



Short-Term Energy Outlook (STEO)

Forecast highlights

Winter Fuels Outlook

- The U.S. Energy Information Administration (EIA) forecasts that average household expenditures for all major home heating fuels will decrease this winter compared with last. This forecast largely reflects warmer expected winter temperatures compared with last winter. Decreases vary by fuel and region, with average U.S. propane expenditures forecast to fall by 15%, home heating oil expenditures by 4%, natural gas expenditures by 1%, and electricity expenditures by 1% ([Winter Fuels Outlook](#)).

Global liquid fuels

- Brent crude oil spot prices averaged \$63 per barrel (b) in September, up \$4/b from August and down \$16/b from the September 2018 average. Brent spot prices began September at \$61/b and increased to \$68/b after [attacks on major Saudi Arabian oil infrastructure](#) disrupted the country's crude oil production. However, Brent spot prices have subsequently fallen, reaching \$58/b on October 4, as Saudi Arabia restored the shut-in production and concerns about oil demand based on the condition of the global economy rose.
- EIA forecasts Brent spot prices will average \$59/b in the fourth quarter of 2019 and then fall to \$57/b by the second quarter of 2020, which is \$5/b lower than forecast in the September STEO. Despite the recent increase in supply disruptions, EIA expects downward oil price pressure to emerge in the coming months as global oil inventories rise during the first half of 2020. EIA forecasts balances to tighten later in 2020 and expects Brent prices to rise to an average of \$62/b in the second half of next year. The resulting forecast average price in 2020 is \$60/b, \$2/b lower than forecast in the September STEO. EIA's October forecast recognizes a higher level of oil supply disruption risk than previously assumed, more-than-offset by increasing uncertainty about economic and oil demand growth in the coming quarters, resulting in a lowered oil price forecast.
- EIA estimates that crude oil production from the Organization of the Petroleum Exporting Countries (OPEC) averaged 28.2 million barrels per day (b/d) in September. Production was down 1.6 million b/d from August, the lowest level of

OPEC production since November 2003—as a result of the disruptions in Saudi Arabia—and down 4.0 million b/d from September 2018. The decrease in OPEC crude oil production during the past year was primarily the result of falling production in Iran and Venezuela as well as the recent disruption in Saudi Arabia. However, EIA estimates that Saudi Arabia’s crude oil production returned to pre-outage levels as of October 3. EIA forecasts that annual average OPEC crude oil production will average 29.8 million b/d in 2019, down by 2.1 million from 2018, and 29.6 million b/d in 2020.

- [EIA reported that U.S. crude oil production](#) averaged 11.8 million b/d in July (the most recent month for which data are available), down 0.3 million b/d from June. Declining production was a result of Hurricane Barry, which disrupted crude oil production in the Gulf of Mexico. U.S. crude oil production remained relatively flat during the first seven months of 2019 because of disruptions to Gulf of Mexico platforms and slowing growth in tight oil production. The slowing rate of growth in tight oil production reflects relatively flat crude oil price levels and slowing growth in well-level productivity in the Lower 48 states. However, EIA expects growth to pick up in the fourth quarter as production returns in the Gulf of Mexico and pipelines in the Permian Basin come online to link production areas in West Texas and New Mexico to refining and export centers on the Gulf Coast. However, EIA forecasts growth to level off in 2020 because of falling crude oil prices in the first half of the year and continuing declines in well-level productivity. EIA forecasts U.S. crude oil production will average 12.3 million b/d in 2019, up 1.3 million from the 2018 level, and will rise by 0.9 million b/d in 2020 to an annual average of 13.2 million b/d.

Natural gas

- The Henry Hub natural gas spot price averaged \$2.56 per million British thermal units (MMBtu) in September, up 34 cents/MMBtu from August, which was the first monthly price increase since March. EIA forecasts Henry Hub prices to average \$2.43/MMBtu in the fourth quarter of 2019, a decrease of more than \$1/MMBtu from the fourth quarter of 2018, subsequently increasing to an average of \$2.52/MMBtu in 2020. U.S. natural gas prices have fallen in 2019 because of strong supply growth that has enabled natural gas inventories to build more than average during the April through October injection season.
- EIA forecasts that average annual U.S. dry natural gas production will average 91.6 billion cubic feet per day (Bcf/d) in 2019, up 10% from the 2018 average. EIA expects that natural gas production will grow much less in 2020 because the delayed effect of low prices in the second half of 2019 will reduce natural gas-directed drilling in 2020. EIA forecasts natural gas production in 2020 will average 93.5 Bcf/d.
- Natural gas storage injections in the United States have outpaced the previous five-year (2014–18) average so far during the 2019 injection season as a result of rising

natural gas production. At the beginning of April, the natural gas inventory [injection season started](#) with working inventories 28% below the five-year average for the same period. By the week ending September 27, [working gas inventories](#) reached 3,317 billion cubic feet (Bcf), within 1%, of the five-year average. EIA [forecasts](#) that natural gas storage levels will total 3,792 Bcf by the end of October, which is 2% above the five-year average and 17% above October 2018 levels.

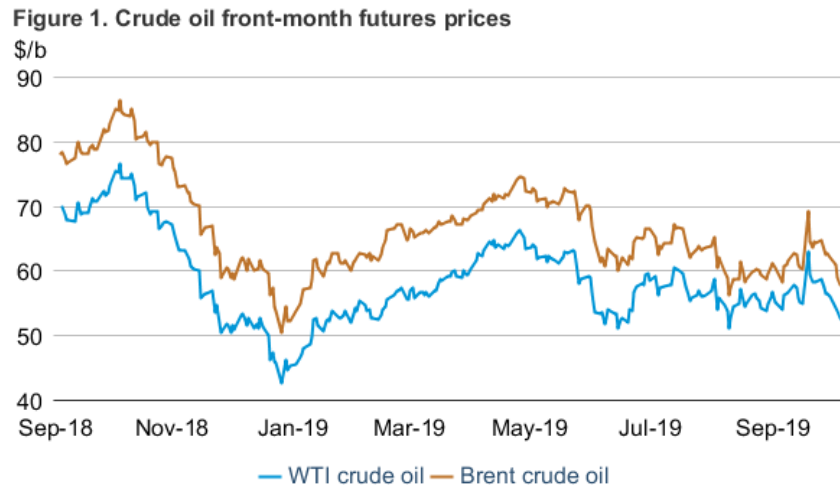
Electricity, coal, renewables, and emissions

- EIA expects the share of U.S. total [utility-scale electricity generation](#) from natural gas-fired power plants will rise from 34% in 2018 to 37% in 2019 and 2020. EIA forecasts that the share of U.S. electric generation from coal will average 25% in 2019 and 22% in 2020, down from 28% in 2018. EIA's forecast nuclear share of U.S. generation remains at about 20% in 2019 and in 2020. Hydropower averages a 7% share of total U.S. generation in the forecast for 2019 and 2020, similar to 2018. Wind, solar, and other nonhydropower renewables provided almost 10% of U.S. total utility-scale generation in 2018. EIA expects they will provide more than 10% in 2019 and 12% in 2020.
- EIA expects total U.S. coal production to decrease to 159 million short tons (MMst) in the fourth quarter of 2019, a decline of 34 MMst (17%) from the same period in 2018. The resulting estimate of U.S. production totals 679 MMst in 2019, which would be a 76 MMst (10%) decline from the 2018 level. Declining coal demand and related bankruptcies, ownership changes, and sudden mine closures have contributed to a fluctuating production environment in the Western region (largely the Powder River Basin), which produces more than half of the U.S. coal supply. EIA expects coal production to decline further by 11% in 2020 to 603 MMst.
- EIA expects U.S. electric power sector generation from renewables other than hydropower—principally [wind](#) and solar—to grow from 414 billion kilowatthours (kWh) in 2019 to 471 billion kWh in 2020. In EIA's forecast, Texas accounts for 19% of the U.S. nonhydropower renewables generation in 2019 and 22% in 2020. California's forecast share is 15% in 2019 and 14% in 2020. The Midwest and Central power regions each see shares in the 16% to 17% range of the U.S. generation total from nonhydropower renewables in 2019 and 2020.
- EIA forecasts that, after rising by 2.7% in 2018, U.S. energy-related carbon dioxide (CO₂) emissions will decline by 2.4% in 2019 and by 1.7% in 2020, due in part to lower forecast consumption of energy. In 2019, EIA forecasts there will be lower demand for space cooling because of a forecast 6% decline in cooling degree days from 2018, when it was significantly higher than the previous 10-year (2008–17) average. In addition, EIA also expects U.S. CO₂ emissions in 2019 to decline because the forecast share of electricity generated from natural gas and renewables will increase while the share generated from coal, which is a more carbon-intensive energy source, will decrease.

Petroleum and natural gas markets review

Crude oil

Prices: The front-month futures price for Brent crude oil settled at \$57.71 per barrel (b) on October 3, 2019, a decrease of 55 cents/b from September 3. The front-month futures price for West Texas Intermediate (WTI) crude oil for delivery at Cushing, Oklahoma, decreased by \$1.49/b during the same period, settling at \$52.45/b on October 3 (**Figure 1**).



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

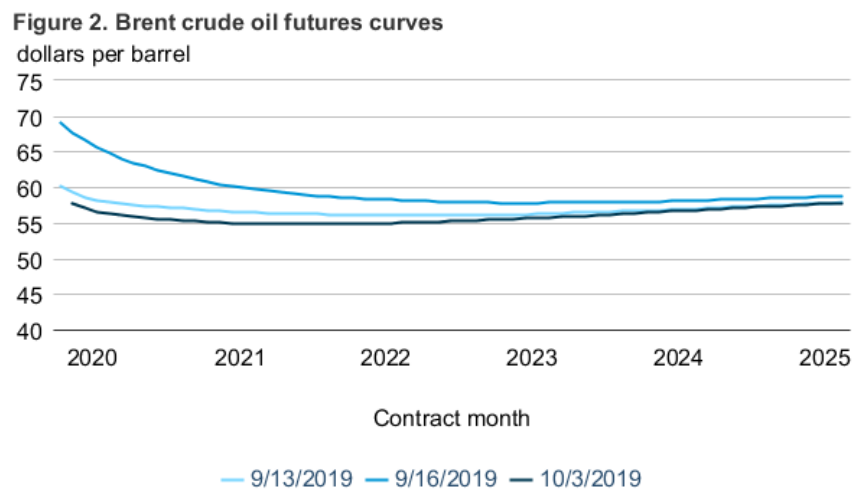
The attack on [Saudi Aramco's Abqaiq crude oil processing facility](#) on September 14 initially disrupted about 5% of global liquid fuels supply and caused a significant increase in crude oil prices on the first trading day following the disruption. The company has restored most operational capacity at the facility, however, and has met customer demand by selling oil from inventories and reducing domestic refinery intake. By early October, crude oil prices had declined to pre-attack levels. The long term effects from the disruption remain highly uncertain. The attack revealed vulnerabilities to a significant amount of crude oil production in a country that holds most of the spare production capacity within the Organization of the Petroleum Exporting Countries (OPEC). At the same time, the market appears to have adapted fairly smoothly to the disruption and oil companies will likely enhance security in the future.

As a result of the crude oil supply disruption, EIA estimates Saudi Arabia's crude oil production declined to 8.5 million barrels per day (b/d) on average in September, down from 9.9 million b/d in August. Because Saudi Arabia holds the majority of OPEC's spare crude oil production capacity, EIA estimates the outage reduced September spare capacity numbers by 1 million b/d. EIA forecasts OPEC spare production capacity will approach pre-attack levels by January 2020, however. The disruption affects EIA's estimate of global liquid fuels inventory changes. EIA now estimates inventories fell by an average of 0.9 million b/d in the third quarter of 2019, compared with the slight inventory build that EIA forecasted in the September STEO. In 2020, EIA forecasts global liquid fuels inventories will build by an average of 0.3 million b/d as a result

of non-OPEC supply growth that outpaces growth in global liquid fuels demand. EIA forecasts global oil inventories will increase by 0.5 million b/d in the first half of 2020, which EIA expects will put downward pressure on crude oil prices. EIA forecasts Brent crude oil prices will average \$59/b in the fourth quarter of 2019, falling to \$57/b in the second quarter of 2020 before increasing to more than \$62/b in the second half of 2020 as oil market balances firm. EIA forecasts Brent crude oil prices will average \$60/b in 2020, \$2/b less than in the September STEO.

EIA is making this forecast against a backdrop of competing risks. On one hand, this forecast recognizes a higher level of oil supply disruption risk than previously assumed. However, risks that economic growth will be lower than forecast, which could cause oil demand to be weaker than expected, have also increased in the past weeks, notably in contractionary manufacturing indicators from the [United States](#) and [Germany](#).

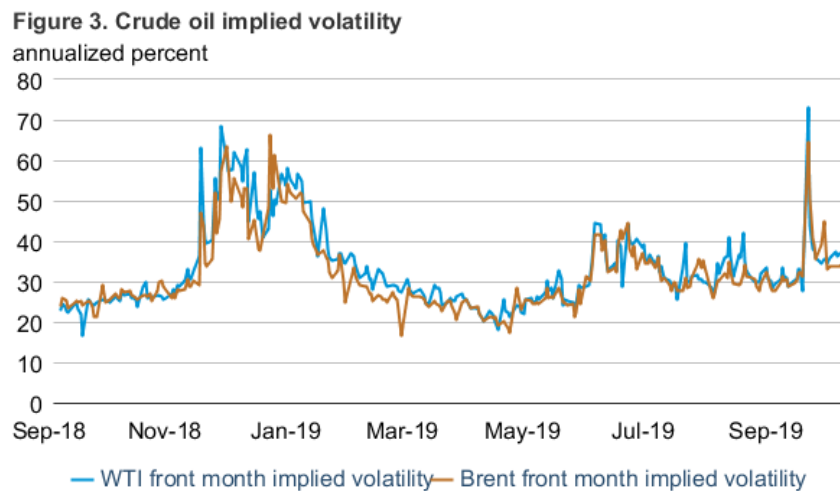
Brent futures curve: Crude oil prices on longer dated contracts of the futures curve increased less proportionately in response to the September 14 attack. The level of backwardation (when near-term futures prices are higher than longer-dated ones) initially increased significantly, primarily reflecting the market’s call on inventories. However, Brent futures prices for 2020 delivery and later declined to levels lower than pre-attack prices as of October 3 (**Figure 2**). Market participants likely expect global supply levels to return to pre-attack levels relatively quickly with only a small level of geopolitical risk affecting prices in the longer-dated contracts. In addition, crude oil producers might have increased their hedged volumes for future years’ planned production at the initially higher prices, contributing to selling pressure on longer-dated contracts.



Intercontinental Exchange, as compiled by Bloomberg L.P.

Implied volatility: Similar to movements in crude oil prices, [implied volatility](#) for both Brent and WTI increased immediately following the Abqaiq and Khurais attacks, but they have since declined to about the same levels as in early September. Brent and WTI implied volatility each

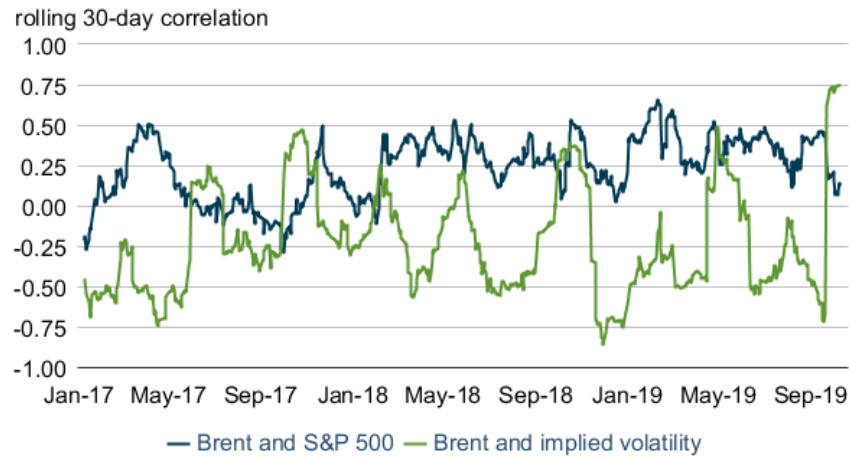
increased by 3 percentage points since September 3, 2019, settling at 34.1% and 36.5%, respectively, on October 3 (**Figure 3**).



eia Bloomberg L.P.

Increases in both crude oil prices and implied volatility are typical during supply disruptions. Most of the time, [crude oil prices and implied volatility](#) exhibit little or slightly negative correlation. During a crude oil supply disruption, however, market participants must seek alternative sources of supply amid an environment of uncertain price direction and supply availability, contributing to increases in prices and volatility. The rolling 30-day correlation between Brent prices and implied volatility increased to more than 0.7 in the days following the attack on Saudi oil infrastructure, a strong degree of positive correlation witnessed during other periods of crude oil supply disruptions during the past two years (**Figure 4**). In contrast, the [correlation between Brent prices and the S&P 500](#)—which had exhibited moderately high positive correlation since early 2018—declined to almost zero correlation by the first week of October. These two assets tend to exhibit positive correlation when demand-side factors, such as global economic growth, are contributing to crude oil price formation. Now that Saudi Arabia’s crude oil production has returned to pre-attack levels, information concerning global economic growth could reemerge as the main contributor to crude oil price formation.

Figure 4. Brent price correlations

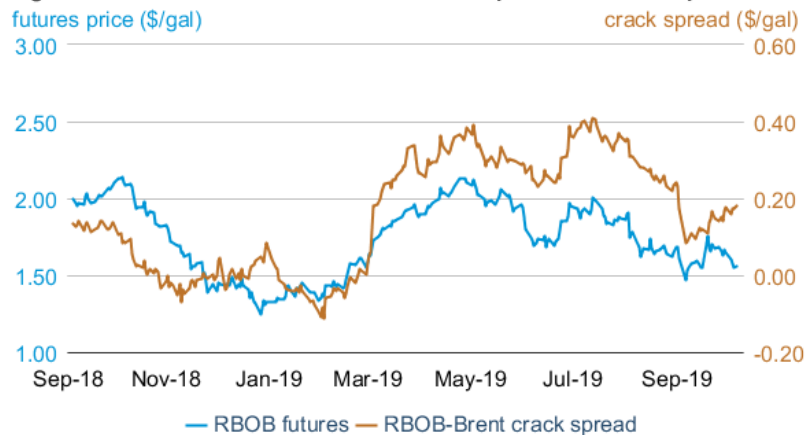


eia Intercontinental Exchange, as compiled by Bloomberg L.P.

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 \$1.56 per gallon (gal) on October 3, up 9 cents/gal since September 3 (**Figure 5**). The RBOB–Brent crack spread (the difference between the price of RBOB and the price of Brent crude oil) increased by 10 cents/gal to settle at 18 cents/gal during the same period.

Figure 5. Historical RBOB front-month futures prices and crack spread

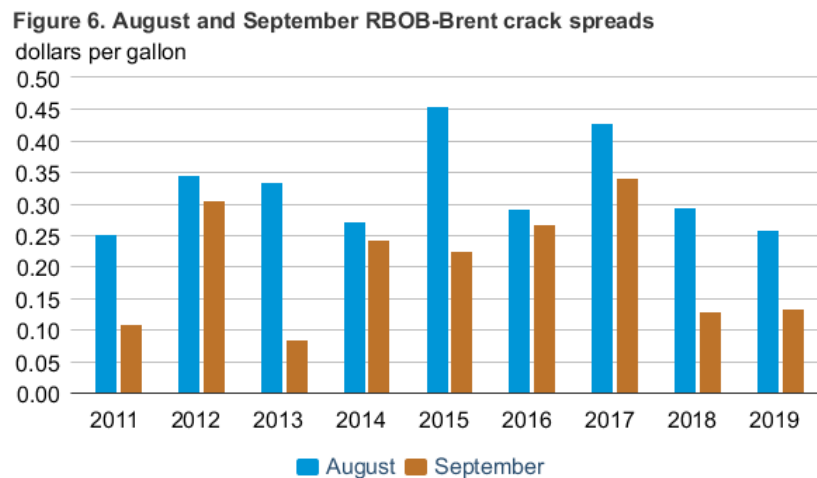


eia CME Group, as compiled by Bloomberg L.P., RBOB=reformulated blendstock for oxygenate blending

The crack spread increased throughout September, having started the month relatively low when the front-month contract rolled to October delivery. RBOB prices peaked mid-month, following the September 14 attacks on Saudi Arabian infrastructure, reaching a monthly high of \$1.75/gal on September 16, a 13% increase from the previous trading day. Among the international trading hubs, RBOB rose higher during this two-day period than Northwest Europe gasoline (5%) or Singapore gasoline (8%).

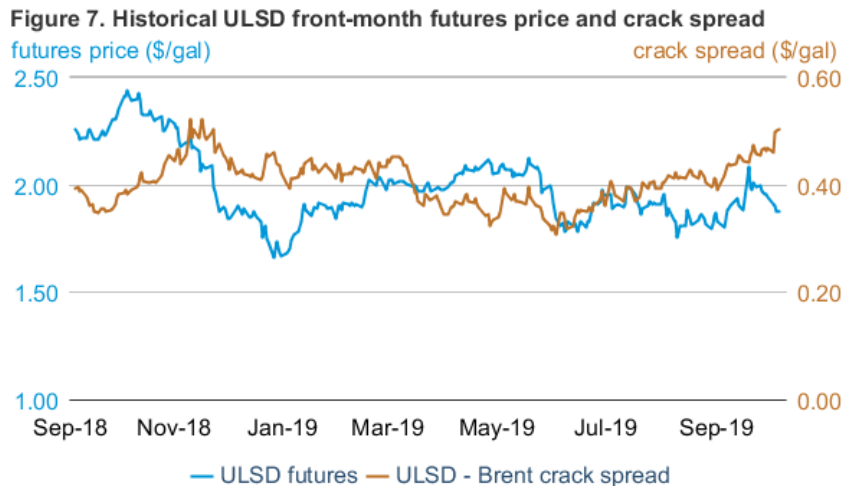
U.S. gasoline consumption also provided support for RBOB prices. EIA estimates U.S. gasoline consumption totaled 9.4 million barrels per day (b/d) in September, which, if confirmed in monthly data, would be the first year-over-year increase in monthly consumption since April 2019. However, gasoline production and imports have kept pace with demand, resulting in gasoline inventory levels that were only 158,000 barrels higher at the end of September than at the end of August.

Seasonal RBOB crack spread decrease: The RBOB–Brent crack spread typically decreases from August to September, as the RBOB contract for delivery of less expensive winter grade gasoline becomes the front-month contract in September. In 2019, the RBOB–Brent crack spread decreased by 13 cents/gal from August to September, more than the five-year (2014–18) average decrease of 11 cents/gal (**Figure 6**). Despite the decrease from August to September, the level of the September RBOB–Brent crack spread was slightly higher than in September 2018, likely because of the mid-month crack spread increase associated with the attack in Saudi Arabia.



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

Ultra-low sulfur diesel prices: The ultra-low sulfur diesel (ULSD) front-month futures price increased 7 cents/gal from September 3 to settle at \$1.88/gal on October 3. The ULSD–Brent crack spread (the difference between the price of ULSD and the price of Brent crude oil) increased 9 cents/gal to settle at 50 cents/gal during the same period (**Figure 7**).

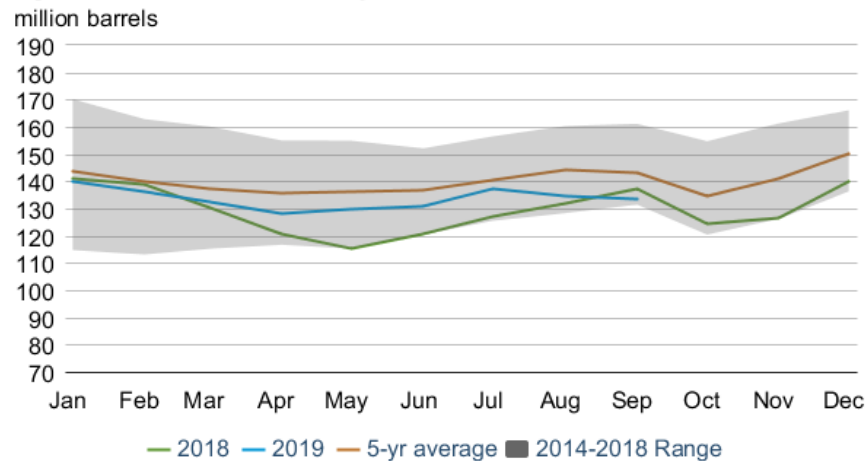


 CME Group, as compiled by Bloomberg L.P., ULSD=ultra-low sulfur diesel

EIA estimates U.S. distillate consumption in September [remains lower than in 2018](#). Exports of distillate fuel in September were down from the 2019 high of 1.5 million b/d in August. Distillate production has decreased slightly since the year-to-date peak of 5.3 million b/d in June, falling to 5.0 million b/d in September. U.S. refinery yields of distillate also decreased in July to the lowest level since March 2018, based on the latest monthly data in EIA’s [Petroleum Supply Monthly](#).

U.S. distillate inventories: EIA estimates U.S. distillate inventories ended September at the lowest level for this time of year since 2013, 12.2 million barrels lower than the five-year average and about 6.1 million barrels lower than the September 2018 level (**Figure 8**). The build of 1.1 million barrels since May was less than the five-year average summer build of 6.9 million barrels. The lower summer builds may indicate [decreasing seasonality](#) in U.S. distillate consumption and stock levels. Storage levels in the Northeast—the region with the highest heating oil consumption—were about 18% lower than the five-year average for the four weeks ending September 27.

Figure 8. U.S. distillate inventory

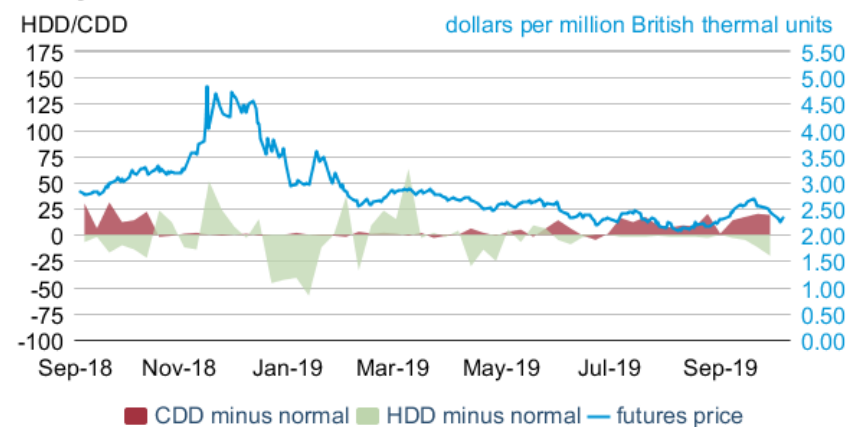



 U.S. Energy Information Administration

Natural Gas

Prices: The front-month natural gas futures contract for delivery at the Henry Hub settled at \$2.33 per million British thermal units (MMBtu) on October 3, down 3 cents/MMBtu from September 3 (**Figure 9**). Natural gas futures prices increased through the first half of September, reaching the highest level in five months on September 16. In September 2019, total natural gas consumption as well as natural gas consumption for power generation established new monthly records, which provided some support for futures prices. U.S. cooling degree days were 27% higher than normal in September, contributing to the increased natural gas consumption for power generation.

