.2</i>	<i>104.1</i>	<i>102.2</i>	<i>100.0</i>	<i>97.6</i>	97.6	<i>104.9</i>	<i>101.0</i>
Coal-weighted Manufacturing (a)	103.5	104.8	105.2	106.0	<i>107.6</i>	<i>108.3</i>	<i>108.9</i>	<i>109.2</i>	<i>109.1</i>	<i>108.8</i>	<i>108.5</i>	<i>108.3</i>	104.9	<i>108.5</i>	<i>108.7</i>
Distillate-weighted Manufacturing (a)	111.1	111.7	111.9	112.0	<i>113.3</i>	<i>113.9</i>	<i>114.6</i>	<i>115.1</i>	<i>115.3</i>	<i>115.4</i>	<i>115.4</i>	<i>115.4</i>	111.7	<i>114.2</i>	<i>115.4</i>
Electricity-weighted Manufacturing (a)	104.1	105.2	106.0	106.8	<i>108.2</i>	<i>109.1</i>	<i>109.9</i>	<i>110.4</i>	<i>110.5</i>	<i>110.4</i>	<i>110.3</i>	<i>110.3</i>	105.5	<i>109.4</i>	<i>110.4</i>
Natural Gas-weighted Manufacturing (a) ...	103.8	105.6	106.5	106.7	<i>108.2</i>	<i>109.1</i>	<i>109.9</i>	<i>110.5</i>	<i>110.7</i>	<i>110.8</i>	<i>111.0</i>	<i>111.3</i>	105.6	<i>109.4</i>	<i>110.9</i>
Price Indexes															
Consumer Price Index (all urban consumers) (index, 1982-1984=1.00)	2.49	2.50	2.52	2.53	<i>2.53</i>	<i>2.54</i>	<i>2.55</i>	<i>2.57</i>	<i>2.59</i>	<i>2.60</i>	<i>2.61</i>	<i>2.63</i>	2.51	<i>2.55</i>	<i>2.61</i>
Producer Price Index: All Commodities (index, 1982=1.00)	2.01	2.01	2.02	2.03	<i>2.02</i>	<i>2.01</i>	<i>2.02</i>	<i>2.04</i>	<i>2.06</i>	<i>2.06</i>	<i>2.06</i>	<i>2.07</i>	2.02	<i>2.02</i>	<i>2.06</i>
Producer Price Index: Petroleum (index, 1982=1.00)	1.98	2.22	2.26	1.99	<i>1.72</i>	<i>1.83</i>	<i>1.90</i>	<i>1.86</i>	<i>1.89</i>	<i>1.99</i>	<i>1.97</i>	<i>1.90</i>	2.11	<i>1.83</i>	<i>1.94</i>
GDP Implicit Price Deflator (index, 2012=100)	109.3	110.2	110.6	111.1	<i>111.7</i>	<i>112.2</i>	<i>112.8</i>	<i>113.4</i>	<i>114.1</i>	<i>114.8</i>	<i>115.5</i>	<i>116.2</i>	110.3	<i>112.6</i>	<i>115.2</i>
Miscellaneous															
Vehicle Miles Traveled (b) (million miles/day)	8,232	9,225	9,080	8,884	<i>8,417</i>	<i>9,372</i>	<i>9,219</i>	<i>8,954</i>	<i>8,487</i>	<i>9,492</i>	<i>9,360</i>	<i>9,026</i>	8,858	<i>8,992</i>	<i>9,092</i>
Air Travel Capacity (Available ton-miles/day, thousands)	603	664	667	641	<i>623</i>	<i>656</i>	<i>664</i>	<i>641</i>	<i>621</i>	<i>654</i>	<i>664</i>	<i>641</i>	644	<i>646</i>	<i>645</i>
Aircraft Utilization (Revenue ton-miles/day, thousands)	368	414	418	400	<i>385</i>	<i>419</i>	<i>424</i>	<i>403</i>	<i>384</i>	<i>418</i>	<i>425</i>	<i>405</i>	400	<i>408</i>	<i>408</i>
Airline Ticket Price Index (index, 1982-1984=100)	262.8	277.9	259.7	264.1	<i>284.2</i>	<i>324.6</i>	<i>319.8</i>	<i>325.0</i>	<i>324.1</i>	<i>354.8</i>	<i>341.9</i>	<i>342.3</i>	266.1	<i>313.4</i>	<i>340.8</i>
Raw Steel Production (million short tons per day)	0.251	0.253	0.263	0.270	<i>0.310</i>	<i>0.298</i>	<i>0.278</i>	<i>0.246</i>	<i>0.305</i>	<i>0.300</i>	<i>0.277</i>	<i>0.240</i>	0.260	<i>0.283</i>	<i>0.280</i>
Carbon Dioxide (CO2) Emissions (million metric tons)															
Petroleum	580	594	604	607	<i>585</i>	<i>596</i>	<i>608</i>	<i>602</i>	<i>593</i>	<i>598</i>	<i>613</i>	<i>604</i>	2,386	<i>2,391</i>	<i>2,409</i>
Natural Gas	478	349	370	415	<i>487</i>	<i>353</i>	<i>371</i>	<i>428</i>	<i>492</i>	<i>357</i>	<i>380</i>	<i>433</i>	1,612	<i>1,639</i>	<i>1,661</i>
Coal	308	288	357	326	<i>312</i>	<i>258</i>	<i>322</i>	<i>292</i>	<i>299</i>	<i>235</i>	<i>300</i>	<i>270</i>	1,280	<i>1,184</i>	<i>1,104</i>
Total Energy (c)	1,369	1,235	1,335	1,351	<i>1,387</i>	<i>1,210</i>	<i>1,304</i>	<i>1,325</i>	<i>1,387</i>	<i>1,193</i>	<i>1,296</i>	<i>1,310</i>	5,289	<i>5,226</i>	<i>5,186</i>