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



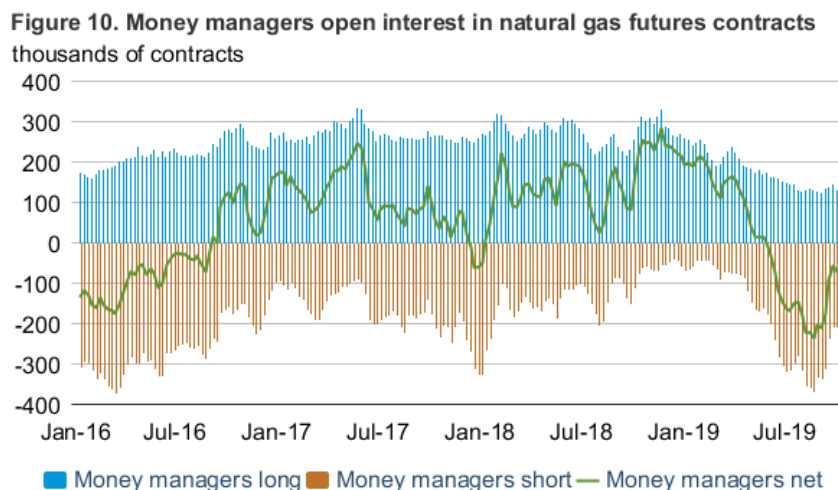
Note: HDD stands for heating degree days, CDD stands for cooling degree days
 CME Group and National Oceanic and Atmospheric Administration, as compiled by Bloomberg L.P.

Despite the increase in consumption, natural gas injections into storage remained higher than normal throughout September, helping to bring prices down in the second half of the month.

EIA forecasts natural gas injections will continue in October and that inventories will reach almost 3.8 trillion cubic feet at the end of the month, which would be 17% higher than year-ago levels.

Rising U.S. natural gas production, which EIA estimates established another record in September, contributed to the greater-than-normal injections. Production growth, however, has been slowing in the United States. The year-on-year increase of 7.0 billion cubic feet per day (Bcf/d) in September is down from the year-on-year increase of 10.8 Bcf/d in January 2019. EIA expects U.S. natural gas production to slow further in the coming quarters as the lagged effect of falling prices through much of 2019 reduces natural gas-directed drilling. EIA forecasts dry natural gas production to be relatively flat from December 2019 through December 2020.

Money managers open interest: Between August 13 and September 17, 2019, the number of futures short positions that money managers reported holding for NYMEX natural gas contracts declined by 44% (**Figure 10**). A short position by money managers indicates expectations of lower prices and a long position indicates the opposite. Money managers collectively held the largest short position on August 13 since March 8, 2016. Money managers increased their short positions through the summer concurrently with declining natural gas prices, which reached their lowest level in more than three years on August 5, 2019. Prices then began increasing and rose to their highest level in five months by the middle of September. The higher prices encouraged many money managers to purchase offsetting contracts to get out of their short positions, which may have contributed to some of the increase in futures prices during this time. The money manager category of the Commitments of Traders report, published weekly by the Commodity Futures Trading Commission, includes fund managers that conduct organized futures trading on behalf of clients and that are not involved in physical commodity trading as their business activity.



eia Commodity Futures Trading Commission, Bloomberg, L.P.

Market-derived probability: On September 3, 2019, EIA’s market-derived probability of the January 2020 natural gas futures contract expiring at more than \$3/MMBtu was 24% (**Figure**

11). The probability—which EIA calculates using futures and options data—increased to 28% on October 3, 2019, largely because both the futures contract price and implied volatility increased between the two dates. Throughout September, the natural gas futures contracts through March 2020 remained lower than \$3/MMBtu. The last time that the natural gas front-month futures price did not exceed \$3/MMBtu between October and March was the winter of 2015–16.

Figure 11. Probability of the January 2020 Henry Hub contract expiring higher than specified price levels



 U.S. Energy Information Administration, CME Group

Notable forecast changes

- EIA estimates that crude oil production in the Organization of the Petroleum Exporting Countries (OPEC) averaged 29.2 million barrels per day (b/d) in the third quarter of 2019, which is 0.5 million b/d lower than previously expected. The lower OPEC crude oil production reflects the September supply outages in Saudi Arabia caused by attacks on the country’s oil installations.
- EIA estimates that OPEC noncrude oil liquids production averaged 5.5 million b/d in the third quarter of 2019, up by almost 0.1 million from the September STEO. The upward revision occurred despite declining noncrude oil liquids production as a result of the attack in Saudi Arabia. EIA revised higher historical noncrude oil liquids estimates for a number of other OPEC countries, which offset declines in Saudi Arabia.
- EIA forecasts Brent crude oil spot prices will average \$60 per barrel (b) in 2020, which is \$2/b lower than forecast in the September STEO. The lower forecast crude oil prices reflects higher forecast global oil inventory builds in 2020.
- EIA forecasts jet fuel consumption will average 1.78 million b/d in 2020, which is 60,000 b/d (3.4%) lower than previously forecast. The lower forecast is the result of updates to EIA’s jet fuel model equation, which now includes U.S. gross domestic

product (GDP) as the main explanatory variable. A decrease in the U.S. GDP growth in 2020 contributes to slowing growth in jet fuel consumption.

- EIA forecasts coal exports will total 75 million short tons (MMst) in 2020, which is 10 MMst (12%) lower than forecast in the September STEO. The lower forecast reflects the following:
 - Declining demand in the Atlantic Basin coal market
 - A surplus in Eastern European coal supply that is crowding out U.S. exports
 - Logistical challenges, including the delay of Millennium Bulk Terminal in Washington State, which will allow Western coal to be competitively priced for export to Asian markets
- For more information, see the [detailed table of STEO forecast changes](#).

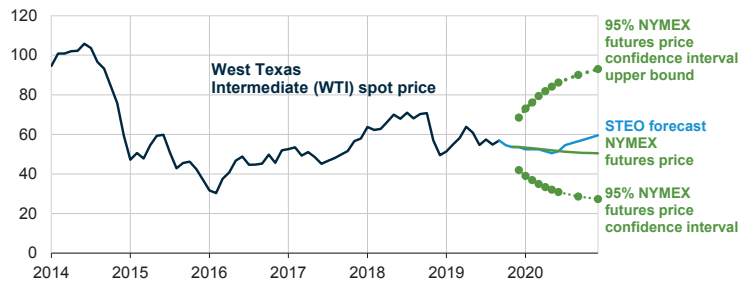
This report was prepared by the U.S. Energy Information Administration (EIA), the statistical and analytical agency within the U.S. Department of Energy. By law, EIA's data, analyses, and forecasts are independent of approval by any other officer or employee of the United States Government. The views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

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

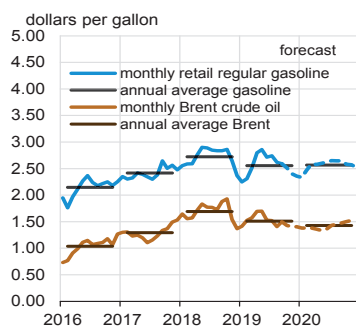


Note: Confidence interval derived from options market information for the five trading days ending Oct 3, 2019. Intervals not calculated for months with sparse trading in near-the-money options contracts.

Sources: Short-Term Energy Outlook, October 2019, and CME Group

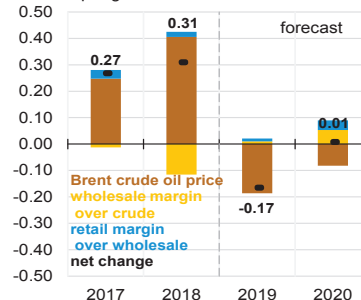


U.S. gasoline and crude oil prices

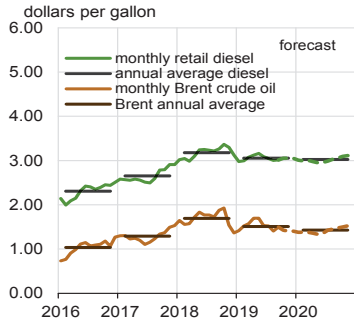


Source: Short-Term Energy Outlook, October 2019

Components of annual gasoline price changes
dollars per gallon

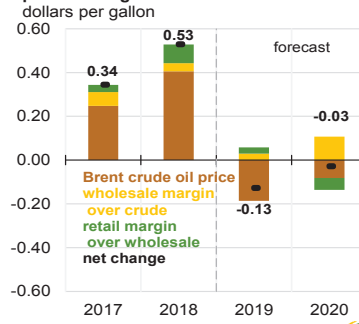


U.S. diesel and crude oil prices



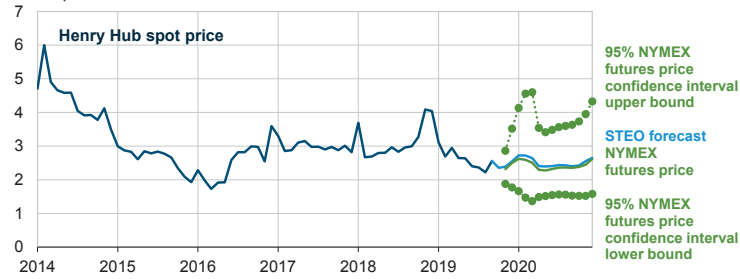
Source: Short-Term Energy Outlook, October 2019

Components of annual diesel prices changes



Henry Hub natural gas price and NYMEX confidence intervals

dollars per million Btu



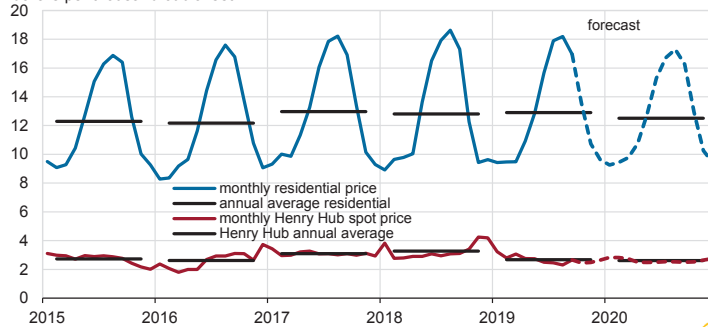
Note: Confidence interval derived from options market information for the five trading days ending Oct 3, 2019. Intervals not calculated for months with sparse trading in near-the-money options contracts.

Sources: Short-Term Energy Outlook, October 2019, and CME Group



U.S. natural gas prices

dollars per thousand cubic feet

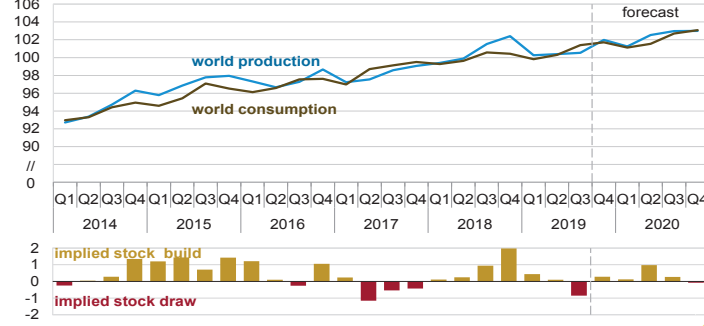


Sources: Short-Term Energy Outlook, October 2019, and Refinitiv



World liquid fuels production and consumption balance

million barrels per day

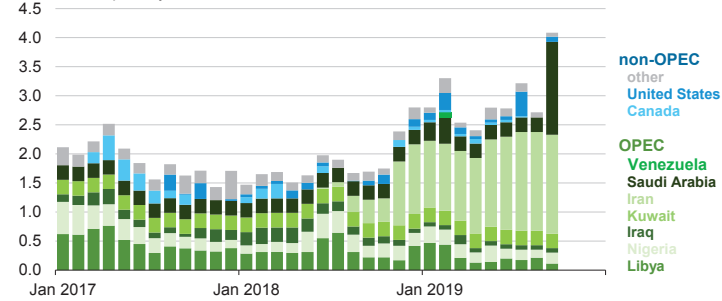


Source: Short-Term Energy Outlook, October 2019



Estimated unplanned liquid fuels production outages

million barrels per day

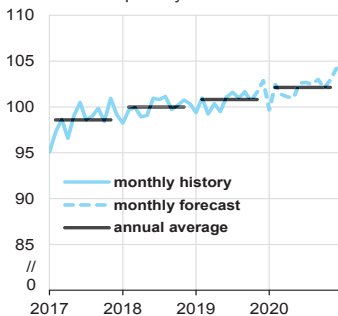


Source: Short-Term Energy Outlook, October 2019



World liquid fuels consumption

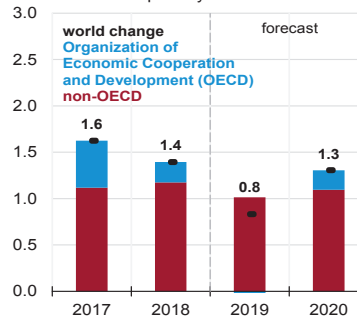
million barrels per day



Source: Short-Term Energy Outlook, October 2019

Components of annual change

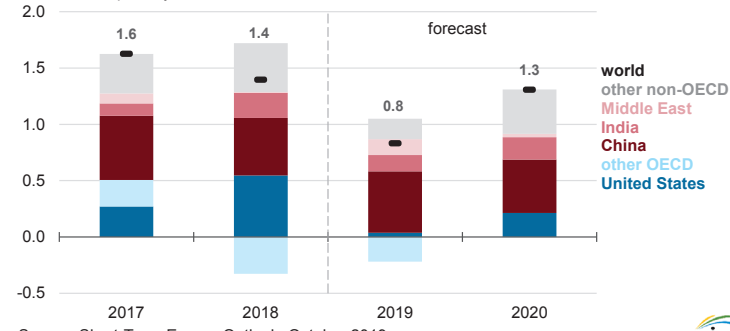
million barrels per day



Source: Short-Term Energy Outlook, October 2019



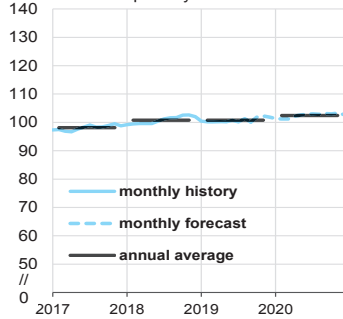
Annual change in world liquid fuels consumption
million barrels per day



Source: Short-Term Energy Outlook, October 2019

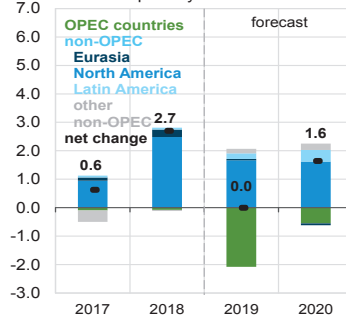


World crude oil and liquid fuels production
million barrels per day

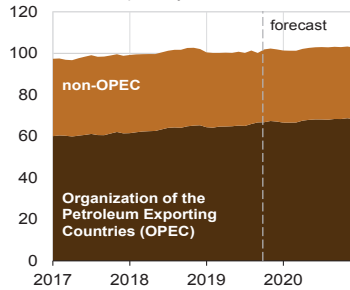


Source: Short-Term Energy Outlook, October 2019

Components of annual change
million barrels per day

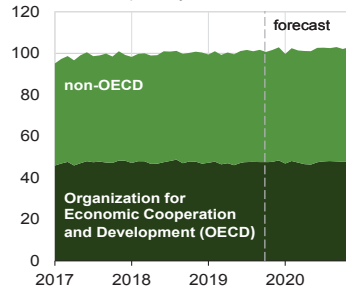


World liquid fuels production
million barrels per day

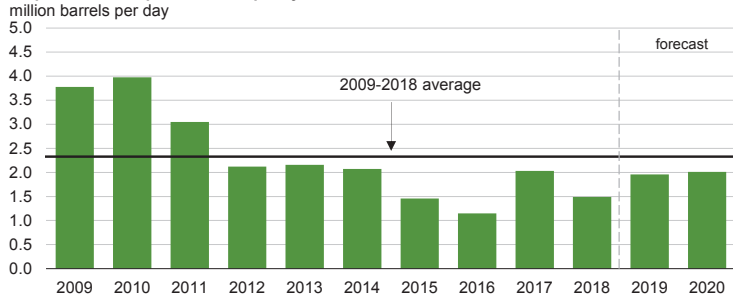


Source: Short-Term Energy Outlook, October 2019

World liquid fuels consumption
million barrels per day



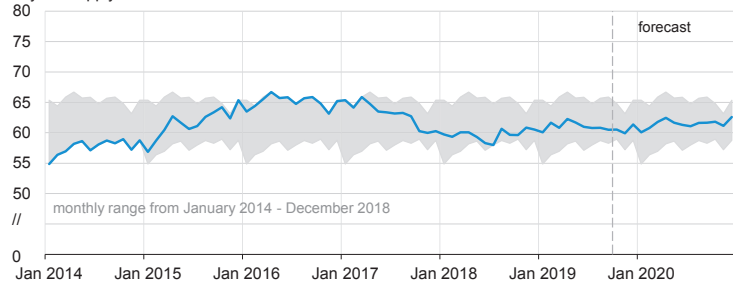
**Organization of the Petroleum Exporting Countries (OPEC)
surplus crude oil production capacity**



Note: Black line represents 2009-2018 average (2.3 million barrels per day).
Source: Short-Term Energy Outlook, October 2019



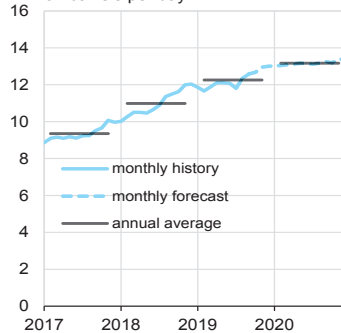
**Organization for Economic Cooperation and Development (OECD)
commercial inventories of crude oil and other liquids**



Source: Short-Term Energy Outlook, October 2019

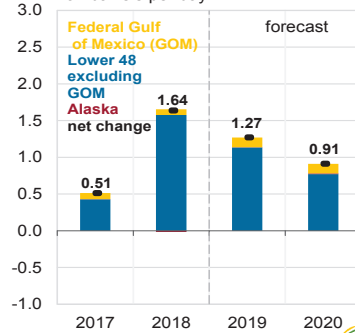


U.S. crude oil production

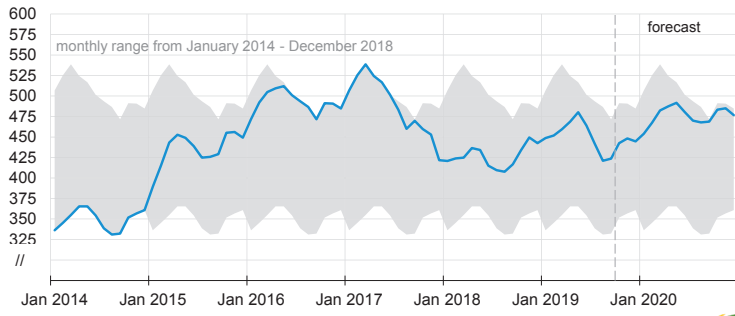


Source: Short-Term Energy Outlook, October 2019

Components of annual change



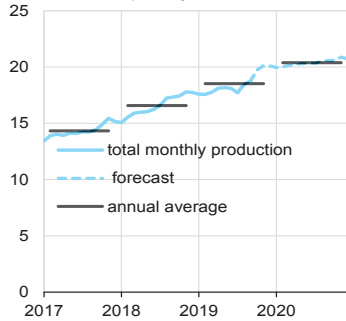
U.S. commercial crude oil inventories
million barrels



Source: Short-Term Energy Outlook, October 2019

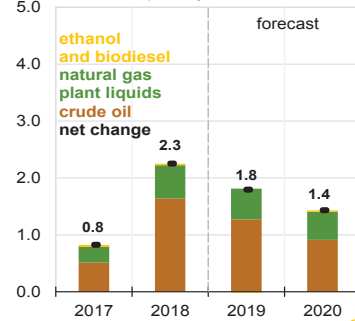


U.S. crude oil and liquid fuels production
million barrels per day

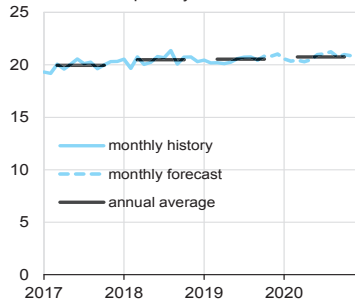


Source: Short-Term Energy Outlook, October 2019

Components of annual change
million barrels per day

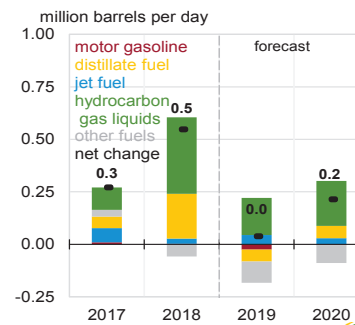


U.S. liquid fuels product supplied (consumption)
million barrels per day

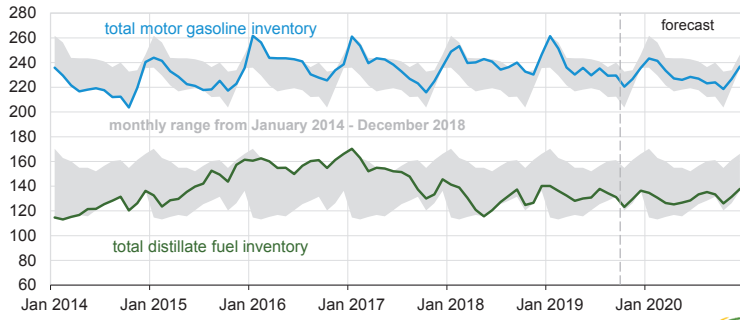


Source: Short-Term Energy Outlook, October 2019

Components of annual change



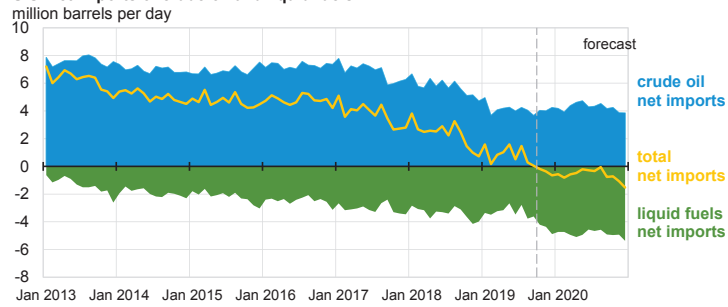
U.S. gasoline and distillate inventories
million barrels



Source: Short-Term Energy Outlook, October 2019



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

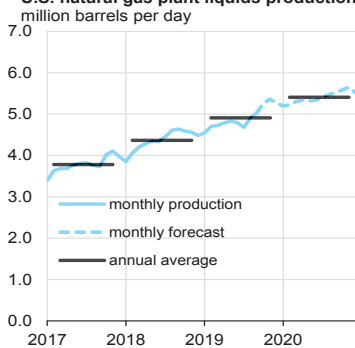


Note: Liquids fuels include: gasoline, distillate fuels, hydrocarbon gas liquids, jet fuel, residual fuel oil, unfinished oils, other hydrocarbons/oxygenates, and other oils.

Source: Short-Term Energy Outlook, October 2019

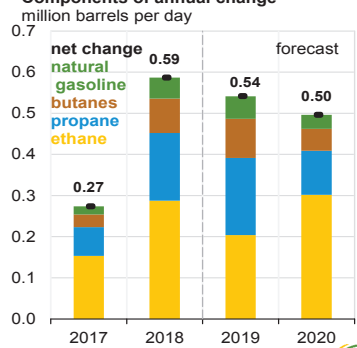


U.S. natural gas plant liquids production

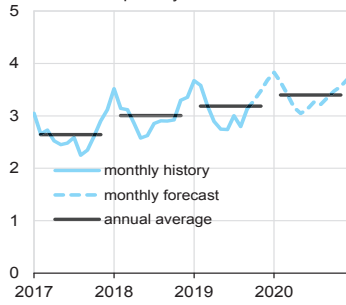


Source: Short-Term Energy Outlook, October 2019

Components of annual change

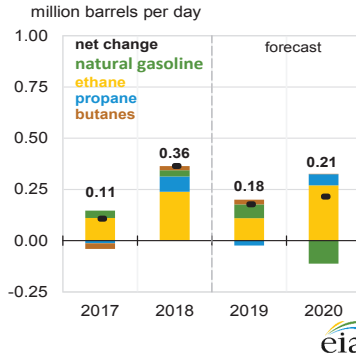


U.S. hydrocarbon gas liquids product supplied (consumption)
million barrels per day

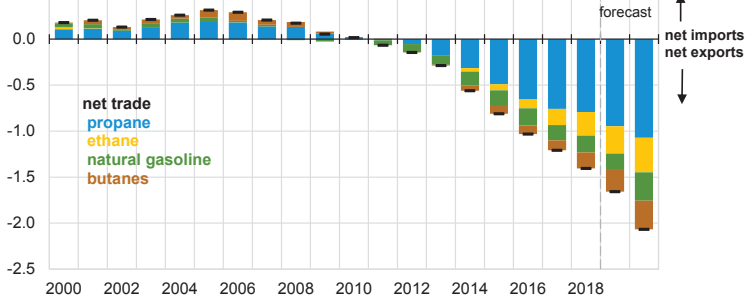


Source: Short-Term Energy Outlook, October 2019

Components of annual change



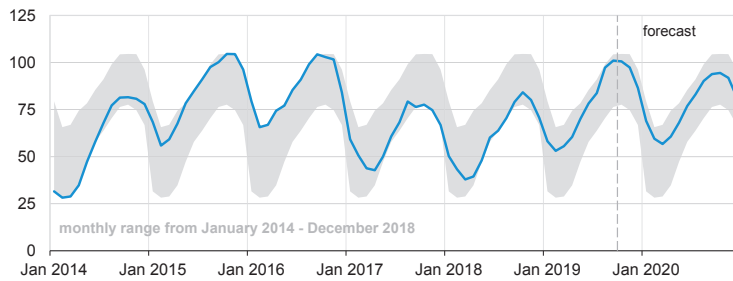
U.S. net trade of hydrocarbon gas liquids (HGL)
million barrels per day



Source: Short-Term Energy Outlook, October 2019



U.S. commercial propane inventories
million barrels

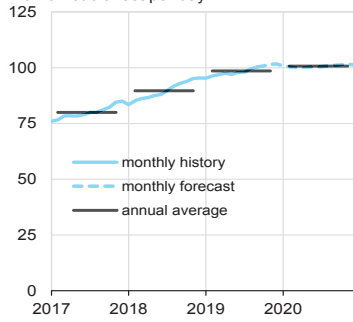


Note: Propane includes refinery propylene.