- = no data available

SAAR = Seasonally-adjusted annual rate

 (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.

Notes: 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 Aviation Administration. Minor discrepancies with published historical data are due to independent rounding.

Projections: EIA Regional Short-Term Energy Model. U.S. macroeconomic projections are based on the IHS Markit model of the U.S. Economy.

Table 9b. U.S. Regional Macroeconomic Data

U.S. Energy Information Administration | Short-Term Energy Outlook - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Real Gross State Product (Billion \$2009)															
New England	971	980	988	993	998	1,003	1,008	1,014	1,018	1,023	1,025	1,028	983	1,006	1,024
Middle Atlantic	2,735	2,759	2,778	2,795	2,808	2,822	2,838	2,855	2,866	2,877	2,884	2,890	2,767	2,831	2,879
E. N. Central	2,480	2,504	2,524	2,537	2,546	2,559	2,573	2,586	2,593	2,598	2,601	2,604	2,511	2,566	2,599
W. N. Central	1,145	1,159	1,167	1,173	1,178	1,184	1,191	1,198	1,202	1,207	1,210	1,213	1,161	1,188	1,208
S. Atlantic	3,263	3,295	3,323	3,346	3,365	3,387	3,410	3,432	3,451	3,468	3,481	3,495	3,307	3,399	3,474
E. S. Central	815	823	830	834	838	842	848	852	855	858	860	862	826	845	859
W. S. Central	2,214	2,246	2,271	2,289	2,306	2,323	2,342	2,361	2,376	2,391	2,402	2,412	2,255	2,333	2,395
Mountain	1,197	1,210	1,223	1,231	1,239	1,248	1,259	1,269	1,275	1,283	1,290	1,296	1,215	1,254	1,286
Pacific	3,536	3,569	3,602	3,627	3,648	3,678	3,706	3,733	3,753	3,769	3,783	3,796	3,584	3,691	3,775
Industrial Output, Manufacturing (Index, Year 2012=100)															
New England	98.9	99.3	100.0	100.2	101.2	101.8	102.5	103.0	103.2	103.2	103.2	103.4	99.6	102.1	103.3
Middle Atlantic	98.1	98.4	98.8	99.3	100.4	101.1	101.8	102.4	102.7	102.8	102.8	103.0	98.6	101.4	102.8
E. N. Central	106.5	107.1	107.7	108.4	109.8	111.0	111.9	112.8	113.2	113.2	113.0	113.0	107.4	111.4	113.1
W. N. Central	104.0	104.6	105.8	106.4	107.7	108.7	109.6	110.4	111.0	111.2	111.3	111.6	105.2	109.1	111.3
S. Atlantic	107.8	108.7	110.0	110.6	111.9	112.8	113.7	114.4	114.9	115.0	115.0	115.3	109.3	113.2	115.0
E. S. Central	108.9	109.0	110.4	111.2	112.8	113.9	114.9	115.8	116.3	116.4	116.5	116.7	109.9	114.3	116.5
W. S. Central	97.5	99.0	100.0	100.7	102.2	103.3	104.3	105.1	105.6	105.8	106.0	106.4	99.3	103.7	106.0
Mountain	111.6	113.0	115.0	115.6	117.2	118.3	119.3	120.2	120.9	121.2	121.5	121.9	113.8	118.8	121.4
Pacific	103.6	103.7	104.6	105.1	106.3	107.2	108.1	108.7	109.2	109.3	109.5	109.8	104.2	107.6	109.4
Real Personal Income (Billion \$2009)															
New England	858	859	864	870	876	882	887	892	897	901	905	908	863	884	903
Middle Atlantic	2,218	2,223	2,235	2,250	2,266	2,281	2,293	2,306	2,317	2,327	2,335	2,343	2,232	2,287	2,330