Source: Short-Term Energy Outlook, October 2019

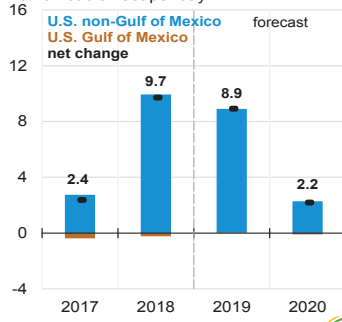


U.S. marketed natural gas production
billion cubic feet per day

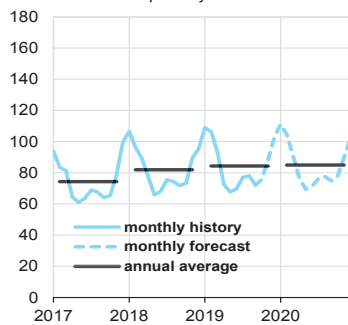


Source: Short-Term Energy Outlook, October 2019

Components of annual change
billion cubic feet per day

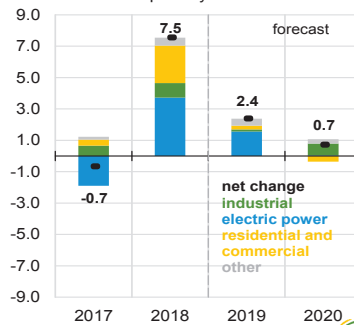


U.S. natural gas consumption
billion cubic feet per day

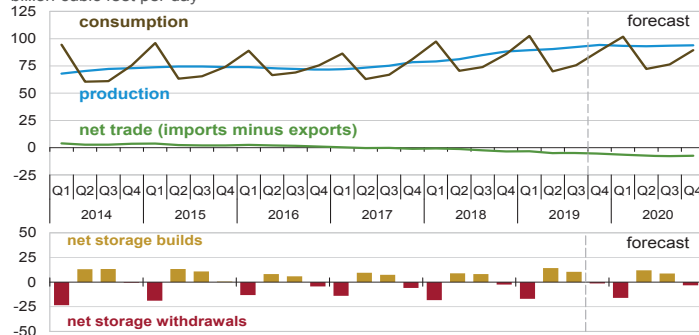


Source: Short-Term Energy Outlook, October 2019

Components of annual change
billion cubic feet per day



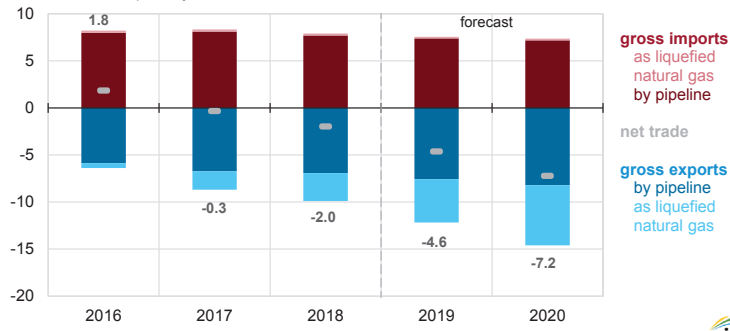
U.S. natural gas production, consumption, and net imports
billion cubic feet per day



Source: Short-Term Energy Outlook, October 2019



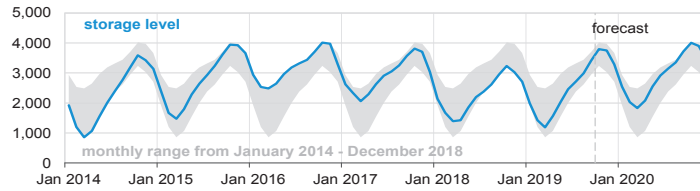
Annual natural gas trade
billion cubic feet per day



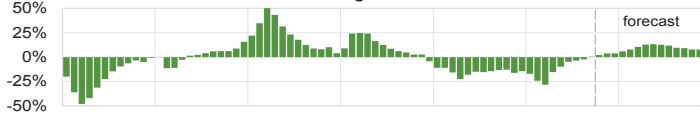
Source: Short-Term Energy Outlook, October 2019



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



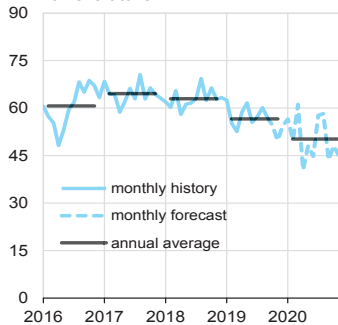
Percent deviation from 2014 - 2018 average



Source: Short-Term Energy Outlook, October 2019

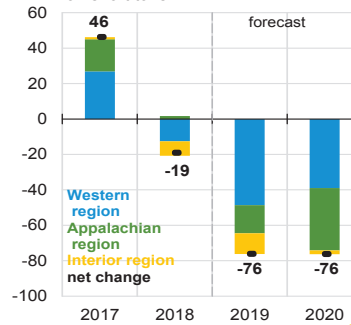


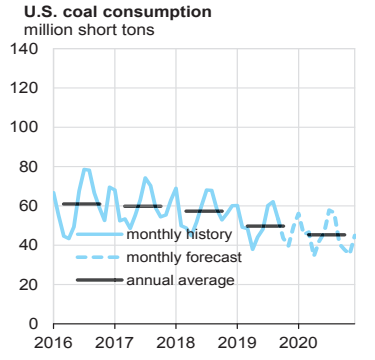
U.S. coal production
million short tons



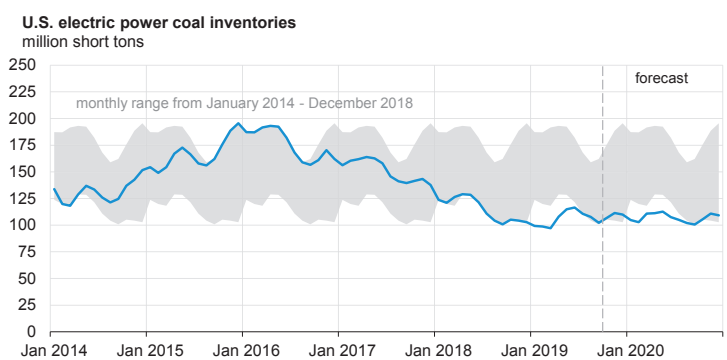
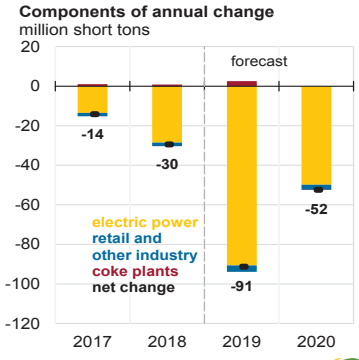
Source: Short-Term Energy Outlook, October 2019

Components of annual change
million short tons

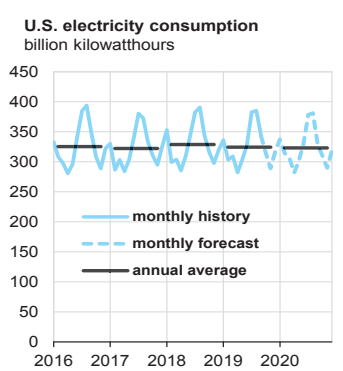




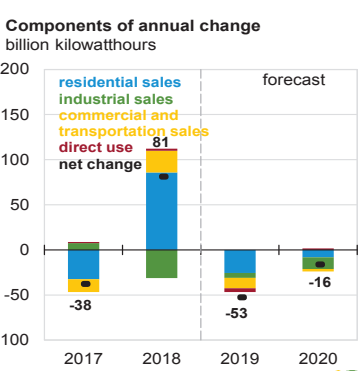
Source: Short-Term Energy Outlook, October 2019



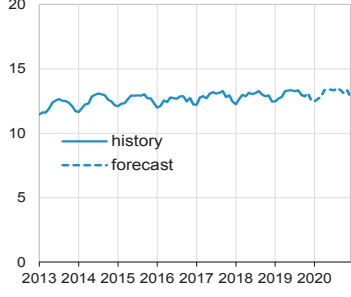
Source: Short-Term Energy Outlook, October 2019



Source: Short-Term Energy Outlook, October 2019

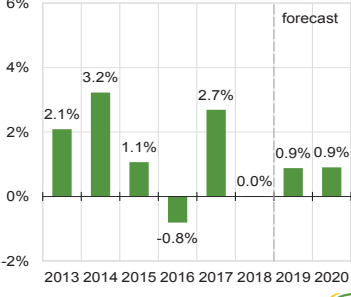


U.S. monthly residential electricity price
cents per kilowatthour

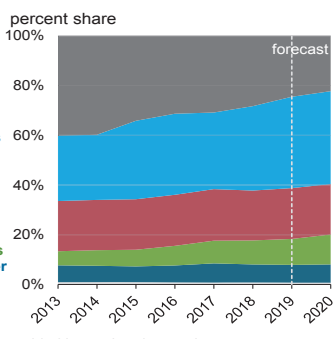
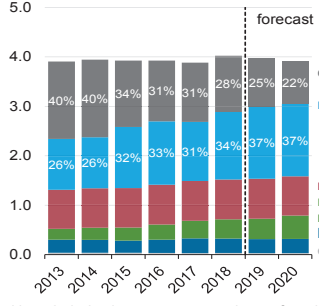


Source: Short-Term Energy Outlook, October 2019

Annual growth in residential electricity prices
percent



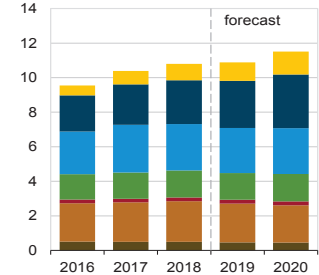
U.S. electricity generation by fuel, all sectors
billion kilowatthours



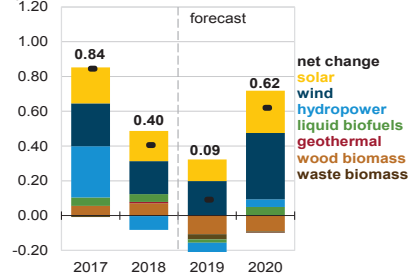
Note: Labels show percentage share of total generation provided by coal and natural gas.
Source: Short-Term Energy Outlook, October 2019



U.S. renewable energy supply
quadrillion British thermal units



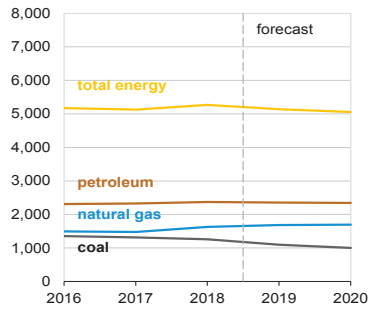
Components of annual change
quadrillion British thermal units



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, October 2019

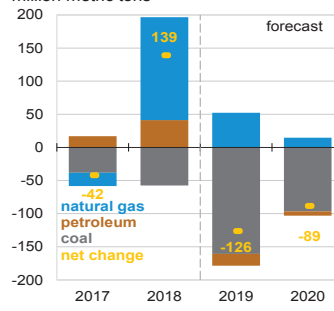


U.S. annual carbon emissions by source
million metric tons

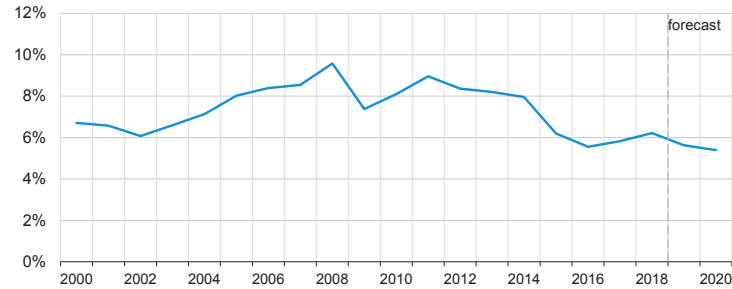


Source: Short-Term Energy Outlook, October 2019

Components of annual change
million metric tons



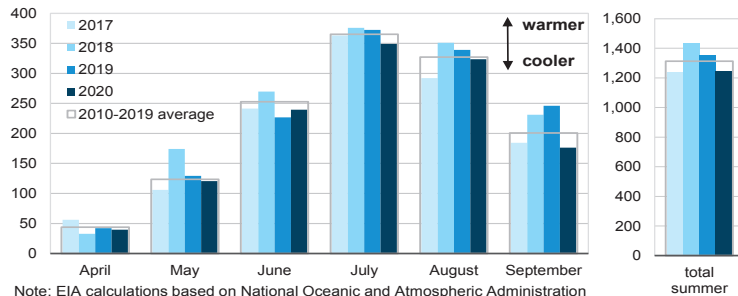
U.S. annual energy expenditures
share of gross domestic product



Source: Short-Term Energy Outlook, October 2019



U.S. summer cooling degree days
population-weighted

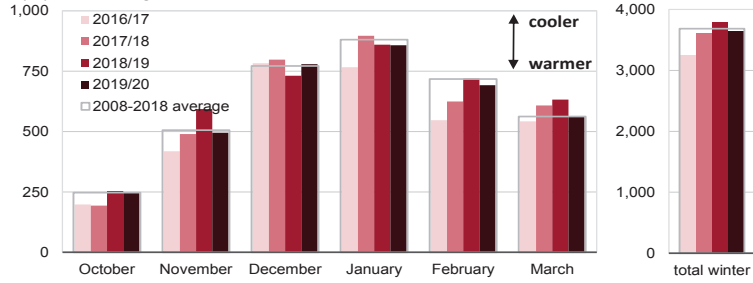


Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Projections reflect NOAA's 14-16 month outlook.

Source: Short-Term Energy Outlook, October 2019



U.S. winter heating degree days
population-weighted

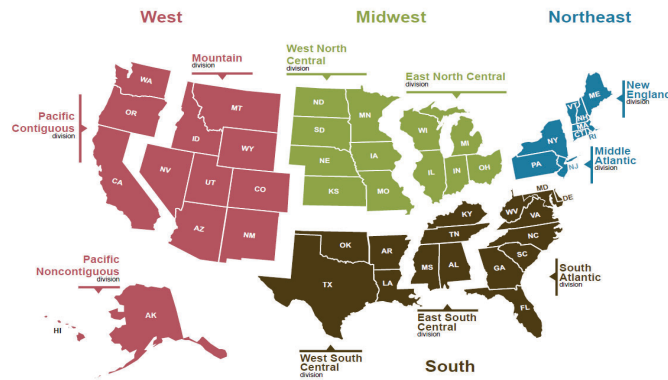


Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Projections reflect NOAA's 14-16 month outlook.

Source: Short-Term Energy Outlook, October 2019



U.S. Census regions and divisions



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



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

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

Fuel / Region	Winter of							Forecast	
	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	% Change
Natural Gas									
Northeast									
Consumption (Mcf**)	64.7	71.7	72.3	57.4	61.5	65.2	66.8	65.0	-2.6
Price (\$/mcf)	11.71	11.52	10.80	10.18	10.70	11.37	11.70	10.95	-6.4
Expenditures (\$)	757	826	780	584	659	742	781	712	-8.8
Midwest									
Consumption (Mcf)	73.5	84.2	79.1	63.6	64.8	73.9	77.0	72.6	-5.6
Price (\$/mcf)	8.34	8.68	8.54	7.55	8.28	7.84	7.83	8.42	7.5
Expenditures (\$)	614	731	676	480	536	579	603	611	1.5
South									
Consumption (Mcf)	46.6	52.7	50.9	40.3	37.9	45.6	46.0	45.8	-0.5
Price (\$/mcf)	10.67	10.71	10.75	10.72	12.04	11.27	10.69	11.20	4.8
Expenditures (\$)	497	564	547	432	457	513	492	513	4.3
West									
Consumption (Mcf)	47.5	45.2	40.1	44.7	45.6	43.8	48.8	46.6	-4.4
Price (\$/mcf)	9.13	9.96	10.71	9.92	10.68	10.24	10.26	10.56	2.9
Expenditures (\$)	433	450	430	443	487	448	501	492	-1.7
U.S. Average									
Consumption (Mcf)	58.4	63.9	60.7	51.8	52.9	57.6	60.2	57.8	-3.9
Price (\$/mcf)	9.71	9.95	9.89	9.28	10.06	9.82	9.76	10.03	2.8
Expenditures (\$)	567	636	600	481	533	565	588	580	-1.3
Heating Oil									
U.S. Average									
Consumption (gallons)	493.0	547.5	548.2	436.6	468.2	495.4	512.0	497.8	-2.8
Price (\$/gallon)	3.87	3.87	3.04	2.06	2.41	2.78	3.07	3.02	-1.7
Expenditures (\$)	1,910	2,121	1,668	900	1,128	1,376	1,570	1,501	-4.4
Electricity									
Northeast									
Consumption (kWh***)	8,299	8,879	8,927	7,705	8,050	8,344	8,480	8,333	-1.7
Price (\$/kwh)	0.152	0.163	0.168	0.164	0.165	0.169	0.169	0.167	-1.1
Expenditures (\$)	1,264	1,448	1,501	1,263	1,324	1,406	1,431	1,391	-2.8
Midwest									
Consumption (kWh)	10,344	11,363	10,816	9,365	9,479	10,381	10,716	10,253	-4.3
Price (\$/kwh)	0.111	0.112	0.118	0.122	0.124	0.124	0.123	0.125	1.7
Expenditures (\$)	1,152	1,275	1,274	1,138	1,172	1,286	1,316	1,281	-2.7
South									
Consumption (kWh)	9,731	10,488	10,301	8,782	8,511	9,549	9,538	9,559	0.2
Price (\$/kwh)	0.107	0.109	0.111	0.110	0.111	0.112	0.113	0.112	-0.5
Expenditures (\$)	1,037	1,141	1,141	967	948	1,069	1,077	1,075	-0.2
West									
Consumption (kWh)	8,778	8,487	7,831	8,441	8,560	8,326	8,984	8,699	-3.2
Price (\$/kwh)	0.119	0.123	0.127	0.130	0.132	0.136	0.136	0.139	1.8
Expenditures (\$)	1,041	1,045	993	1,095	1,128	1,129	1,225	1,207	-1.4
U.S. Average									
Consumption (kWh)	9,193	9,729	9,418	8,456	8,424	9,048	9,273	9,139	-1.4
Price (\$/kwh)	0.117	0.120	0.123	0.124	0.125	0.126	0.127	0.127	0.2
Expenditures (\$)	1,071	1,163	1,158	1,044	1,055	1,143	1,177	1,162	-1.2

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

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

Fuel / Region	Winter of							Forecast	
	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	% Change
Propane									
Northeast									
Consumption (gallons)	564.7	624.5	629.7	505.7	542.6	569.1	585.7	569.9	-2.7
Price* (\$/gallon)	3.00	3.56	3.00	2.71	3.06	3.26	3.22	2.91	-9.6
Expenditures (\$)	1,697	2,223	1,889	1,371	1,660	1,855	1,886	1,658	-12.1
Midwest									
Consumption (gallons)	711.7	808.5	755.9	618.2	628.9	715.1	746.9	702.3	-6.0
Price* (\$/gallon)	1.74	2.61	1.91	1.47	1.73	1.95	1.83	1.61	-12.0
Expenditures (\$)	1,238	2,110	1,444	909	1,088	1,394	1,367	1,131	-17.3
Number of households by primary space heating fuel (thousands)									
Northeast									
Natural gas	11,356	11,529	11,705	11,802	11,918	12,070	12,270	12,488	1.8
Heating oil	5,464	5,244	5,097	4,923	4,774	4,724	4,635	4,483	-3.3
Propane	814	846	856	884	933	982	988	997	0.9
Electricity	3,014	3,038	3,093	3,253	3,326	3,386	3,526	3,646	3.4
Wood	583	585	569	511	471	477	402	303	-24.7
Other/None	377	436	437	433	433	438	470	504	7.3
Midwest									
Natural gas	18,072	18,083	18,206	18,241	18,236	18,327	18,297	18,232	-0.4
Heating oil	360	336	319	301	286	280	265	244	-8.0
Propane	2,065	2,089	2,085	2,077	2,057	2,116	2,174	2,177	0.2
Electricity	5,338	5,425	5,514	5,747	5,871	5,954	6,188	6,474	4.6
Wood	641	632	617	587	552	527	511	482	-5.7
Other/None	319	353	351	354	359	358	374	398	6.4
South									
Natural gas	13,694	13,802	13,919	13,948	13,913	13,962	14,132	14,250	0.8
Heating oil	739	699	681	653	619	608	593	564	-4.8
Propane	1,983	1,944	1,925	1,899	1,858	1,853	1,867	1,853	-0.7
Electricity	27,884	28,247	28,843	29,509	29,873	30,322	30,806	31,345	1.8
Wood	613	616	593	552	509	484	479	480	0.2
Other/None	367	419	407	413	426	436	447	466	4.3
West									
Natural gas	15,023	15,068	15,227	15,312	15,427	15,588	15,655	15,711	0.4
Heating oil	247	235	225	219	214	216	208	193	-7.2
Propane	910	930	915	923	936	968	963	935	-2.9
Electricity	8,680	8,759	8,927	9,228	9,351	9,487	9,751	10,027	2.8
Wood	729	744	749	719	700	688	689	692	0.5
Other/None	903	1,016	1,075	1,087	1,058	1,082	1,154	1,220	5.7
U.S. Totals									
Natural gas	58,145	58,481	59,057	59,303	59,494	59,949	60,354	60,682	0.5
Heating oil	6,810	6,513	6,322	6,095	5,892	5,828	5,701	5,483	-3.8
Propane	5,772	5,810	5,781	5,783	5,784	5,919	5,991	5,962	-0.5
Electricity	44,916	45,470	46,377	47,737	48,421	49,148	50,271	51,492	2.4
Wood	2,565	2,578	2,528	2,369	2,232	2,176	2,081	1,957	-6.0
Other/None	1,967	2,223	2,271	2,287	2,277	2,313	2,444	2,588	5.9
Heating degree days									
Northeast	4,966	5,597	5,648	4,322	4,700	5,013	5,166	5,004	-3.1
Midwest	5,545	6,452	6,002	4,688	4,792	5,577	5,849	5,467	-6.5
South	2,428	2,784	2,689	2,013	1,880	2,351	2,359	2,359	0.0
West	3,183	2,992	2,569	2,956	3,040	2,885	3,296	3,119	-5.4
U.S. Average	3,722	4,110	3,881	3,202	3,254	3,610	3,789	3,635	-4.1

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

* Prices exclude taxes

** thousand cubic feet

*** kilowatthour

Table 1. U.S. Energy Markets Summary

U.S. Energy Information Administration | Short-Term Energy Outlook - October 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)	10.27	10.54	11.25	11.89	11.81	12.11	12.24	12.87	13.05	13.15	13.18	13.31	10.99	<i>12.26</i>	<i>13.17</i>
Dry Natural Gas Production (billion cubic feet per day)	79.13	81.17	84.95	88.21	89.42	90.53	92.32	94.21	93.35	93.12	93.52	93.99	83.39	<i>91.63</i>	<i>93.50</i>
Coal Production (million short tons)	188	181	195	192	170	176	174	159	168	133	160	142	756	<i>679</i>	<i>603</i>
Energy Consumption															
Liquid Fuels (million barrels per day)	20.35	20.36	20.71	20.59	20.29	20.32	20.65	20.89	20.46	20.59	21.01	20.95	20.50	<i>20.54</i>	<i>20.76</i>
Natural Gas (billion cubic feet per day)	97.40	70.49	73.88	85.90	102.49	69.97	75.76	89.00	101.82	72.31	76.30		81.86	<i>84.25</i>	<i>84.96</i>
Coal (b) (million short tons)	168	157	194	169	158	130	176	133	148	122	155	118	687	<i>596</i>	<i>544</i>
Electricity (billion kilowatt hours per day)	10.62	10.33	12.14	10.14	10.54	10.04	12.07	10.00	10.53	10.03	11.83	9.97	10.81	<i>10.67</i>	<i>10.59</i>
Renewables (c) (quadrillion Btu)	2.92	3.10	2.72	2.74	2.83	3.12	2.75	2.82	2.99	3.26	2.97	2.97	11.48	<i>11.53</i>	<i>12.19</i>
Total Energy Consumption (d) (quadrillion Btu)	26.38	24.01	25.12	25.58	26.50	23.45	24.83	25.06	26.32	23.26	24.53	24.95	101.09	<i>99.84</i>	<i>99.06</i>
Energy Prices															
Crude Oil West Texas Intermediate Spot (dollars per barrel)	62.90	68.07	69.69	59.59	54.82	59.94	56.35	53.86	52.50	51.19	55.47	58.50	65.06	<i>56.26</i>	<i>54.43</i>
Natural Gas Henry Hub Spot (dollars per million Btu)	3.02	2.85	2.93	3.80	2.92	2.56	2.38	2.43	2.70	2.40	2.42	2.54	3.15	<i>2.57</i>	<i>2.52</i>
Coal (dollars per million Btu)	2.06	2.06	2.06	2.08	2.08	2.05	2.07	2.09	2.10	2.10	2.08	2.09	2.06	<i>2.07</i>	<i>2.09</i>
Macroeconomic															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR)	18,438	18,598	18,733	18,784	18,927	19,023	19,121	<i>19,212</i>	<i>19,308</i>	<i>19,421</i>	<i>19,524</i>	<i>19,615</i>	18,638	<i>19,071</i>	<i>19,467</i>
Percent change from prior year	2.9	3.2	3.1	2.5	2.7	2.3	2.1	<i>2.3</i>	<i>2.0</i>	<i>2.1</i>	<i>2.1</i>	<i>2.1</i>	2.9	<i>2.3</i>	<i>2.1</i>
GDP Implicit Price Deflator (Index, 2012=100)	109.3	110.2	110.8	111.2	111.5	112.2	112.8	<i>113.7</i>	<i>114.5</i>	<i>115.2</i>	<i>116.0</i>	<i>116.7</i>	110.4	<i>112.5</i>	<i>115.6</i>
Percent change from prior year	2.1	2.6	2.5	2.3	2.0	1.8	1.9	<i>2.2</i>	<i>2.7</i>	<i>2.7</i>	<i>2.8</i>	<i>2.7</i>	2.4	<i>2.0</i>	<i>2.7</i>
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	14,400	14,496	14,613	14,715	14,878	14,970	15,060	<i>15,156</i>	<i>15,211</i>	<i>15,294</i>	<i>15,377</i>	<i>15,462</i>	14,556	<i>15,016</i>	<i>15,336</i>
Percent change from prior year	3.9	3.9	4.1	3.9	3.3	3.3	3.1	<i>3.0</i>	<i>2.2</i>	<i>2.2</i>	<i>2.1</i>	<i>2.0</i>	4.0	<i>3.2</i>	<i>2.1</i>
Manufacturing Production Index (Index, 2012=100)	104.8	105.5	106.6	107.0	106.5	105.7	105.9	<i>105.1</i>	<i>105.5</i>	<i>105.8</i>	<i>106.3</i>	<i>106.7</i>	106.0	<i>105.8</i>	<i>106.1</i>
Percent change from prior year	2.4	2.2	3.6	2.5	1.6	0.2	-0.6	<i>-1.7</i>	<i>-1.0</i>	<i>0.0</i>	<i>0.4</i>	<i>1.5</i>	2.7	<i>-0.1</i>	<i>0.2</i>
Weather															
U.S. Heating Degree-Days	2,130	522	48	1,578	2,211	480	52	<i>1,524</i>	<i>2,112</i>	<i>477</i>	<i>74</i>	<i>1,487</i>	4,278	<i>4,267</i>	<i>4,150</i>
U.S. Cooling Degree-Days	51	477	958	98	45	398	958	<i>92</i>	<i>43</i>	<i>399</i>	<i>849</i>	<i>93</i>	1,584	<i>1,493</i>	<i>1,384</i>

- = 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 (MER). 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 - October 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	54.82	59.94	56.35	<i>53.86</i>	<i>52.50</i>	<i>51.19</i>	<i>55.47</i>	<i>58.50</i>	65.06	<i>56.26</i>	<i>54.43</i>
Brent Spot Average	66.84	74.53	75.02	68.29	63.14	69.07	61.90	<i>59.36</i>	<i>58.00</i>	<i>56.69</i>	<i>60.97</i>	<i>64.00</i>	71.19	<i>63.37</i>	<i>59.93</i>
U.S. Imported Average	58.28	64.61	66.24	55.32	55.25	62.98	57.03	<i>51.81</i>	<i>48.06</i>	<i>46.71</i>	<i>51.04</i>	<i>54.03</i>	61.34	<i>56.76</i>	<i>49.87</i>
U.S. Refiner Average Acquisition Cost	61.94	67.27	69.08	59.39	56.93	63.55	57.21	<i>53.32</i>	<i>50.56</i>	<i>49.22</i>	<i>53.54</i>	<i>56.57</i>	64.48	<i>57.73</i>	<i>52.48</i>
U.S. Liquid Fuels (cents per gallon)															
Refiner Prices for Resale															
Gasoline	186	213	213	178	167	205	187	<i>161</i>	<i>169</i>	<i>179</i>	<i>184</i>	<i>177</i>	198	<i>180</i>	<i>177</i>
Diesel Fuel	199	219	222	211	192	203	195	<i>201</i>	<i>198</i>	<i>193</i>	<i>202</i>	<i>208</i>	213	<i>198</i>	<i>200</i>
Heating Oil	193	205	214	201	189	195	188	<i>195</i>	<i>194</i>	<i>183</i>	<i>189</i>	<i>200</i>	200	<i>192</i>	<i>192</i>
Refiner Prices to End Users															
Jet Fuel	197	217	220	212	193	204	193	<i>199</i>	<i>199</i>	<i>193</i>	<i>201</i>	<i>206</i>	212	<i>197</i>	<i>200</i>
No. 6 Residual Fuel Oil (a)	149	162	176	176	153	163	151	<i>121</i>	<i>91</i>	<i>90</i>	<i>100</i>	<i>107</i>	166	<i>146</i>	<i>97</i>
Retail Prices Including Taxes															
Gasoline Regular Grade (b)	258	285	284	263	236	279	265	<i>243</i>	<i>247</i>	<i>260</i>	<i>265</i>	<i>256</i>	273	<i>256</i>	<i>257</i>
Gasoline All Grades (b)	270	294	292	271	245	288	274	<i>253</i>	<i>258</i>	<i>272</i>	<i>277</i>	<i>269</i>	282	<i>265</i>	<i>269</i>
On-highway Diesel Fuel	302	320	324	327	302	312	302	<i>305</i>	<i>300</i>	<i>296</i>	<i>302</i>	<i>312</i>	318	<i>305</i>	<i>303</i>
Heating Oil	287	298	325	316	300	305	295	<i>303</i>	<i>301</i>	<i>287</i>	<i>290</i>	<i>307</i>	301	<i>301</i>	<i>300</i>
Natural Gas															
Henry Hub Spot (dollars per thousand cubic feet)	3.13	2.96	3.04	3.95	3.03	2.66	2.47	<i>2.52</i>	<i>2.80</i>	<i>2.50</i>	<i>2.52</i>	<i>2.64</i>	3.27	<i>2.67</i>	<i>2.61</i>
Henry Hub Spot (dollars per million Btu)	3.02	2.85	2.93	3.80	2.92	2.56	2.38	<i>2.43</i>	<i>2.70</i>	<i>2.40</i>	<i>2.42</i>	<i>2.54</i>	3.15	<i>2.57</i>	<i>2.52</i>
U.S. Retail Prices (dollars per thousand cubic feet)															
Industrial Sector	4.44	3.83	3.73	4.71	4.68	3.75	3.33	<i>3.72</i>	<i>4.13</i>	<i>3.49</i>	<i>3.40</i>	<i>3.77</i>	4.20	<i>3.89</i>	<i>3.72</i>
Commercial Sector	7.64	8.08	8.77	7.61	7.62	8.00	8.37	<i>7.43</i>	<i>7.32</i>	<i>7.83</i>	<i>8.23</i>	<i>7.46</i>	7.82	<i>7.70</i>	<i>7.55</i>
Residential Sector	9.37	11.93	17.93	9.97	9.46	12.45	17.69	<i>10.67</i>	<i>9.46</i>	<i>12.17</i>	<i>16.73</i>	<i>10.29</i>	10.49	<i>10.75</i>	<i>10.59</i>
U.S. Electricity															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	2.06	2.06	2.06	2.08	2.08	2.05	2.07	<i>2.09</i>	<i>2.10</i>	<i>2.10</i>	<i>2.08</i>	<i>2.09</i>	2.06	<i>2.07</i>	<i>2.09</i>
Natural Gas	3.96	3.09	3.23	4.05	3.71	2.73	2.44	<i>2.67</i>	<i>3.15</i>	<i>2.56</i>	<i>2.46</i>	<i>2.74</i>	3.54	<i>2.83</i>	<i>2.70</i>
Residual Fuel Oil (c)	11.47	13.02	14.02	14.49	12.22	13.39	12.26	<i>11.73</i>	<i>11.76</i>	<i>12.12</i>	<i>11.60</i>	<i>11.95</i>	12.95	<i>12.40</i>	<i>11.85</i>
Distillate Fuel Oil	15.77	16.61	16.82	16.01	14.85	15.73	14.97	<i>15.68</i>	<i>15.51</i>	<i>15.12</i>	<i>15.53</i>	<i>16.14</i>	16.13	<i>15.30</i>	<i>15.58</i>
Retail Prices (cents per kilowatthour)															
Industrial Sector	6.81	6.87	7.22	6.82	6.66	6.72	7.09	<i>6.68</i>	<i>6.65</i>	<i>6.77</i>	<i>7.18</i>	<i>6.74</i>	6.93	<i>6.80</i>	<i>6.84</i>
Commercial Sector	10.54	10.60	10.89	10.55	10.41	10.65	10.87	<i>10.50</i>	<i>10.32</i>	<i>10.59</i>	<i>10.92</i>	<i>10.59</i>	10.66	<i>10.62</i>	<i>10.62</i>
Residential Sector	12.59	13.03	13.15	12.75	12.66	13.31	13.21	<i>12.82</i>	<i>12.65</i>	<i>13.38</i>	<i>13.40</i>	<i>13.05</i>	12.89	<i>13.00</i>	<i>13.12</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 - October 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	29.20	29.35	30.50	31.41	31.03	31.20	31.56	32.97	33.17	33.47	33.56	34.11	30.12	31.70	33.58
U.S. (50 States)	16.82	17.43	18.43	19.03	18.91	19.39	19.63	20.75	20.88	21.18	21.33	21.61	17.94	19.67	21.25
Canada	5.32	5.10	5.33	5.55	5.38	5.39	5.43	5.50	5.47	5.47	5.52	5.57	5.33	5.43	5.51
Mexico	2.17	2.13	2.09	1.95	1.91	1.91	1.91	1.93	1.93	1.91	1.86	1.81	2.08	1.91	1.88
Other OECD	4.88	4.69	4.64	4.87	4.82	4.52	4.59	4.80	4.88	4.91	4.85	5.12	4.77	4.68	4.94
Non-OECD	70.20	70.53	71.02	70.99	69.23	69.19	68.98	69.02	68.09	69.06	69.43	68.88	70.69	69.10	68.87
OPEC	37.46	37.07	37.34	37.29	35.83	35.47	34.67	34.90	34.63	34.65	34.82	34.55	37.29	35.22	34.66
Crude Oil Portion	32.10	31.78	32.02	31.93	30.47	30.03	29.20	29.64	29.57	29.61	29.78	29.51	31.96	29.83	29.62
Other Liquids (b)	5.36	5.29	5.33	5.36	5.36	5.44	5.47	5.26	5.06	5.03	5.04	5.05	5.33	5.38	5.05
Eurasia	14.44	14.44	14.63	14.89	14.88	14.45	14.61	14.67	14.59	14.55	14.56	14.61	14.60	14.65	14.58
China	4.78	4.83	4.77	4.86	4.93	4.96	4.94	4.97	4.93	4.96	4.96	5.01	4.81	4.95	4.97
Other Non-OECD	13.52	14.19	14.27	13.96	13.59	14.30	14.75	14.48	13.93	14.90	15.08	14.71	13.99	14.29	14.66
Total World Supply	99.40	99.88	101.52	102.40	100.26	100.40	100.55	101.99	101.26	102.53	102.98	102.99	100.81	100.80	102.44
Non-OPEC Supply	61.94	62.81	64.17	65.12	64.43	64.92	65.88	67.09	66.62	67.88	68.16	68.44	63.52	65.59	67.78
Consumption (million barrels per day) (c)															
OECD	47.73	47.03	48.00	47.52	47.19	46.78	47.64	47.94	47.45	46.84	47.99	48.11	47.57	47.39	47.60
U.S. (50 States)	20.35	20.36	20.71	20.59	20.29	20.32	20.65	20.89	20.46	20.59	21.01	20.95	20.50	20.54	20.76
U.S. Territories	0.10	0.08	0.09	0.11	0.12	0.11	0.12	0.13	0.12	0.11	0.12	0.13	0.10	0.12	0.12
Canada	2.34	2.37	2.58	2.51	2.37	2.37	2.57	2.54	2.46	2.40	2.50	2.48	2.45	2.46	2.46
Europe	14.00	14.18	14.61	14.04	13.85	14.11	14.44	14.12	13.82	14.02	14.52	14.23	14.21	14.13	14.15
Japan	4.31	3.46	3.56	3.92	4.09	3.40	3.46	3.82	4.08	3.34	3.42	3.76	3.81	3.69	3.65
Other OECD	6.63	6.59	6.44	6.34	6.48	6.48	6.40	6.43	6.51	6.38	6.41	6.56	6.50	6.45	6.47
Non-OECD	51.56	52.60	52.57	52.91	52.64	53.52	53.76	53.77	53.68	54.71	54.72	54.96	52.41	53.43	54.52
Eurasia	4.80	4.84	5.11	4.99	4.79	4.86	5.13	5.08	4.84	4.93	5.31	5.21	4.94	4.97	5.07
Europe	0.75	0.74	0.76	0.76	0.75	0.75	0.77	0.77	0.76	0.76	0.78	0.78	0.75	0.76	0.77
China	13.80	14.00	13.73	13.95	14.28	14.57	14.30	14.51	14.83	15.03	14.74	14.97	13.87	14.42	14.89
Other Asia	13.77	14.02	13.60	14.00	14.13	14.18	13.92	14.22	14.44	14.61	14.18	14.54	13.85	14.11	14.45
Other Non-OECD	18.44	19.00	19.36	19.20	18.68	19.15	19.64	19.18	18.81	19.38	19.71	19.46	19.00	19.17	19.34
Total World Consumption	99.28	99.64	100.57	100.42	99.82	100.30	101.40	101.71	101.13	101.56	102.71	103.07	99.98	100.82	102.12
Total Crude Oil and Other Liquids Inventory Net Withdrawals (million barrels per day)															
U.S. (50 States)	0.34	-0.06	-0.70	0.22	0.17	-0.62	-0.01	0.38	0.03	-0.44	-0.15	0.29	-0.05	-0.02	-0.07
Other OECD	-0.01	0.12	0.18	-0.08	-0.21	0.21	0.29	-0.22	-0.05	-0.17	-0.04	-0.07	0.05	0.02	-0.08
Other Stock Draws and Balance	-0.44	-0.31	-0.44	-2.12	-0.39	0.31	0.58	-0.44	-0.11	-0.36	-0.08	-0.14	-0.83	0.02	-0.17
Total Stock Draw	-0.11	-0.24	-0.95	-1.98	-0.43	-0.10	0.85	-0.28	-0.13	-0.97	-0.27	0.08	-0.83	0.01	-0.32
End-of-period Commercial Crude Oil and Other Liquids Inventories (million barrels)															
U.S. Commercial Inventory	1,199	1,209	1,273	1,264	1,249	1,310	1,311	1,286	1,284	1,325	1,339	1,315	1,264	1,286	1,315
OECD Commercial Inventory	2,807	2,807	2,858	2,863	2,863	2,908	2,882	2,878	2,880	2,937	2,954	2,937	2,863	2,878	2,937

- = 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, Venezuela.

(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 - October 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
North America	24.31	24.66	25.85	26.54	26.21	26.69	26.97	<i>28.18</i>	<i>28.29</i>	<i>28.56</i>	<i>28.70</i>	<i>28.99</i>	25.35	<i>27.02</i>	<i>28.63</i>
Canada	5.32	5.10	5.33	5.55	5.38	5.39	5.43	<i>5.50</i>	<i>5.47</i>	<i>5.47</i>	<i>5.52</i>	<i>5.57</i>	5.33	<i>5.43</i>	<i>5.51</i>
Mexico	2.17	2.13	2.09	1.95	1.91	1.91	1.91	<i>1.93</i>	<i>1.93</i>	<i>1.91</i>	<i>1.86</i>	<i>1.81</i>	2.08	<i>1.91</i>	<i>1.88</i>
United States	16.82	17.43	18.43	19.03	18.91	19.39	19.63	<i>20.75</i>	<i>20.88</i>	<i>21.18</i>	<i>21.33</i>	<i>21.61</i>	17.94	<i>19.67</i>	<i>21.25</i>
Central and South America	4.90	5.65	5.72	5.36	4.90	5.67	6.11	<i>5.75</i>	<i>5.26</i>	<i>6.27</i>	<i>6.46</i>	<i>6.09</i>	5.41	<i>5.61</i>	<i>6.02</i>
Argentina	0.67	0.69	0.68	0.68	0.66	0.70	0.67	<i>0.67</i>	<i>0.69</i>	<i>0.71</i>	<i>0.69</i>	<i>0.69</i>	0.68	<i>0.68</i>	<i>0.69</i>
Brazil	2.95	3.64	3.75	3.36	2.91	3.64	4.16	<i>3.77</i>	<i>3.22</i>	<i>4.19</i>	<i>4.42</i>	<i>4.01</i>	3.43	<i>3.62</i>	<i>3.96</i>
Colombia	0.86	0.89	0.89	0.91	0.92	0.92	0.89	<i>0.90</i>	<i>0.91</i>	<i>0.91</i>	<i>0.88</i>	<i>0.90</i>	0.89	<i>0.91</i>	<i>0.90</i>
Other Central and S. America	0.42	0.43	0.40	0.41	0.41	0.41	0.39	<i>0.40</i>	<i>0.43</i>	<i>0.45</i>	<i>0.47</i>	<i>0.49</i>	0.41	<i>0.40</i>	<i>0.46</i>
Europe	4.37	4.20	4.12	4.32	4.27	3.97	4.09	<i>4.28</i>	<i>4.35</i>	<i>4.37</i>	<i>4.30</i>	<i>4.57</i>	4.25	<i>4.15</i>	<i>4.40</i>
Norway	1.97	1.80	1.81	1.87	1.79	1.58	1.70	<i>1.79</i>	<i>1.86</i>	<i>1.88</i>	<i>1.95</i>	<i>2.12</i>	1.86	<i>1.71</i>	<i>1.95</i>
United Kingdom	1.16	1.17	1.10	1.22	1.26	1.18	1.19	<i>1.26</i>	<i>1.27</i>	<i>1.28</i>	<i>1.15</i>	<i>1.24</i>	1.16	<i>1.22</i>	<i>1.23</i>
Eurasia	14.44	14.44	14.63	14.89	14.88	14.45	14.61	<i>14.67</i>	<i>14.59</i>	<i>14.55</i>	<i>14.56</i>	<i>14.61</i>	14.60	<i>14.65</i>	<i>14.58</i>
Azerbaijan	0.81	0.81	0.80	0.81	0.82	0.79	0.78	<i>0.78</i>	<i>0.76</i>	<i>0.76</i>	<i>0.75</i>	<i>0.75</i>	0.81	<i>0.79</i>	<i>0.75</i>
Kazakhstan	1.98	1.96	1.90	2.00	2.03	1.86	1.97	<i>2.06</i>	<i>2.01</i>	<i>1.97</i>	<i>2.00</i>	<i>2.05</i>	1.96	<i>1.98</i>	<i>2.01</i>
Russia	11.20	11.24	11.50	11.66	11.58	11.41	11.46	<i>11.43</i>	<i>11.43</i>	<i>11.43</i>	<i>11.43</i>	<i>11.43</i>	11.40	<i>11.47</i>	<i>11.43</i>
Turkmenistan	0.30	0.28	0.28	0.27	0.30	0.24	0.25	<i>0.25</i>	<i>0.24</i>	<i>0.24</i>	<i>0.24</i>	<i>0.24</i>	0.28	<i>0.26</i>	<i>0.24</i>
Other Eurasia	0.15	0.15	0.15	0.16	0.16	0.16	0.16	<i>0.16</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	<i>0.15</i>	0.15	<i>0.16</i>	<i>0.15</i>
Middle East	3.07	3.07	3.09	3.10	3.12	3.13	3.14	<i>3.14</i>	<i>3.21</i>	<i>3.21</i>	<i>3.21</i>	<i>3.21</i>	3.08	<i>3.13</i>	<i>3.21</i>
Oman	0.98	0.98	0.99	1.01	0.98	0.98	0.98	<i>0.98</i>	<i>0.98</i>	<i>0.99</i>	<i>0.99</i>	<i>0.99</i>	0.99	<i>0.98</i>	<i>0.99</i>
Qatar	1.94	1.94	1.95	1.94	1.99	1.99	2.00	<i>2.00</i>	<i>2.06</i>	<i>2.06</i>	<i>2.06</i>	<i>2.06</i>	1.94	<i>1.99</i>	<i>2.06</i>
Asia and Oceania	9.36	9.30	9.24	9.37	9.50	9.49	9.37	<i>9.49</i>	<i>9.44</i>	<i>9.45</i>	<i>9.44</i>	<i>9.48</i>	9.32	<i>9.46</i>	<i>9.45</i>
Australia	0.36	0.34	0.37	0.40	0.40	0.43	0.45	<i>0.47</i>	<i>0.48</i>	<i>0.49</i>	<i>0.50</i>	<i>0.50</i>	0.37	<i>0.44</i>	<i>0.49</i>
China	4.78	4.83	4.77	4.86	4.93	4.96	4.94	<i>4.97</i>	<i>4.93</i>	<i>4.96</i>	<i>4.96</i>	<i>5.01</i>	4.81	<i>4.95</i>	<i>4.97</i>
India	1.03	1.03	1.01	1.00	1.01	0.98	0.95	<i>0.96</i>	<i>0.96</i>	<i>0.95</i>	<i>0.95</i>	<i>0.96</i>	1.02	<i>0.98</i>	<i>0.95</i>
Indonesia	0.92	0.92	0.91	0.90	0.95	0.92	0.92	<i>0.91</i>	<i>0.90</i>	<i>0.90</i>	<i>0.89</i>	<i>0.89</i>	0.91	<i>0.92</i>	<i>0.90</i>
Malaysia	0.77	0.75	0.73	0.75	0.75	0.73	0.66	<i>0.73</i>	<i>0.71</i>	<i>0.70</i>	<i>0.70</i>	<i>0.69</i>	0.75	<i>0.72</i>	<i>0.70</i>
Vietnam	0.27	0.25	0.25	0.25	0.25	0.25	0.23	<i>0.23</i>	<i>0.22</i>	<i>0.22</i>	<i>0.22</i>	<i>0.22</i>	0.25	<i>0.24</i>	<i>0.22</i>
Africa	1.49	1.48	1.52	1.53	1.55	1.54	1.57	<i>1.58</i>	<i>1.49</i>	<i>1.49</i>	<i>1.49</i>	<i>1.49</i>	1.51	<i>1.56</i>	<i>1.49</i>
Egypt	0.67	0.66	0.67	0.67	0.66	0.64	0.65	<i>0.65</i>	<i>0.60</i>	<i>0.60</i>	<i>0.60</i>	<i>0.60</i>	0.67	<i>0.65</i>	<i>0.60</i>
South Sudan	0.12	0.12	0.12	0.14	0.17	0.18	0.18	<i>0.19</i>	<i>0.19</i>	<i>0.19</i>	<i>0.19</i>	<i>0.19</i>	0.13	<i>0.18</i>	<i>0.19</i>
Total non-OPEC liquids	61.94	62.81	64.17	65.12	64.43	64.92	65.88	<i>67.09</i>	<i>66.62</i>	<i>67.88</i>	<i>68.16</i>	<i>68.44</i>	63.52	<i>65.59</i>	<i>67.78</i>
OPEC non-crude liquids	5.36	5.29	5.33	5.36	5.36	5.44	5.47	<i>5.26</i>	<i>5.06</i>	<i>5.03</i>	<i>5.04</i>	<i>5.05</i>	5.33	<i>5.38</i>	<i>5.05</i>
Non-OPEC + OPEC non-crude	67.30	68.10	69.50	70.47	69.79	70.36	71.34	<i>72.35</i>	<i>71.68</i>	<i>72.91</i>	<i>73.21</i>	<i>73.49</i>	68.85	<i>70.97</i>	<i>72.83</i>
Unplanned non-OPEC Production Outages	0.40	0.27	0.17	0.31	0.35	0.26	0.28	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	0.29	<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, Venezuela.