E. N. Central	2,342	2,351	2,367	2,383	2,402	2,418	2,431	2,445	2,458	2,470	2,479	2,486	2,361	2,424	2,473
W. N. Central	1,080	1,085	1,094	1,103	1,112	1,121	1,129	1,137	1,145	1,153	1,159	1,165	1,091	1,125	1,156
S. Atlantic	3,082	3,092	3,113	3,139	3,167	3,194	3,219	3,244	3,267	3,290	3,310	3,330	3,106	3,206	3,299
E. S. Central	862	865	869	875	882	888	893	898	903	908	912	915	868	890	910
W. S. Central	1,876	1,890	1,902	1,920	1,939	1,956	1,970	1,985	1,999	2,013	2,025	2,036	1,897	1,962	2,018
Mountain	1,101	1,104	1,112	1,122	1,133	1,143	1,152	1,162	1,170	1,180	1,188	1,196	1,110	1,148	1,183
Pacific	2,669	2,677	2,692	2,715	2,736	2,761	2,781	2,801	2,819	2,837	2,855	2,870	2,688	2,770	2,845
Households (Thousands)															
New England	5,869	5,877	5,891	5,897	5,906	5,915	5,925	5,934	5,943	5,953	5,960	5,968	5,897	5,934	5,968
Middle Atlantic	15,892	15,910	15,944	15,961	15,981	16,002	16,025	16,050	16,073	16,097	16,116	16,134	15,961	16,050	16,134
E. N. Central	18,892	18,921	18,966	18,988	19,011	19,037	19,067	19,100	19,132	19,171	19,204	19,234	18,988	19,100	19,234
W. N. Central	8,556	8,582	8,613	8,632	8,652	8,673	8,695	8,718	8,740	8,763	8,783	8,803	8,632	8,718	8,803
S. Atlantic	25,693	25,794	25,915	26,004	26,099	26,190	26,283	26,379	26,476	26,574	26,663	26,750	26,004	26,379	26,750
E. S. Central	7,600	7,619	7,645	7,661	7,679	7,698	7,717	7,738	7,758	7,777	7,796	7,814	7,661	7,738	7,814
W. S. Central	14,827	14,879	14,948	15,002	15,063	15,124	15,186	15,250	15,315	15,379	15,440	15,499	15,002	15,250	15,499
Mountain	9,329	9,374	9,426	9,465	9,505	9,544	9,584	9,625	9,666	9,707	9,746	9,786	9,465	9,625	9,786
Pacific	18,958	19,012	19,090	19,141	19,195	19,245	19,298	19,353	19,406	19,459	19,508	19,555	19,141	19,353	19,555
Total Non-farm Employment (Millions)															
New England	7.4	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.5	7.6	7.6
Middle Atlantic	19.7	19.8	19.8	19.9	20.0	20.0	20.0	20.1	20.1	20.2	20.2	20.2	19.8	20.0	20.2
E. N. Central	22.1	22.2	22.2	22.3	22.4	22.4	22.5	22.5	22.6	22.6	22.6	22.6	22.2	22.4	22.6
W. N. Central	10.7	10.7	10.8	10.8	10.8	10.9	10.9	10.9	11.0	11.0	11.0	11.0	10.8	10.9	11.0
S. Atlantic	28.4	28.6	28.7	28.9	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.6	28.6	29.1	29.5
E. S. Central	8.1	8.2	8.2	8.2	8.3	8.3	8.3	8.3	8.3	8.4	8.4	8.4	8.2	8.3	8.4
W. S. Central	17.3	17.4	17.5	17.6	17.7	17.8	17.8	17.9	18.0	18.1	18.1	18.1	17.5	17.8	18.1
Mountain	10.7	10.8	10.8	10.9	10.9	11.0	11.1	11.1	11.2	11.2	11.2	11.3	10.8	11.0	11.2
Pacific	23.3	23.4	23.5	23.6	23.7	23.7	23.8	23.9	24.0	24.1	24.1	24.1	23.4	23.8	24.1

- = no data available

Notes: 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.