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 - October 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	1.01	1.02	1.02	-	-	-	-	-	1.02	-	-
Angola	1.59	1.56	1.56	1.57	1.50	1.43	1.40	-	-	-	-	-	1.57	-	-
Congo (Brazzaville)	0.34	0.35	0.33	0.31	0.33	0.33	0.33	-	-	-	-	-	0.33	-	-
Ecuador	0.51	0.52	0.52	0.52	0.53	0.53	0.54	-	-	-	-	-	0.52	-	-
Equatorial Guinea	0.14	0.13	0.14	0.12	0.11	0.11	0.13	-	-	-	-	-	0.13	-	-
Gabon	0.20	0.20	0.19	0.19	0.20	0.20	0.20	-	-	-	-	-	0.20	-	-
Iran	3.83	3.80	3.55	2.90	2.63	2.33	2.10	-	-	-	-	-	3.52	-	-
Iraq	4.46	4.50	4.66	4.77	4.75	4.73	4.70	-	-	-	-	-	4.60	-	-
Kuwait	2.71	2.71	2.80	2.80	2.74	2.72	2.70	-	-	-	-	-	2.76	-	-
Libya	1.00	0.92	0.91	1.03	0.93	1.14	1.13	-	-	-	-	-	0.96	-	-
Nigeria	1.72	1.53	1.55	1.60	1.58	1.65	1.72	-	-	-	-	-	1.60	-	-
Saudi Arabia	10.10	10.20	10.47	10.74	10.00	9.92	9.38	-	-	-	-	-	10.38	-	-
United Arab Emirates	2.88	2.86	2.94	3.11	3.12	3.12	3.13	-	-	-	-	-	2.95	-	-
Venezuela	1.60	1.49	1.36	1.27	1.05	0.79	0.73	-	-	-	-	-	1.43	-	-
OPEC Total	32.10	31.78	32.02	31.93	30.47	30.03	29.20	29.64	29.57	29.61	29.78	29.51	31.96	29.83	29.62
Other Liquids (a)	5.36	5.29	5.33	5.36	5.36	5.44	5.47	5.26	5.06	5.03	5.04	5.05	5.33	5.38	5.05
Total OPEC Supply	37.46	37.07	37.34	37.29	35.83	35.47	34.67	34.90	34.63	34.65	34.82	34.55	37.29	35.22	34.66
Crude Oil Production Capacity															
Africa	6.00	5.70	5.71	5.83	5.66	5.89	5.92	5.88	5.84	5.85	5.87	5.87	5.81	5.84	5.86
Middle East	25.84	25.85	25.76	25.31	25.31	25.00	23.96	24.28	24.78	24.78	24.78	24.78	25.69	24.63	24.78
South America	2.11	2.01	1.89	1.79	1.58	1.32	1.27	1.12	1.04	1.01	0.98	0.95	1.95	1.32	0.99
OPEC Total	33.95	33.56	33.36	32.93	32.55	32.21	31.16	31.27	31.66	31.63	31.63	31.59	33.45	31.79	31.63
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	1.00	2.08	2.18	1.95	1.63	2.09	2.02	1.85	2.09	1.49	1.96	2.01
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	1.00	2.08	2.18	1.95	1.63	2.09	2.02	1.85	2.09	1.49	1.96	2.01
Unplanned OPEC Production Outages	1.21	1.43	1.59	2.01	2.51	2.41	3.05	n/a	n/a	n/a	n/a	n/a	1.56	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 - October 2019

	2018				2019				2020				2018	2019	2020
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
North America	24.62	24.68	25.20	24.92	24.53	24.70	25.11	25.29	24.79	24.90	25.43	25.35	24.85	24.91	25.12
Canada	2.34	2.37	2.58	2.51	2.37	2.37	2.57	2.54	2.46	2.40	2.50	2.48	2.45	2.46	2.46
Mexico	1.91	1.94	1.89	1.80	1.86	2.00	1.87	1.84	1.87	1.90	1.90	1.91	1.89	1.89	1.89
United States	20.35	20.36	20.71	20.59	20.29	20.32	20.65	20.89	20.46	20.59	21.01	20.95	20.50	20.54	20.76
Central and South America	6.72	6.76	6.94	6.95	6.67	6.80	6.89	6.84	6.67	6.81	6.94	6.96	6.84	6.80	6.85
Brazil	2.98	2.95	3.11	3.11	3.04	3.08	3.16	3.11	3.06	3.13	3.22	3.22	3.04	3.10	3.16
Europe	14.75	14.92	15.37	14.81	14.61	14.86	15.21	14.89	14.59	14.78	15.30	15.01	14.96	14.90	14.92
Eurasia	4.80	4.84	5.11	4.99	4.79	4.86	5.13	5.08	4.84	4.93	5.31	5.21	4.94	4.97	5.07
Russia	3.63	3.70	3.91	3.78	3.63	3.72	3.93	3.87	3.67	3.78	4.10	3.99	3.75	3.79	3.89
Middle East	8.02	8.54	8.81	8.45	8.26	8.61	9.06	8.45	8.27	8.69	9.00	8.53	8.46	8.60	8.63
Asia and Oceania	36.01	35.51	34.86	35.83	36.51	36.02	35.62	36.59	37.43	36.88	36.26	37.34	35.55	36.18	36.98
China	13.80	14.00	13.73	13.95	14.28	14.57	14.30	14.51	14.83	15.03	14.74	14.97	13.87	14.42	14.89
Japan	4.31	3.46	3.56	3.92	4.09	3.40	3.46	3.82	4.08	3.34	3.42	3.76	3.81	3.69	3.65
India	4.73	4.89	4.57	4.92	4.99	4.93	4.76	5.01	5.17	5.23	4.89	5.20	4.78	4.92	5.12
Africa	4.38	4.38	4.28	4.49	4.45	4.45	4.38	4.56	4.55	4.55	4.47	4.66	4.38	4.46	4.56
Total OECD Liquid Fuels Consumption	47.73	47.03	48.00	47.52	47.19	46.78	47.64	47.94	47.45	46.84	47.99	48.11	47.57	47.39	47.60
Total non-OECD Liquid Fuels Consumption	51.56	52.60	52.57	52.91	52.64	53.52	53.76	53.77	53.68	54.71	54.72	54.96	52.41	53.43	54.52
Total World Liquid Fuels Consumption	99.28	99.64	100.57	100.42	99.82	100.30	101.40	101.71	101.13	101.56	102.71	103.07	99.98	100.82	102.12
Oil-weighted Real Gross Domestic Product (a)															
World Index, 2015 Q1 = 100	109.3	109.9	110.5	111.1	111.7	112.1	112.6	113.3	113.4	115.0	115.6	116.5	110.2	112.4	115.1
Percent change from prior year	3.3	3.2	2.9	2.6	2.2	2.0	1.9	2.0	1.5	2.6	2.7	2.9	3.0	2.0	2.4
OECD Index, 2015 Q1 = 100	106.8	107.3	107.7	108.1	108.8	109.1	109.4	109.8	109.4	110.9	111.3	111.8	107.5	109.3	110.8
Percent change from prior year	2.7	2.7	2.3	1.9	1.8	1.7	1.6	1.6	0.5	1.6	1.7	1.8	2.4	1.7	1.4
Non-OECD Index, 2015 Q1 = 100	111.7	112.4	113.2	114.0	114.5	114.9	115.6	116.6	117.3	118.9	119.9	121.1	112.8	115.4	119.3
Percent change from prior year	4.0	3.8	3.4	3.3	2.5	2.2	2.1	2.3	2.4	3.5	3.7	3.9	3.6	2.3	3.4
Real U.S. Dollar Exchange Rate (a)															
Index, 2015 Q1 = 100	99.52	102.03	105.41	106.35	105.31	106.04	106.36	107.17	107.11	106.57	105.98	105.30	103.33	106.22	106.24
Percent change from prior year	-5.1	-1.2	3.9	4.5	5.8	3.9	0.9	0.8	1.7	0.5	-0.4	-1.8	0.5	2.8	0.0

- = 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 4b. U.S. Hydrocarbon Gas Liquids (HGL) and Petroleum Refinery Balances (million barrels per day, except inventories and utilization factor)
 U.S. Energy Information Administration | Short-Term Energy Outlook - October 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	1.60	1.71	1.77	1.77	1.87	1.87	1.81	2.12	2.16	2.17	2.22	2.33	1.71	1.92	2.22
Propane	1.30	1.38	1.45	1.47	1.50	1.56	1.60	1.69	1.66	1.68	1.71	1.73	1.40	1.59	1.70
Butanes	0.69	0.74	0.78	0.79	0.79	0.84	0.86	0.90	0.87	0.89	0.92	0.92	0.75	0.85	0.90
Natural Gasoline (Pentanes Plus)	0.44	0.50	0.56	0.51	0.49	0.55	0.60	0.59	0.56	0.59	0.62	0.60	0.50	0.56	0.59
Refinery and Blender Net Production															
Ethane/Ethylene	0.01	0.00	0.01	0.01	0.00	0.00	0.01	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	0.28	0.31	0.30	0.30	0.30	0.29	0.30
Propylene (refinery-grade)	0.28	0.29	0.29	0.31	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	-0.19	-0.09	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	-0.21	-0.28	-0.26	-0.26	-0.27	-0.27	-0.30	-0.36	-0.37	-0.37	-0.37	-0.39	-0.26	-0.30	-0.38
Propane/Propylene	-0.65	-0.79	-0.86	-0.87	-0.75	-0.99	-0.94	-1.11	-1.02	-1.08	-1.05	-1.14	-0.79	-0.95	-1.07
Butanes/Butylenes	-0.15	-0.22	-0.19	-0.14	-0.14	-0.26	-0.28	-0.30	-0.30	-0.32	-0.31	-0.31	-0.17	-0.24	-0.31
Natural Gasoline (Pentanes Plus)	-0.18	-0.23	-0.17	-0.14	-0.17	-0.14	-0.17	-0.19	-0.30	-0.29	-0.32	-0.31	-0.18	-0.17	-0.31
HGL Refinery and Blender Net Inputs															
Butanes/Butylenes	0.45	0.30	0.32	0.56	0.46	0.29	0.32	0.51	0.43	0.31	0.34	0.52	0.41	0.39	0.40
Natural Gasoline (Pentanes Plus)	0.15	0.16	0.18	0.17	0.14	0.17	0.20	0.18	0.16	0.17	0.18	0.17	0.17	0.17	0.17
HGL Consumption															
Ethane/Ethylene	1.45	1.46	1.52	1.49	1.61	1.49	1.51	1.75	1.83	1.79	1.88	1.94	1.48	1.59	1.86
Propane	1.24	0.63	0.68	1.01	1.20	0.58	0.68	1.02	1.22	0.66	0.75	1.01	0.89	0.87	0.91
Propylene (refinery-grade)	0.31	0.31	0.31	0.29	0.28	0.31	0.31	0.29	0.31	0.33	0.31	0.31	0.30	0.30	0.31
Butanes/Butylenes	0.16	0.20	0.22	0.23	0.20	0.21	0.28	0.22	0.19	0.26	0.25	0.22	0.20	0.23	0.23
Natural Gasoline (Pentanes Plus)	0.10	0.09	0.16	0.17	0.20	0.20	0.20	0.20	0.08	0.08	0.09	0.10	0.13	0.20	0.09
HGL Inventories (million barrels)															
Ethane	51.20	47.58	46.31	50.38	48.14	56.18	58.84	62.77	58.77	60.89	58.24	58.91	48.86	56.53	59.20
Propane	34.07	56.52	75.26	63.75	47.77	71.72	95.43	80.00	50.22	70.98	88.17	75.45	63.75	80.00	75.45
Propylene (refinery-grade)	3.79	3.64	3.86	6.94	7.82	6.57	5.57	6.47	6.48	5.89	5.64	6.21	6.94	6.47	6.21
Butanes/Butylenes	31.33	55.50	78.62	47.58	39.30	70.72	85.93	55.31	43.51	67.19	85.63	55.00	47.58	55.31	55.00
Natural Gasoline (Pentanes Plus)	19.36	18.65	20.39	20.91	18.12	19.71	21.03	21.41	20.38	22.73	24.22	24.10	20.91	21.41	24.10
Refinery and Blender Net Inputs															
Crude Oil	16.42	17.13	17.33	16.99	16.20	16.76	17.11	16.99	16.99	17.90	17.85	17.40	16.97	16.77	17.54
Hydrocarbon Gas Liquids	0.60	0.47	0.50	0.72	0.59	0.46	0.52	0.69	0.59	0.49	0.52	0.70	0.57	0.56	0.57
Other Hydrocarbons/Oxygenates	1.15	1.23	1.22	1.20	1.16	1.21	1.23	1.23	1.20	1.28	1.24	1.24	1.20	1.21	1.24
Unfinished Oils	0.13	0.43	0.44	0.34	0.18	0.34	0.41	0.39	0.38	0.61	0.64	0.58	0.33	0.33	0.56
Motor Gasoline Blend Components	0.34	0.71	0.59	0.26	0.63	0.94	0.74	0.49	0.57	0.84	0.66	0.49	0.47	0.70	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	18.64	19.97	20.09	19.51	18.76	19.70	20.00	19.80	19.74	21.11	20.92	20.40	19.55	19.57	20.54
Refinery Processing Gain	1.10	1.13	1.17	1.16	1.06	1.07	1.09	1.17	1.19	1.24	1.25	1.26	1.14	1.10	1.24
Refinery and Blender Net Production															
Hydrocarbon Gas Liquids	0.48	0.84	0.80	0.41	0.48	0.84	0.76	0.38	0.49	0.87	0.78	0.39	0.63	0.61	0.63
Finished Motor Gasoline	9.79	10.14	10.12	10.19	9.84	10.15	10.20	10.29	10.16	10.63	10.49	10.63	10.06	10.12	10.48
Jet Fuel	1.72	1.83	1.90	1.77	1.73	1.78	1.90	1.80	1.76	1.90	1.95	1.87	1.81	1.80	1.87
Distillate Fuel	4.81	5.25	5.29	5.32	5.05	5.21	5.16	5.46	5.51	5.77	5.78	5.60	5.17	5.22	5.66
Residual Fuel	0.44	0.40	0.42	0.43	0.36	0.39	0.37	0.35	0.34	0.37	0.32	0.35	0.42	0.37	0.34
Other Oils (a)	2.49	2.63	2.72	2.55	2.37	2.40	2.69	2.69	2.66	2.82	2.86	2.83	2.60	2.54	2.79
Total Refinery and Blender Net Production	19.74	21.10	21.25	20.66	19.82	20.78	21.09	20.97	20.93	22.35	22.17	21.67	20.69	20.67	21.78
Refinery Distillation Inputs	16.75	17.49	17.68	17.33	16.48	17.14	17.54	17.18	17.02	17.83	17.86	17.43	17.32	17.09	17.54
Refinery Operable Distillation Capacity	18.60	18.60	18.60	18.60	18.78	18.80	18.81	18.82	18.82	18.82	18.82	18.85	18.60	18.80	18.83
Refinery Distillation Utilization Factor	0.90	0.94	0.95	0.93	0.88	0.91	0.93	0.91	0.90	0.95	0.95	0.92	0.93	0.91	0.93

- = 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 - October 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	178	167	205	187	161	169	179	184	177	198	180	177
Gasoline Regular Grade Retail Prices Including Taxes															
PADD 1	255	279	278	257	233	268	256	241	249	262	266	261	268	250	260
PADD 2	246	274	276	245	223	269	257	234	243	255	262	250	261	246	253
PADD 3	230	260	258	232	206	246	233	212	218	229	234	226	245	225	227
PADD 4	247	288	297	281	226	285	271	240	230	249	255	246	279	256	245
PADD 5	312	342	335	333	297	356	331	289	278	296	298	286	330	319	290
U.S. Average	258	285	284	263	236	279	265	243	247	260	265	256	273	256	257
Gasoline All Grades Including Taxes	270	294	292	271	245	288	274	253	258	272	277	269	282	265	269
End-of-period Inventories (million barrels)															
Total Gasoline Inventories															
PADD 1	58.4	66.8	70.2	62.9	62.4	59.7	64.4	61.5	59.3	59.7	57.8	61.6	62.9	61.5	61.6
PADD 2	57.2	53.5	53.2	56.1	53.9	49.6	50.8	50.9	53.2	50.0	49.4	51.3	56.1	50.9	51.3
PADD 3	84.4	82.5	80.8	90.8	82.5	82.4	79.7	84.5	83.6	82.7	80.9	84.8	90.8	84.5	84.8
PADD 4	7.7	7.3	7.0	7.3	6.9	7.5	7.7	7.6	7.3	7.3	6.8	7.3	7.3	7.6	7.3
PADD 5	32.0	30.6	28.8	29.4	30.4	30.6	27.0	31.1	30.0	28.8	29.1	31.7	29.4	31.1	31.7
U.S. Total	239.7	240.7	240.0	246.5	236.1	229.7	229.6	235.7	233.4	228.5	224.0	236.7	246.5	235.7	236.7
Finished Gasoline Inventories															
U.S. Total	22.9	24.6	24.7	25.8	21.7	21.0	23.7	24.6	23.9	22.7	23.7	24.1	25.8	24.6	24.1
Gasoline Blending Components Inventories															
U.S. Total	216.8	216.2	215.2	220.7	214.4	208.8	205.9	211.1	209.5	205.8	200.3	212.7	220.7	211.1	212.7

- = 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 - October 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	94.79	96.18	97.47	99.26	<i>101.36</i>	<i>100.49</i>	<i>100.30</i>	<i>100.79</i>	<i>101.35</i>	89.69	<i>98.58</i>	<i>100.74</i>
Alaska	1.00	0.92	0.86	0.96	0.96	0.93	0.87	<i>0.95</i>	<i>1.00</i>	<i>0.85</i>	<i>0.80</i>	<i>0.95</i>	0.94	<i>0.93</i>	<i>0.90</i>
Federal GOM (a)	2.57	2.48	2.86	2.77	2.80	2.75	2.56	<i>2.69</i>	<i>2.74</i>	<i>2.66</i>	<i>2.52</i>	<i>2.49</i>	2.67	<i>2.70</i>	<i>2.60</i>
Lower 48 States (excl GOM)	81.37	83.98	87.79	91.05	92.42	93.78	95.83	<i>97.73</i>	<i>96.75</i>	<i>96.79</i>	<i>97.46</i>	<i>97.92</i>	86.08	<i>94.96</i>	<i>97.23</i>
Total Dry Gas Production	79.13	81.17	84.95	88.21	89.42	90.53	92.32	<i>94.21</i>	<i>93.35</i>	<i>93.12</i>	<i>93.52</i>	<i>93.99</i>	83.39	<i>91.63</i>	<i>93.50</i>
LNG Gross Imports	0.33	0.10	0.15	0.26	0.28	0.03	0.14	<i>0.21</i>	<i>0.32</i>	<i>0.10</i>	<i>0.18</i>	<i>0.20</i>	0.21	<i>0.17</i>	<i>0.20</i>
LNG Gross Exports	2.64	2.79	2.95	3.48	4.01	4.55	4.52	<i>5.35</i>	<i>5.88</i>	<i>5.71</i>	<i>6.58</i>	<i>7.35</i>	2.97	<i>4.61</i>	<i>6.38</i>
Pipeline Gross Imports	8.65	7.57	7.43	7.19	8.35	6.73	7.08	<i>7.38</i>	<i>7.96</i>	<i>6.48</i>	<i>6.77</i>	<i>7.49</i>	7.70	<i>7.38</i>	<i>7.17</i>
Pipeline Gross Exports	7.00	6.14	7.04	7.47	7.86	7.16	7.67	<i>7.57</i>	<i>8.94</i>	<i>8.10</i>	<i>8.07</i>	<i>7.76</i>	6.92	<i>7.56</i>	<i>8.22</i>
Supplemental Gaseous Fuels	0.21	0.17	0.19	0.19	0.20	0.16	0.18	<i>0.19</i>	<i>0.19</i>	<i>0.19</i>	<i>0.19</i>	<i>0.19</i>	0.19	<i>0.18</i>	<i>0.19</i>
Net Inventory Withdrawals	18.32	-8.85	-8.23	2.58	16.94	-14.18	-10.37	<i>1.36</i>	<i>16.07</i>	<i>-11.92</i>	<i>-8.77</i>	<i>3.19</i>	0.89	<i>-1.63</i>	<i>-0.37</i>
Total Supply	97.01	71.22	74.50	87.46	103.32	71.57	77.17	<i>90.43</i>	<i>103.06</i>	<i>74.15</i>	<i>77.25</i>	<i>89.95</i>	82.50	<i>85.56</i>	<i>86.09</i>
Balancing Item (b)	0.40	-0.73	-0.63	-1.57	-0.83	-1.59	-1.41	<i>-1.43</i>	<i>-1.24</i>	<i>-1.84</i>	<i>-0.95</i>	<i>-0.50</i>	-0.64	<i>-1.32</i>	<i>-1.13</i>
Total Primary Supply	97.40	70.49	73.88	85.90	102.49	69.97	75.76	<i>89.00</i>	<i>101.82</i>	<i>72.31</i>	<i>76.30</i>	<i>89.45</i>	81.86	<i>84.25</i>	<i>84.96</i>
Consumption (billion cubic feet per day)															
Residential	25.77	7.97	3.44	17.53	27.11	7.34	3.40	<i>17.53</i>	<i>26.77</i>	<i>7.64</i>	<i>3.73</i>	<i>16.67</i>	13.63	<i>13.79</i>	<i>13.69</i>
Commercial	15.36	6.60	4.58	11.65	16.06	6.32	4.79	<i>11.31</i>	<i>15.40</i>	<i>6.62</i>	<i>4.89</i>	<i>10.50</i>	9.52	<i>9.59</i>	<i>9.34</i>
Industrial	24.30	21.82	21.30	23.41	24.90	21.53	21.13	<i>23.80</i>	<i>25.39</i>	<i>22.45</i>	<i>21.72</i>	<i>24.80</i>	22.70	<i>22.84</i>	<i>23.59</i>
Electric Power (c)	24.91	27.62	37.78	26.04	26.62	27.79	39.45	<i>28.70</i>	<i>26.32</i>	<i>28.32</i>	<i>38.49</i>	<i>29.62</i>	29.11	<i>30.67</i>	<i>30.70</i>
Lease and Plant Fuel	4.36	4.48	4.70	4.86	4.94	5.00	5.09	<i>5.20</i>	<i>5.16</i>	<i>5.15</i>	<i>5.17</i>	<i>5.20</i>	4.60	<i>5.06</i>	<i>5.17</i>
Pipeline and Distribution Use	2.59	1.88	1.97	2.29	2.73	1.86	1.97	<i>2.32</i>	<i>2.64</i>	<i>2.00</i>	<i>2.17</i>	<i>2.52</i>	2.18	<i>2.22</i>	<i>2.33</i>
Vehicle Use	0.12	0.12	0.12	0.12	0.13	0.13	0.13	<i>0.13</i>	<i>0.14</i>	<i>0.14</i>	<i>0.14</i>	<i>0.14</i>	0.12	<i>0.13</i>	<i>0.14</i>
Total Consumption	97.40	70.49	73.88	85.90	102.49	69.97	75.76	<i>89.00</i>	<i>101.82</i>	<i>72.31</i>	<i>76.30</i>	<i>89.45</i>	81.86	<i>84.25</i>	<i>84.96</i>
End-of-period Inventories (billion cubic feet)															
Working Gas Inventory	1,390	2,195	2,950	2,708	1,185	2,460	3,415	<i>3,290</i>	<i>1,827</i>	<i>2,913</i>	<i>3,719</i>	<i>3,425</i>	2,708	<i>3,290</i>	<i>3,425</i>
East Region (d)	229	465	778	659	216	537	836	<i>805</i>	<i>341</i>	<i>658</i>	<i>951</i>	<i>824</i>	659	<i>805</i>	<i>824</i>
Midwest Region (d)	261	459	846	777	242	579	987	<i>914</i>	<i>413</i>	<i>729</i>	<i>1,046</i>	<i>922</i>	777	<i>914</i>	<i>922</i>
South Central Region (d)	613	845	845	879	519	917	1,061	<i>1,110</i>	<i>741</i>	<i>1,046</i>	<i>1,173</i>	<i>1,205</i>	879	<i>1,110</i>	<i>1,205</i>
Mountain Region (d)	87	140	179	141	63	135	200	<i>162</i>	<i>114</i>	<i>155</i>	<i>196</i>	<i>161</i>	141	<i>162</i>	<i>161</i>
Pacific Region (d)	169	253	263	214	115	259	293	<i>261</i>	<i>182</i>	<i>287</i>	<i>316</i>	<i>276</i>	214	<i>261</i>	<i>276</i>
Alaska	31	33	38	37	30	33	38	<i>38</i>	<i>38</i>	<i>38</i>	<i>38</i>	<i>38</i>	37	<i>38</i>	<i>38</i>

- = 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/hgs/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 - October 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	3.95	3.03	2.66	2.47	2.52	2.80	2.50	2.52	2.64	3.27	2.67	2.61
Residential Retail															
New England	14.38	16.60	19.08	14.42	14.43	15.56	18.75	13.77	13.12	14.03	16.85	13.00	15.00	14.70	13.47
Middle Atlantic	10.17	11.92	18.30	11.39	10.77	13.03	18.00	11.13	9.73	11.90	16.20	10.47	11.30	11.62	10.70
E. N. Central	7.20	9.77	18.40	8.02	7.27	10.48	18.15	8.84	7.92	10.74	16.36	8.20	8.42	8.71	8.92
W. N. Central	8.15	10.48	18.55	9.06	7.92	10.56	17.97	9.18	7.97	10.85	16.83	8.79	9.29	9.10	9.13
S. Atlantic	11.07	15.63	24.88	12.47	11.60	18.43	25.52	13.52	11.45	16.34	22.24	12.25	12.98	13.99	13.13
E. S. Central	9.62	12.77	21.53	10.58	9.58	14.76	21.07	12.13	9.72	14.41	21.13	12.76	10.90	11.47	11.79
W. S. Central	9.27	14.25	22.03	10.19	8.26	13.34	20.52	11.30	8.64	14.31	20.21	11.66	10.98	10.76	11.20
Mountain	8.22	10.38	14.03	7.69	7.72	9.47	13.02	7.88	7.62	9.45	13.18	8.01	8.74	8.40	8.46
Pacific	11.62	12.02	12.88	11.75	12.43	12.73	13.77	12.29	12.44	13.17	13.82	12.70	11.87	12.60	12.82
U.S. Average	9.37	11.93	17.93	9.97	9.46	12.45	17.69	10.67	9.46	12.17	16.73	10.29	10.49	10.75	10.59
Commercial Retail															
New England	11.05	11.73	10.85	10.56	11.07	11.26	10.92	9.64	9.33	9.16	8.91	8.75	10.99	10.63	9.09
Middle Atlantic	8.13	7.67	7.47	7.86	8.46	7.70	6.83	7.23	7.42	7.32	6.79	7.35	7.89	7.79	7.30
E. N. Central	6.19	6.95	9.01	6.55	6.27	7.12	8.77	6.56	6.29	7.33	8.65	6.61	6.62	6.66	6.72
W. N. Central	6.96	7.30	8.91	7.11	6.80	7.08	8.36	6.69	6.90	7.28	8.29	6.73	7.20	6.93	7.01
S. Atlantic	8.29	9.35	9.73	8.70	8.82	9.53	9.43	8.53	8.56	9.56	9.96	9.00	8.75	8.92	9.02
E. S. Central	8.62	9.34	10.51	8.84	8.52	9.72	9.94	8.55	7.99	8.98	9.44	8.37	8.99	8.86	8.41
W. S. Central	7.21	7.90	8.55	6.99	6.40	7.04	7.74	7.09	6.66	7.17	7.71	7.08	7.44	6.88	7.02
Mountain	6.99	7.48	7.92	6.24	6.38	6.74	7.59	6.69	6.88	7.13	7.88	6.83	6.91	6.65	7.01
Pacific	8.90	8.58	9.11	8.68	9.06	8.81	9.05	8.32	8.38	8.44	8.65	8.27	8.80	8.80	8.40
U.S. Average	7.64	8.08	8.77	7.61	7.62	8.00	8.37	7.43	7.32	7.83	8.23	7.46	7.82	7.70	7.55
Industrial Retail															
New England	8.95	8.62	6.49	7.91	9.03	8.16	6.65	7.63	8.23	7.60	7.04	7.94	8.17	8.03	7.81
Middle Atlantic	8.33	8.07	7.73	7.89	8.75	7.66	7.13	7.13	7.50	6.89	6.89	7.10	8.11	7.90	7.22
E. N. Central	5.69	5.02	5.20	5.74	5.69	5.34	5.85	5.36	5.81	5.43	5.24	5.19	5.53	5.55	5.50
W. N. Central	5.05	4.23	4.21	5.05	5.09	3.91	3.55	4.40	4.89	4.02	3.77	4.45	4.69	4.33	4.34
S. Atlantic	5.34	4.67	4.68	5.42	5.48	4.56	4.21	4.65	5.05	4.49	4.44	4.76	5.06	4.77	4.71
E. S. Central	4.93	4.21	4.14	4.90	4.92	4.06	3.78	4.32	4.58	4.12	4.04	4.46	4.59	4.31	4.32
W. S. Central	3.32	3.09	3.12	4.02	3.48	2.88	2.67	2.78	2.96	2.65	2.73	2.82	3.38	2.93	2.79
Mountain	5.43	5.36	4.72	4.79	5.33	4.83	5.02	5.24	5.44	5.16	5.37	5.40	5.09	5.14	5.35
Pacific	6.97	6.03	6.72	6.65	7.61	6.59	6.26	6.12	6.53	6.03	6.12	6.16	6.61	6.66	6.23
U.S. Average	4.44	3.83	3.73	4.71	4.68	3.75	3.33	3.72	4.13	3.49	3.40	3.77	4.20	3.89	3.72