Projections: Macroeconomic projections 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 - January 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Heating Degree Days															
New England	3,051	907	70	2,264	3,216	864	126	2,128	3,153	864	126	2,128	6,291	6,334	6,272
Middle Atlantic	2,936	753	38	2,007	2,974	696	78	1,968	2,941	696	78	1,968	5,734	5,716	5,683
E. N. Central	3,209	825	60	2,304	3,153	733	127	2,230	3,152	733	127	2,231	6,398	6,244	6,242
W. N. Central	3,421	828	120	2,594	3,230	708	161	2,411	3,225	708	161	2,412	6,963	6,510	6,506
South Atlantic	1,443	220	2	951	1,462	191	13	990	1,430	190	13	989	2,616	2,657	2,623
E. S. Central	1,818	327	2	1,342	1,868	241	21	1,326	1,826	241	21	1,327	3,488	3,457	3,415
W. S. Central	1,192	142	3	912	1,222	93	4	784	1,142	93	4	783	2,249	2,104	2,023
Mountain	2,119	598	124	1,932	2,199	693	143	1,819	2,190	693	143	1,818	4,773	4,853	4,843
Pacific	1,440	539	84	1,047	1,422	537	85	1,203	1,478	537	85	1,204	3,110	3,247	3,305
U.S. Average	2,129	522	48	1,552	2,132	481	73	1,525	2,111	480	73	1,523	4,251	4,211	4,188
Heating Degree Days, Prior 10-year Average															
New England	3,171	817	119	2,120	3,165	820	111	2,118	3,151	820	104	2,108	6,229	6,214	6,183
Middle Atlantic	2,947	646	81	1,949	2,956	650	76	1,936	2,947	650	70	1,930	5,623	5,618	5,597
E. N. Central	3,209	692	116	2,211	3,196	697	112	2,195	3,180	695	108	2,189	6,228	6,200	6,173
W. N. Central	3,264	705	144	2,379	3,255	702	140	2,379	3,245	696	137	2,365	6,492	6,476	6,443
South Atlantic	1,476	177	12	974	1,480	177	11	962	1,472	175	11	957	2,638	2,630	2,615
E. S. Central	1,868	217	18	1,301	1,862	222	17	1,293	1,866	219	17	1,283	3,404	3,393	3,385
W. S. Central	1,181	80	4	801	1,183	85	4	807	1,200	83	3	787	2,066	2,079	2,074
Mountain	2,194	737	144	1,841	2,164	714	139	1,853	2,169	709	137	1,827	4,917	4,871	4,842
Pacific	1,464	592	84	1,182	1,444	581	82	1,169	1,429	576	84	1,158	3,322	3,276	3,247
U.S. Average	2,160	478	71	1,525	2,150	475	68	1,515	2,141	472	66	1,503	4,233	4,209	4,182
Cooling Degree Days															
New England	0	79	582	0	0	87	421	2	0	87	421	2	661	510	510
Middle Atlantic	0	176	706	4	0	155	542	4	0	155	542	4	887	701	701
E. N. Central	0	332	638	4	0	214	526	6	0	214	526	6	974	747	747
W. N. Central	2	439	686	6	3	259	658	10	3	259	658	10	1,132	930	929
South Atlantic	137	724	1,266	284	116	653	1,153	221	121	654	1,154	221	2,411	2,143	2,150
E. S. Central	36	648	1,161	78	26	520	1,038	60	27	520	1,038	60	1,924	1,644	1,645
W. S. Central	126	1,006	1,565	160	79	828	1,506	206	90	829	1,507	207	2,856	2,620	2,632
Mountain	21	506	999	48	17	421	933	78	18	421	934	78	1,575	1,448	1,450
Pacific	31	183	726	73	28	173	590	58	28	172	590	58	1,013	849	848
U.S. Average	52	476	958	98	41	394	850	91	43	395	851	91	1,584	1,375	1,381
Cooling Degree Days, Prior 10-year Average															
New England	0	81	433	1	0	79	455	1	0	84	466	1	515	535	551
Middle Atlantic	0	166	567	5	0	165	589	6	0	171	600	6	738	760	778
E. N. Central	3	228	533	7	3	242	548	7	3	244	566	8	770	800	821
W. N. Central	7	277	659	11	7	298	669	11	7	300	689	12	954	985	1,008
South Atlantic	119	675	1,161	227	120	684	1,180	240	123	686	1,187	239	2,183	2,224	2,235
E. S. Central	34	539	1,031	63	36	554	1,049	67	36	554	1,064	69	1,667	1,706	1,722
W. S. Central	100	887	1,532	204	103	897	1,552	204	101	893	1,557	210	2,722	2,758	2,761
Mountain	24	426	922	84	25	438	932	81	25	440	933	83	1,457	1,476	1,481
Pacific	30	185	621	78	31	185	632	77	31	186	625	77	915	924	920
U.S. Average	45	408	855	94	46	417	873	97	46	419	882	98	1,402	1,433	1,446

- = no data available

Notes: 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 Oceanic and Atmospheric Administration (NOAA).

See *Change in Regional and U.S. Degree-Day Calculations* (http://www.eia.gov/forecasts/steo/special/pdf/2012_sp_04.pdf) for more information.

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

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

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

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