- = 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 - October 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	192.4	170.3	175.9	174.4	<i>158.8</i>	<i>167.6</i>	<i>133.4</i>	<i>159.6</i>	<i>142.5</i>	755.5	<i>679.3</i>	<i>603.0</i>
Appalachia	50.0	51.6	49.0	49.5	47.4	48.7	46.2	<i>41.9</i>	<i>41.7</i>	<i>36.7</i>	<i>37.8</i>	<i>32.9</i>	200.1	<i>184.2</i>	<i>149.0</i>
Interior	34.0	34.6	34.7	33.9	31.0	32.8	31.9	<i>29.8</i>	<i>33.4</i>	<i>26.4</i>	<i>32.5</i>	<i>31.1</i>	137.1	<i>125.5</i>	<i>123.3</i>
Western	103.7	94.6	111.0	109.0	91.9	94.5	96.3	<i>87.0</i>	<i>92.5</i>	<i>70.3</i>	<i>89.3</i>	<i>78.5</i>	418.3	<i>369.7</i>	<i>330.7</i>
Primary Inventory Withdrawals	-2.8	2.3	1.1	-0.6	0.8	1.3	-0.2	<i>-1.7</i>	<i>-0.1</i>	<i>0.9</i>	<i>2.4</i>	<i>-2.5</i>	0.0	<i>0.2</i>	<i>0.8</i>
Imports	1.4	1.5	1.4	1.6	1.7	1.6	1.4	<i>1.4</i>	<i>1.2</i>	<i>1.3</i>	<i>1.5</i>	<i>1.4</i>	6.0	<i>6.1</i>	<i>5.4</i>
Exports	27.2	30.9	29.1	28.5	25.2	25.3	20.9	<i>20.5</i>	<i>22.0</i>	<i>18.3</i>	<i>17.8</i>	<i>17.3</i>	115.6	<i>91.8</i>	<i>75.5</i>
Metallurgical Coal	14.9	16.9	14.5	15.2	13.9	15.1	11.2	<i>10.8</i>	<i>11.7</i>	<i>10.0</i>	<i>10.2</i>	<i>10.0</i>	61.5	<i>51.0</i>	<i>41.9</i>
Steam Coal	12.3	13.9	14.5	13.3	11.3	10.2	9.6	<i>9.7</i>	<i>10.3</i>	<i>8.3</i>	<i>7.6</i>	<i>7.3</i>	54.1	<i>40.8</i>	<i>33.6</i>
Total Primary Supply	159.0	153.7	168.1	165.0	147.6	153.5	154.7	<i>138.0</i>	<i>146.7</i>	<i>117.3</i>	<i>145.7</i>	<i>124.1</i>	645.9	<i>593.8</i>	<i>533.8</i>
Secondary Inventory Withdrawals	11.8	4.9	20.4	-2.3	5.9	-19.8	14.1	<i>-7.7</i>	<i>-0.7</i>	<i>2.9</i>	<i>6.8</i>	<i>-8.4</i>	34.8	<i>-7.5</i>	<i>0.6</i>
Waste Coal (a)	2.8	2.3	2.6	2.5	2.3	2.3	2.3	<i>2.3</i>	<i>2.3</i>	<i>2.3</i>	<i>2.3</i>	<i>2.3</i>	10.2	<i>9.3</i>	<i>9.2</i>
Total Supply	173.6	160.9	191.2	165.2	155.8	136.0	171.2	<i>132.7</i>	<i>148.3</i>	<i>122.4</i>	<i>154.9</i>	<i>117.9</i>	690.9	<i>595.7</i>	<i>543.5</i>
Consumption (million short tons)															
Coke Plants	4.2	4.6	4.7	4.7	4.5	4.8	5.5	<i>6.0</i>	<i>5.0</i>	<i>4.9</i>	<i>4.8</i>	<i>6.0</i>	18.3	<i>20.8</i>	<i>20.8</i>
Electric Power Sector (b)	154.8	144.2	181.6	155.9	145.0	117.7	163.3	<i>119.8</i>	<i>136.2</i>	<i>110.9</i>	<i>143.6</i>	<i>105.3</i>	636.5	<i>545.8</i>	<i>496.0</i>
Retail and Other Industry	8.5	7.9	7.7	8.4	8.1	7.5	6.9	<i>6.8</i>	<i>7.0</i>	<i>6.6</i>	<i>6.4</i>	<i>6.6</i>	32.5	<i>29.3</i>	<i>26.7</i>
Residential and Commercial	0.4	0.2	0.2	0.2	0.3	0.2	0.2	<i>0.2</i>	<i>0.2</i>	<i>0.1</i>	<i>0.1</i>	<i>0.2</i>	1.0	<i>0.9</i>	<i>0.7</i>
Other Industrial	8.1	7.7	7.5	8.2	7.8	7.4	6.7	<i>6.6</i>	<i>6.8</i>	<i>6.5</i>	<i>6.3</i>	<i>6.4</i>	31.5	<i>28.4</i>	<i>26.0</i>
Total Consumption	167.5	156.6	194.1	169.1	157.6	130.1	175.6	<i>132.7</i>	<i>148.3</i>	<i>122.4</i>	<i>154.9</i>	<i>117.9</i>	687.3	<i>595.9</i>	<i>543.5</i>
Discrepancy (c)	6.0	4.3	-2.9	-3.8	-1.7	5.9	-4.4	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	3.6	<i>-0.3</i>	<i>0.0</i>
End-of-period Inventories (million short tons)															
Primary Inventories (d)	26.8	24.5	23.4	24.0	23.2	21.9	22.1	<i>23.8</i>	<i>23.9</i>	<i>22.9</i>	<i>20.5</i>	<i>23.0</i>	24.0	<i>23.8</i>	<i>23.0</i>
Secondary Inventories	131.2	126.3	105.9	108.1	102.2	122.0	107.9	<i>115.6</i>	<i>116.3</i>	<i>113.4</i>	<i>106.6</i>	<i>115.0</i>	108.1	<i>115.6</i>	<i>115.0</i>
Electric Power Sector	126.5	121.5	100.8	102.8	97.1	116.5	102.1	<i>109.9</i>	<i>110.8</i>	<i>107.6</i>	<i>100.6</i>	<i>109.2</i>	102.8	<i>109.9</i>	<i>109.2</i>
Retail and General Industry	2.9	2.9	3.0	3.3	2.8	3.5	3.6	<i>3.4</i>	<i>3.7</i>	<i>3.6</i>	<i>3.6</i>	<i>3.5</i>	3.3	<i>3.4</i>	<i>3.5</i>
Coke Plants	1.5	1.6	1.8	1.8	2.0	1.8	2.0	<i>2.1</i>	<i>1.6</i>	<i>2.0</i>	<i>2.1</i>	<i>2.1</i>	1.8	<i>2.1</i>	<i>2.1</i>
Coal Market Indicators															
Coal Miner Productivity															
(Tons per hour)	6.45	6.45	6.45	6.45	6.37	6.37	6.37	<i>6.37</i>	<i>6.37</i>	<i>6.37</i>	<i>6.37</i>	<i>6.37</i>	6.45	<i>6.37</i>	<i>6.37</i>
Total Raw Steel Production															
(Million short tons per day)	0.251	0.253	0.263	0.270	0.273	0.271	0.264	<i>0.255</i>	<i>0.258</i>	<i>0.257</i>	<i>0.247</i>	<i>0.252</i>	0.259	<i>0.266</i>	<i>0.253</i>
Cost of Coal to Electric Utilities															
(Dollars per million Btu)	2.06	2.06	2.06	2.08	2.08	2.05	2.07	<i>2.09</i>	<i>2.10</i>	<i>2.10</i>	<i>2.08</i>	<i>2.09</i>	2.06	<i>2.07</i>	<i>2.09</i>

- = 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 - October 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Electricity Supply (billion kilowatthours)															
Electricity Generation	1,001	1,014	1,177	985	994	975	1,173	965	997	973	1,139	966	4,178	4,107	4,075
Electric Power Sector (a)	962	975	1,136	945	955	937	1,133	928	959	935	1,098	926	4,018	3,952	3,918
Industrial Sector (b)	36	36	38	37	36	35	37	34	35	35	37	36	146	142	144
Commercial Sector (b)	3	3	4	3	3	3	3	3	3	3	4	3	13	13	13
Net Imports	12	11	13	9	9	13	16	12	14	14	16	13	44	50	56
Total Supply	1,013	1,025	1,190	994	1,003	988	1,188	977	1,011	987	1,155	978	4,222	4,156	4,131
Losses and Unaccounted for (c)	58	85	73	61	55	75	77	57	53	74	67	61	277	264	254
Electricity Consumption (billion kilowatthours unless noted)															
Retail Sales	921	905	1079	897	913	879	1081	887	924	879	1052	882	3802	3759	3736
Residential Sector	369	328	434	333	362	310	437	330	371	312	420	327	1464	1439	1431
Commercial Sector	325	337	387	328	322	329	387	328	326	330	379	327	1377	1365	1363
Industrial Sector	225	238	256	234	227	238	256	227	225	234	250	226	953	948	935
Transportation Sector	2	2	2	2	2	2	2	2	2	2	2	2	8	8	7
Direct Use (d)	35	35	37	36	36	34	36	34	35	34	36	36	144	139	141
Total Consumption	956	940	1117	933	948	913	1111	920	958	913	1088	917	3946	3893	3876
Average residential electricity usage per customer (kWh)	2,754	2,446	3,240	2,481	2,667	2,287	3,221	2,435	2,705	2,279	3,067	2,385	10,920	10,611	10,437
Prices															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	2.06	2.06	2.06	2.08	2.08	2.05	2.07	2.09	2.10	2.10	2.08	2.09	2.06	2.07	2.09
Natural Gas	3.96	3.09	3.23	4.05	3.71	2.73	2.44	2.67	3.15	2.56	2.46	2.74	3.54	2.83	2.70
Residual Fuel Oil	11.47	13.02	14.02	14.49	12.22	13.39	12.26	11.73	11.76	12.12	11.60	11.95	12.95	12.40	11.85
Distillate Fuel Oil	15.77	16.61	16.82	16.01	14.85	15.73	14.97	15.68	15.51	15.12	15.53	16.14	16.13	15.30	15.58
Retail Prices (cents per kilowatthour)															
Residential Sector	12.59	13.03	13.15	12.75	12.66	13.31	13.21	12.82	12.65	13.38	13.40	13.05	12.89	13.00	13.12
Commercial Sector	10.54	10.60	10.89	10.55	10.41	10.65	10.87	10.50	10.32	10.59	10.92	10.59	10.66	10.62	10.62
Industrial Sector	6.81	6.87	7.22	6.82	6.66	6.72	7.09	6.68	6.65	6.77	7.18	6.74	6.93	6.80	6.84
Wholesale Electricity Prices (dollars per megawatthour)															
ERCOT North hub	33.26	37.01	61.04	34.39	28.41	28.34	139.77	27.33	27.43	29.03	32.08	26.99	41.43	55.96	28.88
CAISO SP15 zone	35.44	27.75	74.86	51.29	50.42	23.30	37.32	37.98	36.64	32.30	35.85	38.05	47.33	37.26	35.71
ISO-NE Internal hub	65.86	36.28	43.53	54.18	47.40	27.15	29.52	35.88	44.99	31.63	30.80	34.11	49.96	34.99	35.38
NYISO Hudson Valley zone	51.52	34.24	41.86	41.95	41.77	25.68	27.76	33.10	35.48	29.73	29.53	31.47	42.39	32.08	31.55
PJM Western hub	47.43	39.73	40.06	39.40	33.79	28.54	31.17	32.29	33.68	29.22	32.08	31.81	41.66	31.45	31.70
Midcontinent ISO Illinois hub	31.22	35.88	37.23	38.30	31.44	27.81	30.71	30.39	31.15	28.86	32.10	30.03	35.66	30.09	30.53
SPP ISO South hub	26.54	28.49	29.97	36.45	29.15	27.14	31.51	30.48	29.47	28.86	34.36	30.32	30.36	29.57	30.75
SERC index, Into Southern	30.84	29.30	31.80	31.18	30.74	29.87	31.08	31.34	31.17	29.25	31.73	30.31	30.78	30.76	30.62
FRCC index, Florida Reliability	30.31	30.19	31.70	31.09	30.71	29.57	30.64	32.86	31.37	28.84	29.10	31.09	30.82	30.95	30.10
Northwest index, Mid-Columbia	21.80	18.37	59.99	50.93	55.74	18.55	32.74	34.87	33.48	27.08	32.50	35.20	37.77	35.47	32.07
Southwest index, Palo Verde	26.39	25.76	67.78	42.71	44.23	18.45	42.00	36.18	34.44	32.56	37.14	36.39	40.66	35.21	35.13

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

kWh = kilowatthours. Btu = British thermal units.

Prices are not adjusted for inflation.

- (a) Generation supplied by power plants with capacity of at least 1 megawatt operated by electric utilities and independent power producers.
- (b) Generation supplied by power plants with capacity of at least 1 megawatt operated by businesses in the commercial and industrial sectors, primarily for onsite use.
- (c) Includes transmission and distribution losses, data collection time-frame differences, and estimation error.
- (d) Direct Use represents commercial and industrial facility use of onsite net electricity generation; and electrical sales or transfers to adjacent or collocated facilities for which revenue information is not available. See Table 7.6 of the EIA *Monthly Energy Review*.

Historical data sources:

- (1) Electricity supply, consumption, fuel costs, and retail electricity prices: Latest data available from U.S. Energy Information Administration databases supporting the following reports: Electric Power Monthly, DOE/EIA-0226; and Electric Power Annual, DOE/EIA-0348
 - (2) Wholesale electricity prices (except for PJM RTO price): S&P Global Market Intelligence, SNL Energy Data
 - (3) PJM ISO Western Hub wholesale electricity prices: PJM Data Miner website
- Minor discrepancies with published historical data are due to independent rounding.

Projections: EIA Regional Short-Term Energy Model.

Table 7b. U.S. Regional Electricity Retail Sales (billion kilowatthours)
U.S. Energy Information Administration | Short-Term Energy Outlook - October 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Residential Sector															
New England	12.6	10.1	14.1	11.1	12.5	9.8	13.2	10.9	12.7	9.9	12.7	11.0	47.8	46.4	46.3
Middle Atlantic	35.4	29.4	41.6	31.1	35.3	27.7	40.2	30.6	35.8	28.1	38.7	30.3	137.5	133.8	132.9
E. N. Central	49.7	43.7	55.5	44.4	50.0	38.1	55.3	43.9	50.2	39.0	52.1	43.5	193.3	187.3	184.8
W. N. Central	29.4	24.9	29.2	25.0	29.9	21.6	29.6	24.6	29.6	22.1	28.8	24.6	108.5	105.8	105.1
S. Atlantic	93.6	83.7	109.0	86.4	88.3	84.4	111.7	84.4	93.1	82.4	106.2	83.3	372.6	368.8	365.0
E. S. Central	33.1	27.4	36.5	28.2	30.6	25.9	36.8	27.7	32.9	25.7	35.2	26.7	125.1	121.0	120.5
W. S. Central	54.8	53.0	73.9	49.1	51.8	49.9	77.0	49.9	53.4	51.2	74.3	49.1	230.7	228.7	228.0
Mountain	21.5	23.9	33.1	21.6	23.1	22.0	33.4	21.8	23.3	23.2	32.8	22.1	100.2	100.4	101.3
Pacific contiguous	38.0	30.8	40.4	34.6	39.0	29.6	38.2	35.2	38.7	29.7	38.5	35.2	143.8	142.0	142.1
AK and HI	1.2	1.1	1.2	1.2	1.2	1.1	1.2	1.2	1.2	1.1	1.2	1.2	4.7	4.6	4.6
Total	369.3	328.0	434.4	332.6	361.7	310.2	436.7	330.2	370.8	312.4	420.4	327.0	1,464.4	1,438.7	1,430.6
Commercial Sector															
New England	12.7	12.4	14.7	12.5	12.8	12.2	14.2	12.2	12.8	12.1	13.6	12.0	52.3	51.4	50.5
Middle Atlantic	38.8	37.4	44.1	37.7	38.6	36.3	42.4	37.1	38.6	36.0	41.7	36.9	158.1	154.4	153.1
E. N. Central	44.9	45.6	51.1	44.5	44.6	43.1	51.0	44.5	44.8	43.5	49.5	44.4	186.1	183.1	182.1
W. N. Central	25.4	25.7	28.3	25.0	25.6	24.2	28.2	24.8	25.8	24.5	27.7	24.9	104.4	102.8	102.9
S. Atlantic	73.0	78.4	89.7	75.3	72.1	79.4	90.6	74.7	72.8	78.1	87.6	74.4	316.4	316.8	313.0
E. S. Central	21.7	23.0	27.2	22.1	21.0	22.5	27.3	21.7	21.4	22.4	26.4	21.5	94.0	92.6	91.8
W. S. Central	45.1	50.0	58.6	47.5	45.0	48.5	60.1	48.8	46.7	49.8	59.6	49.0	201.2	202.4	205.0
Mountain	22.4	24.5	28.4	23.2	22.7	23.9	28.6	23.5	23.1	24.6	28.4	23.7	98.5	98.6	99.8
Pacific contiguous	39.1	38.6	43.5	38.9	38.0	37.9	42.8	39.0	38.6	38.2	43.3	39.0	160.1	157.7	159.0
AK and HI	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	5.7	5.6	5.6
Total	324.5	337.1	387.0	328.2	321.7	329.2	386.7	327.7	325.8	330.4	379.3	327.3	1,376.7	1,365.4	1,362.9
Industrial Sector															
New England	3.8	3.9	4.3	4.0	3.8	3.8	4.5	4.0	3.9	3.9	4.3	3.9	16.0	16.0	16.0
Middle Atlantic	17.7	17.7	19.7	18.0	17.7	17.5	19.9	17.5	17.5	17.2	19.6	17.4	73.0	72.6	71.6
E. N. Central	44.9	47.1	48.8	45.4	44.8	45.3	48.2	43.5	44.1	44.3	46.5	42.8	186.1	181.8	177.7
W. N. Central	20.9	22.0	23.6	22.0	21.1	22.0	23.4	21.3	21.2	22.0	23.2	21.5	88.5	87.8	87.7
S. Atlantic	33.0	35.3	37.1	34.0	33.0	34.7	35.9	32.3	31.9	33.4	34.4	31.5	139.4	135.9	131.2
E. S. Central	23.1	23.8	26.4	24.0	23.4	23.9	25.7	22.4	22.4	22.8	24.2	21.8	97.3	95.4	91.3
W. S. Central	42.0	45.5	47.8	44.7	44.2	47.7	49.9	44.1	44.6	47.8	49.5	44.6	180.0	186.0	186.5
Mountain	18.8	20.8	23.1	20.2	19.2	21.1	23.3	20.2	19.4	21.2	23.3	20.3	82.8	83.8	84.3
Pacific contiguous	19.5	21.0	23.7	20.8	19.0	20.4	23.6	20.7	19.0	20.2	23.7	20.7	85.0	83.6	83.6
AK and HI	1.2	1.2	1.3	1.2	1.1	1.2	1.3	1.3	1.1	1.2	1.3	1.3	4.9	4.8	4.8
Total	224.8	238.2	255.9	234.2	227.4	237.7	255.6	227.1	225.0	234.1	249.9	225.7	953.1	947.8	934.8
Total All Sectors (a)															
New England	29.3	26.6	33.2	27.7	29.2	25.9	32.1	27.3	29.5	26.0	30.8	27.0	116.7	114.4	113.4
Middle Atlantic	93.0	85.4	106.4	87.7	92.6	82.4	103.5	86.1	92.8	82.1	100.9	85.5	372.6	364.5	361.3
E. N. Central	139.7	136.5	155.6	134.4	139.6	126.7	154.6	132.0	139.3	126.9	148.2	130.8	566.1	552.9	545.2
W. N. Central	75.7	72.6	81.2	72.0	76.7	67.7	81.3	70.7	76.5	68.6	79.7	71.0	301.4	296.4	295.8
S. Atlantic	199.8	197.8	236.1	196.0	193.7	198.9	238.5	191.7	198.2	194.2	228.5	189.5	829.8	822.8	810.5
E. S. Central	78.0	74.1	90.0	74.3	75.0	72.3	89.8	71.8	76.8	71.0	85.9	70.0	316.4	309.0	303.6
W. S. Central	141.9	148.5	180.4	141.4	141.1	146.1	187.2	142.8	144.7	148.9	183.5	142.7	612.2	617.2	619.8
Mountain	62.7	69.3	84.7	65.0	65.1	67.1	85.3	65.5	65.8	69.1	84.5	66.2	281.7	282.9	285.5
Pacific contiguous	96.7	90.6	107.8	94.5	96.2	88.1	104.7	95.1	96.4	88.4	105.7	95.1	389.7	384.2	385.5
AK and HI	3.8	3.7	3.9	3.9	3.7	3.6	3.9	3.9	3.7	3.6	3.9	3.9	15.3	15.1	15.0
Total	920.6	905.2	1,079.3	896.9	912.8	878.9	1,080.8	886.8	923.6	878.7	1,051.6	881.7	3,801.9	3,759.4	3,735.6

- = 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 U.S. 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 Kilowatthour)

U.S. Energy Information Administration | Short-Term Energy Outlook - October 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	20.57	20.39	20.64	21.05	21.54	20.91	21.02	<i>21.23</i>	<i>21.47</i>	<i>20.88</i>	<i>21.00</i>	20.53	21.11	21.13
Middle Atlantic	15.62	16.21	16.34	15.80	15.20	16.06	16.17	15.47	<i>14.85</i>	<i>15.84</i>	<i>16.26</i>	<i>15.74</i>	16.00	15.73	15.68
E. N. Central	12.94	13.48	13.09	13.19	12.93	13.86	13.23	13.34	<i>13.12</i>	<i>14.13</i>	<i>13.68</i>	<i>13.79</i>	13.16	13.30	13.65
W. N. Central	10.90	12.63	13.10	11.39	10.71	12.77	12.97	11.62	<i>11.03</i>	<i>13.15</i>	<i>13.51</i>	<i>12.08</i>	12.00	11.97	12.40
S. Atlantic	11.66	11.90	11.82	11.62	11.71	12.16	11.96	11.68	<i>11.58</i>	<i>12.07</i>	<i>11.93</i>	<i>11.72</i>	11.75	11.88	11.83
E. S. Central	10.86	11.40	11.16	11.17	11.11	11.70	11.44	11.36	<i>11.18</i>	<i>12.00</i>	<i>11.76</i>	<i>11.73</i>	11.14	11.39	11.64
W. S. Central	10.52	11.01	10.97	10.83	10.79	11.40	11.12	10.77	<i>10.58</i>	<i>11.17</i>	<i>11.10</i>	<i>10.82</i>	10.85	11.03	10.93
Mountain	11.58	12.24	12.26	11.76	11.52	12.18	12.32	11.85	<i>11.61</i>	<i>12.35</i>	<i>12.57</i>	<i>12.14</i>	12.00	12.00	12.21
Pacific	14.88	15.27	17.07	14.77	14.86	15.87	17.43	15.07	<i>15.22</i>	<i>16.41</i>	<i>17.78</i>	<i>15.33</i>	15.55	15.82	16.19
U.S. Average	12.59	13.03	13.15	12.75	12.66	13.31	13.21	12.82	<i>12.65</i>	<i>13.38</i>	<i>13.40</i>	<i>13.05</i>	12.89	13.00	13.12
Commercial Sector															
New England	16.59	15.92	16.19	16.44	16.72	16.23	16.24	16.49	<i>16.70</i>	<i>16.15</i>	<i>16.21</i>	<i>16.55</i>	16.28	16.42	16.40
Middle Atlantic	12.10	12.22	13.17	12.08	11.56	12.17	12.88	11.66	<i>11.11</i>	<i>11.80</i>	<i>12.67</i>	<i>11.67</i>	12.42	12.09	11.83
E. N. Central	10.10	10.15	10.08	10.10	10.14	10.29	10.10	10.09	<i>10.12</i>	<i>10.31</i>	<i>10.22</i>	<i>10.27</i>	10.11	10.15	10.23
W. N. Central	9.18	10.03	10.38	9.23	8.97	10.04	10.30	9.26	<i>9.12</i>	<i>10.30</i>	<i>10.72</i>	<i>9.66</i>	9.73	9.65	9.96
S. Atlantic	9.61	9.30	9.18	9.41	9.44	9.36	9.23	9.37	<i>9.31</i>	<i>9.22</i>	<i>9.12</i>	<i>9.31</i>	9.36	9.34	9.23
E. S. Central	10.51	10.48	10.34	10.54	10.70	10.71	10.63	10.70	<i>10.85</i>	<i>10.97</i>	<i>10.94</i>	<i>11.03</i>	10.46	10.68	10.95
W. S. Central	8.37	8.17	8.12	7.94	8.15	8.12	7.94	7.69	<i>7.88</i>	<i>7.91</i>	<i>7.90</i>	<i>7.70</i>	8.15	7.97	7.85
Mountain	9.27	9.88	10.01	9.36	9.20	9.71	10.06	9.37	<i>9.21</i>	<i>9.77</i>	<i>10.17</i>	<i>9.53</i>	9.66	9.61	9.70
Pacific	12.91	14.02	15.81	14.10	12.98	14.15	16.19	14.46	<i>13.20</i>	<i>14.29</i>	<i>16.33</i>	<i>14.65</i>	14.25	14.50	14.67
U.S. Average	10.54	10.60	10.89	10.55	10.41	10.65	10.87	10.50	<i>10.32</i>	<i>10.59</i>	<i>10.92</i>	<i>10.59</i>	10.66	10.62	10.62
Industrial Sector															
New England	13.46	12.60	12.83	12.98	13.31	12.90	12.53	12.66	<i>13.22</i>	<i>12.85</i>	<i>12.56</i>	<i>12.71</i>	12.96	12.83	12.83
Middle Atlantic	7.26	6.82	6.86	6.79	6.73	6.51	6.51	6.37	<i>6.52</i>	<i>6.39</i>	<i>6.44</i>	<i>6.31</i>	6.93	6.53	6.42
E. N. Central	7.10	6.96	6.99	7.01	7.02	6.89	6.93	6.91	<i>7.04</i>	<i>6.96</i>	<i>7.02</i>	<i>6.99</i>	7.01	6.94	7.00
W. N. Central	7.04	7.38	7.99	6.93	7.13	7.33	8.03	7.11	<i>7.35</i>	<i>7.57</i>	<i>8.28</i>	<i>7.32</i>	7.35	7.41	7.64
S. Atlantic	6.54	6.40	6.60	6.39	6.22	6.29	6.55	6.18	<i>6.12</i>	<i>6.23</i>	<i>6.52</i>	<i>6.17</i>	6.48	6.31	6.26
E. S. Central	5.74	5.92	5.87	5.88	5.71	5.80	5.89	5.81	<i>5.71</i>	<i>5.82</i>	<i>5.94</i>	<i>5.85</i>	5.86	5.80	5.83
W. S. Central	5.42	5.41	5.65	5.27	5.25	5.24	5.31	4.96	<i>5.14</i>	<i>5.24</i>	<i>5.32</i>	<i>4.96</i>	5.44	5.20	5.17
Mountain	6.10	6.48	6.93	6.05	6.13	6.28	6.77	5.92	<i>6.10</i>	<i>6.29</i>	<i>6.81</i>	<i>5.96</i>	6.41	6.29	6.31
Pacific	8.63	9.52	11.17	9.89	8.68	9.45	11.35	10.03	<i>8.88</i>	<i>9.73</i>	<i>11.68</i>	<i>10.30</i>	9.87	9.96	10.23
U.S. Average	6.81	6.87	7.22	6.82	6.66	6.72	7.09	6.68	<i>6.65</i>	<i>6.77</i>	<i>7.18</i>	<i>6.74</i>	6.93	6.80	6.84
All Sectors (a)															
New England	17.86	17.16	17.49	17.58	18.11	17.72	17.62	17.70	<i>18.16</i>	<i>17.66</i>	<i>17.59</i>	<i>17.75</i>	17.53	17.79	17.79
Middle Atlantic	12.50	12.47	13.23	12.30	12.01	12.27	12.92	11.93	<i>11.68</i>	<i>12.04</i>	<i>12.84</i>	<i>12.02</i>	12.65	12.31	12.17
E. N. Central	10.14	10.11	10.18	10.07	10.13	10.14	10.23	10.12	<i>10.22</i>	<i>10.31</i>	<i>10.43</i>	<i>10.37</i>	10.13	10.16	10.33
W. N. Central	9.26	10.12	10.66	9.27	9.14	10.03	10.62	9.43	<i>9.37</i>	<i>10.34</i>	<i>11.02</i>	<i>9.79</i>	9.85	9.82	10.14
S. Atlantic	10.06	9.88	9.99	9.86	9.92	10.01	10.10	9.85	<i>9.86</i>	<i>9.91</i>	<i>10.03</i>	<i>9.85</i>	9.95	9.98	9.92
E. S. Central	9.25	9.36	9.36	9.27	9.31	9.44	9.61	9.43	<i>9.49</i>	<i>9.68</i>	<i>9.86</i>	<i>9.68</i>	9.31	9.45	9.69
W. S. Central	8.33	8.34	8.63	8.10	8.21	8.30	8.55	7.93	<i>8.03</i>	<i>8.18</i>	<i>8.50</i>	<i>7.92</i>	8.37	8.27	8.18
Mountain	9.12	9.68	10.05	9.13	9.12	9.44	10.05	9.13	<i>9.14</i>	<i>9.56</i>	<i>10.17</i>	<i>9.30</i>	9.54	9.48	9.59
Pacific	12.81	13.39	15.25	13.40	12.88	13.63	15.54	13.71	<i>13.15</i>	<i>13.95</i>	<i>15.80</i>	<i>13.94</i>	13.76	13.99	14.25
U.S. Average	10.45	10.50	10.93	10.39	10.36	10.53	10.92	10.38	<i>10.36</i>	<i>10.56</i>	<i>11.02</i>	<i>10.52</i>	10.58	10.57	10.63

- = 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 part 1. U.S. Regional Electricity Generation, Electric Power Sector (billion kilowatthours), continues on Table 7d part 2
 U.S. Energy Information Administration | Short-Term Energy Outlook - October 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
United States															
Natural Gas	286.4	321.7	445.4	312.1	316.1	330.2	464.2	344.1	315.7	338.6	458.1	354.0	1,365.7	1,454.6	1,466.4
Coal	279.3	258.3	325.5	275.5	257.7	209.0	294.3	210.3	242.2	194.6	252.9	183.8	1,138.5	971.3	873.5
Nuclear	206.5	196.1	209.5	195.0	203.5	196.5	209.5	200.3	205.3	185.7	204.4	200.1	807.1	809.9	795.5
Renewable Energy Sources:	179.9	192.8	149.5	156.7	170.9	195.0	162.9	166.9	188.9	210.2	177.1	182.0	678.7	695.7	758.2
Conventional Hydropower	76.7	85.4	63.7	64.3	71.6	81.5	64.7	64.4	75.9	80.9	65.6	64.3	290.1	282.2	286.7
Wind	78.2	74.7	53.5	68.4	74.2	80.0	64.4	77.6	85.4	91.4	71.3	89.2	274.7	296.2	337.3
Solar (a)	12.6	20.9	20.2	12.2	13.4	22.3	22.8	14.4	16.5	26.7	29.2	18.5	65.9	73.0	90.8
Biomass	8.3	7.7	7.9	7.6	7.5	7.3	6.9	6.0	6.9	7.2	6.8	5.8	31.4	27.7	26.7
Geothermal	4.1	4.0	4.3	4.2	4.1	4.0	4.1	4.5	4.3	3.9	4.2	4.3	16.7	16.7	16.6
Pumped Storage Hydropower	-1.4	-1.2	-2.0	-1.4	-1.1	-0.9	-2.1	-1.3	-1.1	-0.9	-2.0	-1.3	-5.9	-5.4	-5.2
Petroleum (b)	8.8	4.5	5.3	4.5	4.8	4.1	5.4	4.6	5.0	4.1	5.2	4.5	23.1	18.8	18.8
Other Gases	1.0	1.0	1.1	0.9	1.1	1.0	1.2	0.8	1.1	1.1	1.2	0.9	4.0	4.2	4.2
Other Nonrenewable Fuels (c)	1.8	1.8	1.5	1.9	1.7	1.8	1.4	1.9	1.7	1.7	1.4	1.9	7.0	6.8	6.7
Total Generation	962.3	975.0	1,135.7	945.2	954.6	936.8	1,136.9	927.6	958.7	935.1	1,098.4	925.8	4,018.3	3,955.9	3,918.1
New England (ISO-NE)															
Natural Gas	10.4	10.0	16.3	11.4	10.7	10.1	14.6	13.0	12.6	12.1	15.6	13.2	48.1	48.4	53.5
Coal	0.6	0.2	0.1	0.2	0.3	0.0	0.1	0.1	0.3	0.0	0.1	0.1	1.1	0.5	0.5
Nuclear	8.2	8.3	8.4	6.5	8.6	6.8	7.3	7.3	7.1	5.4	7.3	6.4	31.4	30.1	26.2
Conventional hydropower	1.8	1.9	1.8	2.2	2.3	2.0	1.8	2.1	2.1	1.8	1.7	2.0	7.8	8.1	7.6
Nonhydro renewables (d)	2.8	2.6	2.6	2.6	2.7	2.8	2.5	2.6	2.7	2.9	2.6	2.6	10.6	10.5	10.8
Other energy sources (e)	1.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	2.3	1.3	1.3
Total generation	25.1	23.4	29.6	23.2	24.8	22.1	26.6	25.4	25.1	22.6	27.5	24.6	101.3	98.9	99.8
Net energy for load (f)	30.2	27.3	34.5	29.0	29.7	26.0	32.6	28.4	30.4	27.2	32.2	28.3	120.9	116.8	118.1
New York (NYISO)															
Natural Gas	10.8	12.6	19.3	12.7	11.9	11.2	17.9	11.5	11.1	17.0	22.0	14.5	55.4	52.6	64.6
Coal	0.4	0.0	0.2	0.1	0.3	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.7	0.5	0.4
Nuclear	10.9	10.0	10.5	11.4	10.4	10.8	11.6	11.6	11.3	8.3	8.7	9.2	42.9	44.5	37.5
Conventional hydropower	7.4	7.8	7.6	8.1	7.7	7.6	7.5	7.1	7.1	6.8	7.2	7.0	30.8	29.9	28.1
Nonhydro renewables (d)	1.8	1.7	1.5	1.6	1.7	1.9	1.6	1.7	1.7	2.0	1.8	1.9	6.6	6.9	7.5
Other energy sources (e)	1.3	0.2	0.1	0.1	0.4	0.1	0.1	0.1	0.4	0.1	0.2	0.1	1.8	0.7	0.8
Total generation	32.6	32.3	39.3	34.0	32.5	31.6	38.9	32.2	31.7	34.3	39.9	32.8	138.2	135.1	138.7
Net energy for load (f)	38.2	36.5	46.1	36.9	37.7	34.7	44.1	36.5	38.1	36.1	43.2	36.5	157.8	153.0	153.9
Mid-Atlantic (PJM)															
Natural Gas	54.6	56.6	78.4	60.3	68.5	63.9	91.7	70.3	67.7	71.0	93.3	74.8	249.9	294.3	306.8
Coal	61.8	51.6	62.4	50.7	53.3	40.1	58.0	39.2	53.8	33.2	38.8	31.3	226.6	190.6	157.2
Nuclear	71.7	69.2	73.2	71.3	69.6	68.5	71.6	67.5	69.4	65.9	69.6	70.1	285.4	277.2	275.0
Conventional hydropower	2.4	2.7	2.6	3.4	3.3	2.8	2.6	3.0	3.0	2.6	2.4	2.9	11.2	11.7	11.0
Nonhydro renewables (d)	9.7	8.3	6.9	8.6	9.2	9.5	7.5	9.2	9.7	10.3	7.9	10.1	33.6	35.4	38.0
Other energy sources (e)	1.9	0.5	0.4	0.7	0.7	0.6	0.3	0.7	0.8	0.7	0.3	0.6	3.4	2.4	2.5
Total generation	202.1	189.0	223.9	195.1	204.6	185.5	227.4	190.0	204.4	183.6	212.5	189.9	810.1	807.4	790.5
Net energy for load (f)	200.0	184.4	217.2	188.1	197.0	174.8	214.4	181.3	198.1	174.0	206.0	180.4	789.6	767.5	758.5
Southeast (SERC)															
Natural Gas	55.7	59.0	76.1	55.7	56.0	59.4	76.7	59.4	59.4	63.5	76.2	62.4	246.5	251.4	261.6
Coal	44.3	45.0	53.9	42.3	35.1	38.0	53.9	32.3	36.8	35.8	43.1	28.8	185.5	159.4	144.5
Nuclear	52.0	50.7	53.5	48.5	52.3	52.8	53.7	53.3	52.0	49.5	54.1	53.0	204.8	212.1	208.6
Conventional hydropower	7.4	8.2	7.6	10.5	10.5	8.4	7.5	9.1	9.5	7.4	7.1	8.8	33.7	35.4	32.8
Nonhydro renewables (d)	2.7	3.8	3.7	2.5	2.8	4.0	4.1	2.5	3.2	5.3	5.7	3.3	12.7	13.4	17.6
Other energy sources (e)	0.4	-0.1	-0.5	-0.1	0.0	-0.2	-0.5	-0.1	0.0	-0.2	-0.4	-0.1	-0.3	-0.8	-0.7
Total generation	162.5	166.6	194.3	159.4	156.7	162.3	195.4	156.5	161.0	161.4	185.8	156.3	682.9	670.9	664.4
Net energy for load (f)	165.2	165.4	191.9	158.9	160.1	160.2	194.2	155.4	165.4	157.4	184.3	154.5	681.5	669.9	661.6
Florida (FRCC)															
Natural Gas	34.0	41.8	50.6	39.2	35.5	45.8	52.3	36.7	36.0	43.0	50.7	37.3	165.5	170.3	166.9
Coal	6.3	6.7	7.8	6.1	3.7	4.8	6.8	4.9	3.9	3.0	5.2	4.0	26.9	20.3	16.1
Nuclear	7.5	7.7	7.0	7.1	7.6	6.4	7.2	7.6	7.2	6.7	7.4	7.8	29.3	28.9	29.1
Conventional hydropower	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Nonhydro renewables (d)	1.3	1.3	1.3	1.3	1.5	1.7	1.5	1.4	1.9	2.3	2.3	1.8	5.2	6.2	8.4
Other energy sources (e)	1.0	0.8	1.1	0.7	0.8	0.8	1.0	0.6	0.8	0.8	1.0	0.6	3.5	3.2	3.2
Total generation	50.2	58.4	67.9	54.3	49.2	59.6	68.9	51.4	49.9	55.8	66.5	51.6	230.7	229.1	223.8
Net energy for load (f)	49.4	58.8	68.3	53.9	48.5	61.2	68.5	51.5	48.8	57.4	66.0	51.5	230.4	229.7	223.7

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

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

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

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

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

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

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

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

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

Projections: EIA Regional Short-Term Energy Model.

Table 7d part 2. U.S. Regional Electricity Generation, Electric Power Sector (billion kilowatthours), continued from Table 7d part 1
U.S. Energy Information Administration | Short-Term Energy Outlook - October 2019

	2018				2019				2020				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2018	2019	2020
Midwest (MISO)															
Natural Gas	34.0	41.7	49.4	30.7	35.1	40.8	55.7	41.2	35.6	43.4	54.6	43.8	155.8	172.8	177.3
Coal	82.5	77.8	93.6	80.7	77.5	61.1	75.7	60.2	75.4	56.3	72.7	52.4	334.6	274.6	256.8
Nuclear	26.4	22.9	25.7	23.3	25.3	23.2	27.0	25.8	26.9	22.2	26.8	24.9	98.3	101.2	100.7
Conventional hydropower	2.7	2.8	2.1	2.3	2.5	2.5	2.0	2.1	2.3	2.3	1.9	2.0	10.0	9.1	8.5
Nonhydro renewables (d)	18.1	15.0	11.9	16.0	17.3	17.5	13.5	17.8	20.5	20.8	16.5	21.4	61.0	66.1	79.2
Other energy sources (e)	2.0	1.7	1.9	1.7	1.9	1.4	2.1	1.8	2.1	1.6	2.1	1.9	7.2	7.3	7.7
Total generation	165.8	161.8	184.6	154.7	159.6	146.5	176.0	148.9	162.8	146.4	174.6	146.4	666.9	631.0	630.3
Net energy for load (f)	162.0	163.5	184.8	158.9	161.1	153.1	182.2	155.9	160.8	153.9	177.4	155.1	669.3	652.3	647.2
Central (Southwest Power Pool)															
Natural Gas	11.9	18.1	22.5	12.6	13.3	15.3	23.3	15.9	14.2	14.4	21.4	15.1	65.0	67.8	65.1
Coal	27.9	24.5	34.2	27.3	27.3	19.1	29.8	21.2	24.7	18.6	28.3	19.7	113.8	97.3	91.3
Nuclear	4.2	2.8	4.3	3.5	4.4	4.4	4.3	2.5	4.1	4.2	4.4	3.6	14.8	15.6	16.3
Conventional hydropower	4.0	4.3	3.1	3.6	3.8	3.8	2.9	3.1	3.4	3.3	2.8	3.0	14.9	13.6	12.5
Nonhydro renewables (d)	18.7	18.5	13.1	16.6	18.1	18.4	16.6	19.2	20.3	20.5	17.3	21.0	66.9	72.4	79.0
Other energy sources (e)	0.2	0.2	0.1	0.2	0.2	0.3	0.1	0.2	0.2	0.3	0.1	0.2	0.8	0.9	0.8
Total generation	66.9	68.3	77.3	63.7	67.1	61.3	77.1	62.1	67.0	61.2	74.2	62.6	276.1	267.6	265.1
Net energy for load (f)	60.1	63.9	74.0	58.9	60.4	58.8	74.3	57.5	60.5	59.3	71.8	57.9	256.8	251.1	249.5
Texas (ERCOT)															
Natural Gas	33.6	41.2	56.9	34.3	34.0	42.6	61.7	39.4	31.1	39.1	54.5	36.1	166.1	177.7	160.8
Coal	18.6	22.0	26.4	22.6	18.1	18.3	24.8	15.1	15.7	17.5	21.6	13.1	89.6	76.4	67.9
Nuclear	10.8	10.2	10.9	9.3	10.4	9.8	11.0	10.2	11.2	8.8	11.0	10.4	41.2	41.4	41.5
Conventional hydropower	0.2	0.3	0.2	0.4	0.4	0.3	0.2	0.4	0.4	0.2	0.2	0.3	1.1	1.3	1.2
Nonhydro renewables (d)	19.4	21.9	15.0	17.5	19.5	21.9	18.7	20.2	24.5	28.4	23.6	25.3	73.7	80.2	101.7
Other energy sources (e)	0.3	0.4	0.0	0.3	0.4	0.4	0.0	0.3	0.4	0.4	0.0	0.3	1.0	1.1	1.1
Total generation	83.0	95.9	109.5	84.4	82.8	93.3	116.4	85.6	83.3	94.4	110.8	85.6	372.8	378.1	374.1
Net energy for load (f)	83.0	95.9	109.5	84.4	82.8	93.3	116.4	85.6	83.3	94.4	110.8	85.6	372.8	378.1	374.1
Northwest															
Natural Gas	17.4	16.2	28.7	19.4	20.9	17.0	29.4	18.5	17.9	13.3	25.3	18.4	81.7	85.7	74.8
Coal	25.2	20.0	30.8	30.5	29.7	18.0	30.3	24.4	22.8	22.2	31.7	23.9	106.6	102.4	100.6
Nuclear	2.5	2.1	2.5	2.5	2.5	1.3	2.5	2.5	2.5	2.3	2.3	2.5	9.7	8.8	9.6
Conventional hydropower	43.6	45.2	27.9	27.6	30.9	37.0	28.4	31.8	38.2	41.5	31.0	32.7	144.3	128.2	143.4
Nonhydro renewables (d)	12.5	12.7	10.7	10.6	10.6	13.5	11.7	11.4	11.4	14.0	12.4	13.6	46.5	47.5	51.3
Other energy sources (e)	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	1.0	1.0	1.0
Total generation	101.5	96.5	101.0	90.9	94.7	87.1	102.7	89.1	93.0	93.6	102.9	91.3	389.8	373.6	380.8
Net energy for load (f)	88.9	82.7	91.6	86.3	90.9	81.2	90.2	86.1	87.8	81.2	91.1	86.1	349.5	348.4	346.3
Southwest															
Natural Gas	6.1	10.9	18.2	12.2	10.5	12.6	17.6	10.5	10.0	13.1	20.3	11.8	47.4	51.2	55.2
Coal	9.3	8.9	12.9	11.7	9.7	7.9	12.4	9.9	6.2	6.1	8.9	7.7	42.9	39.8	28.9
Nuclear	8.5	7.3	8.5	6.8	8.6	7.6	8.6	7.8	8.7	7.4	8.6	7.7	31.1	32.6	32.4
Conventional hydropower	2.9	4.0	3.6	2.4	3.0	4.3	3.7	2.1	2.8	3.7	3.4	2.0	13.0	13.0	11.9
Nonhydro renewables (d)	2.1	2.8	2.3	2.0	2.1	2.9	2.6	2.2	2.3	3.0	2.7	2.4	9.1	9.8	10.4
Other energy sources (e)	0.0	0.0	0.0	0.0	-0.1	0.0	0.1	-0.1	-0.1	0.0	0.0	-0.1	0.0	0.0	0.0
Total generation	28.9	34.0	45.6	35.1	33.9	35.3	44.9	32.4	30.0	33.4	43.9	31.6	143.5	146.5	138.8
Net energy for load (f)	22.5	28.8	35.3	23.6	23.2	26.4	35.6	23.5	22.9	27.4	34.9	23.7	110.2	108.8	108.9
California															
Natural Gas	17.1	13.1	27.9	23.0	18.6	10.9	22.5	26.9	19.4	8.3	23.5	25.7	81.0	79.0	76.9
Coal	1.9	1.3	2.5	2.8	2.2	1.2	2.0	2.4	2.0	1.3	2.1	2.3	8.5	7.8	7.7
Nuclear	3.7	4.9	4.9	4.7	3.8	4.9	4.7	4.2	4.8	4.9	4.3	4.4	18.2	17.6	18.5
Conventional hydropower	3.8	7.6	6.7	3.3	7.0	12.2	7.7	3.2	6.7	10.8	7.5	3.1	21.4	30.1	28.0
Nonhydro renewables (d)	13.8	18.3	16.4	12.8	13.6	19.1	17.4	13.6	14.2	19.3	18.4	13.8	61.3	63.6	65.7
Other energy sources (e)	0.0	0.1	0.1	-0.1	-0.2	0.2	0.1	-0.1	-0.2	0.2	0.1	-0.1	0.1	0.0	0.0
Total generation	40.2	45.3	58.6	46.6	45.0	48.6	54.4	50.1	46.9	44.8	55.9	49.3	190.6	198.0	196.9
Net energy for load (f)	59.2	64.2	78.3	62.7	59.5	63.3	76.1	62.0	59.1	63.2	76.7	62.3	264.3	260.9	261.2

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

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

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

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

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

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

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

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

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

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 - October 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	0.037	0.039	0.039	0.038	0.037	0.038	<i>0.041</i>	<i>0.039</i>	<i>0.036</i>	<i>0.039</i>	<i>0.039</i>	0.154	<i>0.154</i>	<i>0.153</i>
Hydroelectric Power (a)	0.706	0.787	0.587	0.592	0.660	0.751	0.595	<i>0.593</i>	<i>0.699</i>	<i>0.746</i>	<i>0.605</i>	<i>0.592</i>	2.673	<i>2.599</i>	<i>2.642</i>
Solar (b)	0.116	0.192	0.186	0.113	0.124	0.205	0.210	<i>0.133</i>	<i>0.152</i>	<i>0.246</i>	<i>0.269</i>	<i>0.170</i>	0.607	<i>0.672</i>	<i>0.837</i>
Waste Biomass (c)	0.073	0.070	0.067	0.069	0.066	0.065	0.063	<i>0.062</i>	<i>0.062</i>	<i>0.065</i>	<i>0.063</i>	<i>0.060</i>	0.280	<i>0.257</i>	<i>0.250</i>
Wood Biomass	0.057	0.052	0.055	0.051	0.054	0.051	0.043	<i>0.033</i>	<i>0.046</i>	<i>0.049</i>	<i>0.045</i>	<i>0.030</i>	0.215	<i>0.181</i>	<i>0.170</i>
Wind	0.720	0.688	0.493	0.630	0.683	0.737	0.590	<i>0.715</i>	<i>0.787</i>	<i>0.842</i>	<i>0.657</i>	<i>0.822</i>	2.530	<i>2.725</i>	<i>3.107</i>
Subtotal	1.711	1.828	1.427	1.494	1.625	1.846	1.539	<i>1.577</i>	<i>1.785</i>	<i>1.984</i>	<i>1.676</i>	<i>1.714</i>	6.459	<i>6.588</i>	<i>7.159</i>
Industrial Sector															
Biofuel Losses and Co-products (d)	0.202	0.204	0.211	0.206	0.194	0.203	0.198	<i>0.203</i>	<i>0.199</i>	<i>0.202</i>	<i>0.202</i>	<i>0.205</i>	0.823	<i>0.798</i>	<i>0.808</i>
Geothermal	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	<i>0.001</i>	0.004	<i>0.004</i>	<i>0.004</i>
Hydroelectric Power (a)	0.003	0.003	0.003	0.003	0.002	0.002	0.003	<i>0.003</i>	<i>0.002</i>	<i>0.002</i>	<i>0.003</i>	<i>0.003</i>	0.013	<i>0.011</i>	<i>0.011</i>
Solar (b)	0.005	0.007	0.008	0.005	0.006	0.009	0.009	<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	0.043	0.039	0.040	<i>0.042</i>	<i>0.042</i>	<i>0.040</i>	<i>0.040</i>	<i>0.042</i>	0.168	<i>0.165</i>	<i>0.164</i>
Wood Biomass	0.382	0.382	0.389	0.388	0.371	0.367	0.365	<i>0.356</i>	<i>0.342</i>	<i>0.338</i>	<i>0.349</i>	<i>0.351</i>	1.540	<i>1.460</i>	<i>1.380</i>
Subtotal	0.637	0.635	0.648	0.648	0.616	0.618	0.611	<i>0.611</i>	<i>0.591</i>	<i>0.588</i>	<i>0.600</i>	<i>0.606</i>	2.567	<i>2.456</i>	<i>2.385</i>
Commercial Sector															
Geothermal	0.005	0.005	0.005	0.005	0.006	0.006	0.005	<i>0.006</i>	<i>0.006</i>	<i>0.006</i>	<i>0.006</i>	<i>0.006</i>	0.020	<i>0.023</i>	<i>0.023</i>
Solar (b)	0.019	0.028	0.029	0.019	0.022	0.033	0.033	<i>0.024</i>	<i>0.028</i>	<i>0.040</i>	<i>0.040</i>	<i>0.029</i>	0.096	<i>0.112</i>	<i>0.137</i>
Waste Biomass (c)	0.011	0.011	0.010	0.011	0.011	0.009	0.010	<i>0.011</i>	<i>0.011</i>	<i>0.009</i>	<i>0.010</i>	<i>0.011</i>	0.044	<i>0.041</i>	<i>0.041</i>
Wood Biomass	0.021	0.021	0.021	0.021	0.021	0.021	0.022	<i>0.021</i>	<i>0.021</i>	<i>0.020</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	0.064	0.067	0.075	0.078	<i>0.068</i>	<i>0.071</i>	<i>0.082</i>	<i>0.085</i>	<i>0.073</i>	0.271	<i>0.288</i>	<i>0.311</i>
Residential Sector															
Geothermal	0.010	0.010	0.010	0.010	0.010	0.010	0.010	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	<i>0.010</i>	0.040	<i>0.040</i>	<i>0.040</i>
Solar (e)	0.044	0.067	0.067	0.046	0.051	0.077	0.079	<i>0.055</i>	<i>0.060</i>	<i>0.092</i>	<i>0.094</i>	<i>0.066</i>	0.224	<i>0.263</i>	<i>0.312</i>
Wood Biomass	0.128	0.129	0.130	0.130	0.131	0.132	0.131	<i>0.130</i>	<i>0.131</i>	<i>0.132</i>	<i>0.131</i>	<i>0.130</i>	0.517	<i>0.525</i>	<i>0.525</i>
Subtotal	0.181	0.206	0.207	0.186	0.191	0.219	0.221	<i>0.196</i>	<i>0.200</i>	<i>0.234</i>	<i>0.236</i>	<i>0.206</i>	0.780	<i>0.827</i>	<i>0.876</i>
Transportation Sector															
Biomass-based Diesel (f)	0.052	0.070	0.071	0.063	0.058	0.071	0.069	<i>0.085</i>	<i>0.072</i>	<i>0.085</i>	<i>0.078</i>	<i>0.082</i>	0.256	<i>0.284</i>	<i>0.317</i>
Ethanol (f)	0.272	0.289	0.294	0.290	0.275	0.293	0.287	<i>0.287</i>	<i>0.273</i>	<i>0.292</i>	<i>0.293</i>	<i>0.289</i>	1.145	<i>1.142</i>	<i>1.145</i>
Subtotal	0.325	0.359	0.365	0.353	0.333	0.365	0.352	<i>0.372</i>	<i>0.345</i>	<i>0.376</i>	<i>0.370</i>	<i>0.371</i>	1.401	<i>1.422</i>	<i>1.462</i>
All Sectors Total															
Biomass-based Diesel (f)	0.052	0.070	0.071	0.063	0.058	0.071	0.069	<i>0.085</i>	<i>0.072</i>	<i>0.085</i>	<i>0.078</i>	<i>0.082</i>	0.256	<i>0.284</i>	<i>0.317</i>
Biofuel Losses and Co-products (d)	0.202	0.204	0.211	0.206	0.194	0.203	0.198	<i>0.203</i>	<i>0.199</i>	<i>0.202</i>	<i>0.202</i>	<i>0.205</i>	0.823	<i>0.798</i>	<i>0.808</i>
Ethanol (f)	0.283	0.300	0.305	0.301	0.285	0.305	0.298	<i>0.298</i>	<i>0.283</i>	<i>0.303</i>	<i>0.304</i>	<i>0.300</i>	1.188	<i>1.185</i>	<i>1.189</i>
Geothermal	0.054	0.053	0.055	0.055	0.055	0.054	0.054	<i>0.058</i>	<i>0.056</i>	<i>0.052</i>	<i>0.055</i>	<i>0.056</i>	0.218	<i>0.221</i>	<i>0.220</i>
Hydroelectric Power (a)	0.710	0.791	0.590	0.596	0.663	0.754	0.598	<i>0.597</i>	<i>0.702</i>	<i>0.749</i>	<i>0.608</i>	<i>0.596</i>	2.688	<i>2.612</i>	<i>2.655</i>
Solar (b)(e)	0.184	0.295	0.289	0.184	0.202	0.323	0.331	<i>0.218</i>	<i>0.245</i>	<i>0.387</i>	<i>0.414</i>	<i>0.272</i>	0.951	<i>1.075</i>	<i>1.319</i>
Waste Biomass (c)	0.128	0.122	0.117	0.125	0.120	0.114	0.113	<i>0.116</i>	<i>0.114</i>	<i>0.115</i>	<i>0.113</i>	<i>0.113</i>	0.492	<i>0.462</i>	<i>0.455</i>
Wood Biomass	0.587	0.584	0.596	0.590	0.577	0.570	0.562	<i>0.540</i>	<i>0.540</i>	<i>0.539</i>	<i>0.547</i>	<i>0.532</i>	2.357	<i>2.249</i>	<i>2.158</i>
Wind	0.720	0.688	0.493	0.630	0.683	0.737	0.590	<i>0.715</i>	<i>0.787</i>	<i>0.842</i>	<i>0.657</i>	<i>0.822</i>	2.530	<i>2.725</i>	<i>3.107</i>
Total Consumption	2.916	3.100	2.719	2.744	2.832	3.123	2.749	<i>2.824</i>	<i>2.992</i>	<i>3.264</i>	<i>2.967</i>	<i>2.971</i>	11.479	<i>11.528</i>	<i>12.194</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 - October 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	7,248	7,221	7,192	7,133	6,968	6,934	6,949	6,978	6,978	6,912	6,912	6,956	7,133	6,978	6,956
Waste	4,210	4,182	4,171	4,168	4,133	4,114	4,102	4,131	4,131	4,065	4,065	4,067	4,168	4,131	4,067
Wood	3,039	3,039	3,020	2,965	2,835	2,820	2,847	2,847	2,847	2,847	2,847	2,889	2,965	2,847	2,889
Conventional Hydroelectric	79,506	79,467	79,465	79,583	79,471	79,587	79,434	79,411	79,568	79,580	79,695	79,790	79,583	79,411	79,790
Geothermal	2,392	2,392	2,392	2,395	2,391	2,399	2,399	2,399	2,399	2,399	2,489	2,514	2,395	2,399	2,514
Large-Scale Solar (b)	27,997	28,854	29,385	31,510	32,581	33,039	34,494	37,320	38,919	42,556	43,775	49,181	31,510	37,320	49,181
Wind	88,643	89,092	89,801	94,273	96,442	97,993	100,130	106,241	107,845	108,854	110,940	120,972	94,273	106,241	120,972
Other Sectors (c)															
Biomass	6,682	6,676	6,664	6,663	6,596	6,545	6,553	6,537	6,575	6,575	6,575	6,567	6,663	6,537	6,567
Waste	850	849	845	845	845	846	846	862	862	862	862	862	845	862	862
Wood	5,832	5,827	5,819	5,819	5,751	5,699	5,707	5,675	5,713	5,713	5,713	5,705	5,819	5,675	5,705
Conventional Hydroelectric	284	284	284	284	290	290	290	290	290	290	290	290	284	290	290
Large-Scale Solar (b)	358	365	372	378	381	387	397	403	403	405	405	406	378	403	406
Small-Scale Solar (d)	17,048	17,887	18,712	19,521	20,585	21,286	22,356	23,513	24,760	26,078	27,483	28,976	19,521	23,513	28,976
Residential Sector	10,155	10,660	11,179	11,664	12,440	12,865	13,593	14,348	15,175	16,053	16,999	18,011	11,664	14,348	18,011
Commercial Sector	5,501	5,778	6,026	6,286	6,533	6,707	7,021	7,358	7,713	8,085	8,475	8,885	6,286	7,358	8,885
Industrial Sector	1,391	1,449	1,507	1,571	1,612	1,714	1,742	1,806	1,872	1,940	2,009	2,080	1,571	1,806	2,080
Wind	115	112	118	118	118	118	127	127	127	127	127	127	118	127	127
Renewable Electricity Generation (billion kilowatthours)															
Electric Power Sector (a)															
Biomass	8.3	7.7	7.9	7.6	7.5	7.3	6.9	6.0	6.9	7.2	6.8	5.8	31.4	27.7	26.7
Waste	4.6	4.5	4.4	4.5	4.2	4.3	4.1	4.0	4.0	4.2	4.1	3.9	18.1	16.7	16.3
Wood	3.6	3.2	3.4	3.1	3.3	3.1	2.7	2.0	2.8	3.0	2.7	1.8	13.3	11.0	10.4
Conventional Hydroelectric	76.7	85.4	63.7	64.3	71.6	81.5	64.7	64.4	75.9	80.9	65.6	64.3	290.1	282.2	286.7
Geothermal	4.1	4.0	4.3	4.2	4.1	4.0	4.1	4.5	4.3	3.9	4.2	4.3	16.7	16.7	16.6
Large-Scale Solar (b)	12.6	20.9	20.2	12.2	13.4	22.3	22.8	14.4	16.5	26.7	29.2	18.5	65.9	73.0	90.8
Wind	78.2	74.7	53.5	68.4	74.2	80.0	64.4	77.6	85.4	91.4	71.3	89.2	274.7	296.2	337.3
Other Sectors (c)															
Biomass	7.9	7.8	7.9	7.7	7.5	7.2	7.8	7.7	7.5	7.2	7.8	7.7	31.3	30.2	30.3
Waste	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.7	0.8	0.8	3.3	3.1	3.1
Wood	7.0	7.0	7.1	6.9	6.7	6.5	7.0	6.9	6.7	6.5	7.0	6.9	28.1	27.1	27.2
Conventional Hydroelectric	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.4	1.6	1.4	1.4
Large-Scale Solar (b)	0.1	0.2	0.2	0.1	0.1	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.7	0.8	1.1
Small-Scale Solar (d)	5.8	8.8	8.8	6.1	7.0	10.5	10.8	7.6	8.5	12.9	13.2	9.3	29.5	35.9	43.8
Residential Sector	3.3	5.1	5.1	3.5	4.1	6.3	6.4	4.5	5.1	7.8	8.0	5.7	17.1	21.3	26.5
Commercial Sector	2.0	2.9	2.9	2.0	2.3	3.4	3.4	2.4	2.7	4.0	4.1	2.9	9.8	11.4	13.7
Industrial Sector	0.5	0.8	0.8	0.6	0.6	0.9	0.9	0.7	0.7	1.0	1.1	0.8	2.6	3.1	3.6
Wind	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.4

-- = 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 - October 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)	18,438	18,598	18,733	18,784	18,927	19,023	19,121	19,212	19,308	19,421	19,524	19,615	18,638	19,071	19,467
Real Personal Consumption Expend. (billion chained 2012 dollars - SAAR)	12,783	12,909	13,020	13,066	13,103	13,253	13,376	13,460	13,542	13,621	13,704	13,787	12,945	13,298	13,663
Real Private Fixed Investment (billion chained 2012 dollars - SAAR)	3,254	3,295	3,301	3,323	3,349	3,340	3,328	3,362	3,390	3,396	3,406	3,422	3,293	3,345	3,404
Business Inventory Change (billion chained 2012 dollars - SAAR)	41	-10	87	100	113	75	75	41	-38	2	45	49	55	76	14
Real Government Expenditures (billion chained 2012 dollars - SAAR)	3,201	3,221	3,238	3,235	3,258	3,294	3,295	3,301	3,322	3,350	3,356	3,360	3,224	3,287	3,347
Real Exports of Goods & Services (billion chained 2012 dollars - SAAR)	2,524	2,560	2,519	2,529	2,554	2,516	2,519	2,531	2,613	2,620	2,624	2,649	2,533	2,530	2,627
Real Imports of Goods & Services (billion chained 2012 dollars - SAAR)	3,408	3,410	3,482	3,512	3,498	3,499	3,519	3,536	3,581	3,630	3,678	3,720	3,453	3,513	3,652
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	14,400	14,496	14,613	14,715	14,878	14,970	15,060	15,156	15,211	15,294	15,377	15,462	14,556	15,016	15,336
Non-Farm Employment (millions)	148.0	148.7	149.4	150.1	150.7	151.1	151.6	152.0	152.5	153.2	153.3	153.6	149.1	151.3	153.2
Civilian Unemployment Rate (percent)	4.1	3.9	3.8	3.8	3.9	3.6	3.7	3.5	3.6	3.5	3.6	3.6	3.9	3.7	3.6
Housing Starts (millions - SAAR)	1.32	1.26	1.23	1.19	1.21	1.26	1.26	1.23	1.24	1.23	1.23	1.23	1.25	1.24	1.23
Industrial Production Indices (Index, 2012=100)															
Total Industrial Production	106.7	107.9	109.3	110.3	109.8	109.2	109.4	108.8	109.3	109.4	109.8	110.2	108.6	109.3	109.7
Manufacturing	104.8	105.5	106.6	107.0	106.5	105.7	105.9	105.1	105.5	105.8	106.3	106.7	106.0	105.8	106.1
Food	113.3	114.3	114.9	113.2	115.1	115.3	115.1	115.8	116.2	116.6	117.1	117.6	113.9	115.3	116.8
Paper	96.0	95.9	96.0	96.0	94.2	91.8	91.2	90.4	90.0	89.5	89.1	88.9	96.0	91.9	89.4
Petroleum and Coal Products	106.7	106.8	107.5	106.7	106.3	104.7	105.6	104.2	104.0	104.0	104.0	104.1	106.9	105.2	104.0
Chemicals	98.4	100.2	101.3	101.8	101.4	99.9	99.6	99.6	100.1	100.5	101.1	101.8	100.4	100.1	100.9
Nonmetallic Mineral Products	119.1	120.4	119.0	119.9	119.7	119.1	118.6	117.9	118.0	117.7	117.6	117.6	119.6	118.8	117.7
Primary Metals	95.8	96.2	97.5	100.7	97.9	96.8	95.4	93.8	92.9	91.6	90.7	90.0	97.6	96.0	91.3
Coal-weighted Manufacturing (a)	103.6	104.7	105.3	106.0	105.0	103.6	103.0	102.2	101.9	101.6	101.4	101.4	104.9	103.4	101.6
Distillate-weighted Manufacturing (a)	111.3	111.8	112.2	112.0	111.6	111.0	110.9	110.1	110.0	109.8	109.7	109.7	111.8	110.9	109.8
Electricity-weighted Manufacturing (a)	104.5	105.4	106.5	107.1	106.3	105.2	104.8	103.8	103.8	103.7	103.8	104.0	105.9	105.0	103.8
Natural Gas-weighted Manufacturing (a)	104.3	105.8	106.8	107.0	106.0	105.1	104.7	103.8	103.8	103.8	103.9	104.3	106.0	104.9	104.0
Price Indexes															
Consumer Price Index (all urban consumers) (index, 1982-1984=1.00)	2.49	2.51	2.52	2.53	2.53	2.55	2.56	2.58	2.60	2.61	2.63	2.64	2.51	2.56	2.62
Producer Price Index: All Commodities (index, 1982=1.00)	2.00	2.01	2.03	2.04	2.01	2.00	1.99	2.00	2.01	2.01	2.02	2.02	2.02	2.00	2.02
Producer Price Index: Petroleum (index, 1982=1.00)	1.98	2.22	2.26	2.10	1.81	2.08	1.98	1.80	1.73	1.77	1.84	1.84	2.14	1.92	1.79
GDP Implicit Price Deflator (index, 2012=100)	109.3	110.2	110.8	111.2	111.5	112.2	112.8	113.7	114.5	115.2	116.0	116.7	110.4	112.5	115.6
Miscellaneous															
Vehicle Miles Traveled (b) (million miles/day)	8,198	9,192	9,115	8,810	8,238	9,288	9,250	8,922	8,384	9,399	9,336	9,021	8,831	8,927	9,036
Air Travel Capacity (Available ton-miles/day, thousands)	603	664	667	661	643	685	684	660	641	675	684	662	649	668	665
Aircraft Utilization (Revenue ton-miles/day, thousands)	368	414	418	394	380	426	435	417	398	433	440	419	398	415	423
Airline Ticket Price Index (index, 1982-1984=100)	262.8	277.9	259.7	259.3	255.7	278.3	255.5	257.4	274.9	304.5	279.1	280.0	264.9	261.8	284.6
Raw Steel Production (million short tons per day)	0.251	0.253	0.263	0.270	0.273	0.271	0.264	0.255	0.258	0.257	0.247	0.252	0.259	0.266	0.253
Carbon Dioxide (CO2) Emissions (million metric tons)															
Petroleum	580	591	599	600	575	587	594	596	579	582	590	595	2,370	2,352	2,345
Natural Gas	478	349	370	431	504	347	384	447	506	359	382	449	1,629	1,681	1,696
Coal	307	287	355	310	289	240	324	245	273	226	284	219	1,259	1,098	1,001
Total Energy (c)	1,368	1,230	1,327	1,344	1,370	1,176	1,305	1,291	1,360	1,169	1,259	1,265	5,269	5,142	5,054

- = 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 - October 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	977	977	985	986	992	997	1,001	1,006	1,010	1,016	1,020	1,025	981	999	1,018
Middle Atlantic	2,737	2,761	2,778	2,778	2,800	2,815	2,827	2,844	2,855	2,868	2,878	2,887	2,764	2,822	2,872
E. N. Central	2,498	2,506	2,529	2,531	2,549	2,557	2,567	2,576	2,586	2,595	2,602	2,610	2,516	2,562	2,598
W. N. Central	1,157	1,174	1,177	1,178	1,186	1,190	1,195	1,200	1,203	1,208	1,214	1,219	1,172	1,193	1,211
S. Atlantic	3,279	3,301	3,337	3,342	3,365	3,382	3,400	3,417	3,436	3,460	3,482	3,504	3,315	3,391	3,470
E. S. Central	817	825	830	831	836	839	843	846	849	853	857	861	826	841	855
W. S. Central	2,239	2,259	2,272	2,296	2,323	2,337	2,352	2,369	2,382	2,400	2,417	2,431	2,267	2,345	2,407
Mountain	1,205	1,215	1,229	1,235	1,246	1,255	1,263	1,272	1,279	1,288	1,297	1,305	1,221	1,259	1,292
Pacific	3,562	3,613	3,629	3,639	3,664	3,686	3,707	3,718	3,741	3,769	3,791	3,809	3,611	3,694	3,778
Industrial Output, Manufacturing (Index, Year 2012=100)															
New England	98.8	99.2	99.7	99.5	98.9	97.2	97.1	96.4	96.5	96.6	97.0	97.3	99.3	97.4	96.9
Middle Atlantic	98.6	99.0	99.6	99.8	98.8	97.3	97.2	96.5	96.7	96.8	97.2	97.4	99.3	97.5	97.0
E. N. Central	107.6	108.2	109.2	109.3	108.7	107.2	107.3	106.3	106.7	106.8	107.1	107.5	108.6	107.4	107.0
W. N. Central	104.2	104.9	106.2	106.7	106.1	105.2	105.3	104.6	105.0	105.3	105.9	106.3	105.5	105.3	105.6
S. Atlantic	108.8	109.7	110.7	110.9	110.6	110.3	110.4	109.7	110.0	110.3	110.8	111.2	110.0	110.2	110.6
E. S. Central	109.8	110.2	111.2	111.7	111.4	110.3	110.6	109.9	110.2	110.4	110.9	111.3	110.7	110.5	110.7
W. S. Central	98.7	99.7	100.9	101.6	101.5	101.2	101.5	101.0	101.4	101.8	102.5	103.0	100.2	101.3	102.2
Mountain	112.2	113.5	115.3	116.4	116.1	116.5	116.8	116.2	116.6	117.2	118.0	118.7	114.3	116.4	117.6
Pacific	104.5	105.1	105.7	106.4	106.0	105.6	105.8	105.0	105.3	105.6	106.3	106.8	105.4	105.6	106.0
Real Personal Income (Billion \$2009)															
New England	873	872	878	879	890	897	901	905	908	913	918	922	875	898	915
Middle Atlantic	2,255	2,267	2,282	2,279	2,306	2,322	2,331	2,340	2,348	2,359	2,370	2,380	2,271	2,325	2,365
E. N. Central	2,382	2,384	2,402	2,411	2,444	2,459	2,468	2,481	2,490	2,500	2,510	2,521	2,395	2,463	2,505
W. N. Central	1,103	1,113	1,115	1,127	1,139	1,146	1,151	1,167	1,166	1,168	1,172	1,178	1,114	1,151	1,171
S. Atlantic	3,111	3,123	3,157	3,174	3,226	3,251	3,269	3,291	3,308	3,332	3,355	3,379	3,141	3,259	3,344
E. S. Central	873	877	883	887	900	905	909	916	918	922	925	930	880	907	924
W. S. Central	1,901	1,913	1,927	1,938	1,966	1,983	1,994	2,009	2,019	2,031	2,043	2,057	1,920	1,988	2,037
Mountain	1,115	1,120	1,133	1,145	1,164	1,174	1,182	1,190	1,197	1,206	1,214	1,223	1,128	1,177	1,210
Pacific	2,701	2,724	2,741	2,765	2,804	2,831	2,847	2,861	2,874	2,894	2,912	2,930	2,733	2,836	2,902
Households (Thousands)															
New England	5,914	5,926	5,944	5,955	5,965	5,971	5,983	5,993	6,003	6,014	6,022	6,030	5,955	5,993	6,030
Middle Atlantic	16,210	16,249	16,300	16,330	16,355	16,368	16,396	16,422	16,447	16,477	16,497	16,520	16,330	16,422	16,520
E. N. Central	19,003	19,037	19,090	19,121	19,149	19,169	19,203	19,235	19,265	19,309	19,341	19,375	19,121	19,235	19,375
W. N. Central	8,604	8,627	8,658	8,680	8,701	8,718	8,742	8,764	8,785	8,809	8,829	8,850	8,680	8,764	8,850
S. Atlantic	25,469	25,561	25,679	25,771	25,862	25,945	26,042	26,134	26,227	26,329	26,417	26,507	25,771	26,134	26,507
E. S. Central	7,626	7,641	7,665	7,682	7,699	7,714	7,734	7,753	7,771	7,791	7,808	7,826	7,682	7,753	7,826
W. S. Central	14,686	14,731	14,793	14,843	14,891	14,936	14,991	15,044	15,098	15,156	15,208	15,262	14,843	15,044	15,262
Mountain	9,244	9,292	9,349	9,394	9,437	9,475	9,519	9,560	9,601	9,645	9,684	9,724	9,394	9,560	9,724
Pacific	18,859	18,903	18,966	19,010	19,055	19,094	19,150	19,202	19,256	19,314	19,364	19,417	19,010	19,202	19,417
Total Non-farm Employment (Millions)															
New England	7.4	7.4	7.5	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.6	7.6	7.5	7.5	7.6
Middle Atlantic	19.7	19.8	19.9	19.9	20.0	20.0	20.1	20.1	20.2	20.2	20.2	20.3	19.8	20.1	20.2
E. N. Central	22.1	22.2	22.2	22.3	22.4	22.4	22.4	22.5	22.5	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	10.8	10.8	10.9	10.9	10.9	10.9	10.9	10.7	10.8	10.9
S. Atlantic	28.5	28.6	28.7	28.9	29.1	29.1	29.2	29.3	29.4	29.6	29.7	29.7	28.7	29.2	29.6
E. S. Central	8.1	8.2	8.2	8.2	8.3	8.3	8.3	8.3	8.4	8.4	8.4	8.4	8.2	8.3	8.4
W. S. Central	17.3	17.4	17.5	17.6	17.6	17.7	17.8	17.9	18.0	18.1	18.1	18.2	17.4	17.8	18.1
Mountain	10.7	10.8	10.9	10.9	11.0	11.1	11.1	11.2	11.2	11.3	11.3	11.4	10.8	11.1	11.3
Pacific	23.3	23.4	23.5	23.6	23.7	23.9	24.0	24.0	24.1	24.2	24.3	24.3	23.5	23.9	24.2

- = 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 - October 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	3,052	906	70	2,305	3,226	898	144	2,151	3,151	852	130	2,097	6,333	6,420	6,230
Middle Atlantic	2,940	755	37	2,049	2,985	628	52	1,975	2,921	679	81	1,921	5,781	5,640	5,603
E. N. Central	3,210	825	60	2,338	3,330	763	68	2,235	3,146	720	122	2,171	6,434	6,396	6,159
W. N. Central	3,421	828	120	2,601	3,646	772	102	2,423	3,231	698	160	2,358	6,969	6,943	6,447
South Atlantic	1,443	219	2	966	1,336	127	3	971	1,414	187	13	937	2,630	2,437	2,550
E. S. Central	1,820	325	3	1,341	1,720	195	2	1,315	1,825	238	20	1,268	3,489	3,233	3,351
W. S. Central	1,194	142	3	911	1,209	90	0	791	1,159	81	4	790	2,248	2,090	2,035
Mountain	2,121	600	123	1,958	2,430	787	101	1,814	2,208	692	150	1,805	4,802	5,131	4,855
Pacific	1,438	542	84	1,101	1,690	576	84	1,202	1,498	565	89	1,190	3,165	3,553	3,341
U.S. Average	2,130	522	48	1,578	2,211	480	52	1,524	2,112	477	74	1,487	4,278	4,267	4,150
Heating Degree Days, Prior 10-year Average															
New England	3,172	817	119	2,121	3,166	820	111	2,122	3,152	823	105	2,115	6,229	6,219	6,196
Middle Atlantic	2,947	646	81	1,949	2,956	650	76	1,941	2,948	643	68	1,935	5,623	5,623	5,595
E. N. Central	3,209	692	116	2,210	3,196	697	112	2,199	3,198	698	102	2,193	6,228	6,203	6,192
W. N. Central	3,264	705	144	2,379	3,255	702	140	2,380	3,287	702	131	2,367	6,492	6,477	6,487
South Atlantic	1,476	177	12	974	1,480	176	11	963	1,459	169	10	957	2,639	2,631	2,594
E. S. Central	1,868	217	18	1,301	1,862	222	17	1,293	1,851	215	15	1,282	3,404	3,393	3,363
W. S. Central	1,181	80	4	801	1,183	85	4	807	1,199	83	3	788	2,066	2,079	2,072
Mountain	2,194	737	144	1,841	2,164	714	139	1,855	2,192	718	133	1,829	4,916	4,873	4,872
Pacific	1,465	592	84	1,182	1,444	582	83	1,174	1,456	580	84	1,163	3,322	3,282	3,284
U.S. Average	2,160	478	71	1,524	2,150	475	68	1,518	2,149	472	64	1,505	4,233	4,211	4,190
Cooling Degree Days															
New England	0	81	580	0	0	66	470	1	0	87	413	2	660	537	501
Middle Atlantic	0	175	707	4	0	146	627	4	0	157	538	5	886	777	700
E. N. Central	0	332	638	4	0	174	649	6	0	220	533	7	973	830	761
W. N. Central	2	440	686	6	0	222	742	10	3	265	659	11	1,134	975	938
South Atlantic	135	725	1,266	279	153	756	1,302	229	121	648	1,153	233	2,406	2,439	2,156
E. S. Central	36	649	1,160	80	27	544	1,211	62	27	517	1,040	66	1,925	1,844	1,650
W. S. Central	125	1,004	1,563	165	72	820	1,692	201	86	861	1,488	199	2,857	2,786	2,635
Mountain	21	508	1,000	51	10	341	995	77	17	426	930	78	1,580	1,422	1,451
Pacific	31	182	720	72	21	164	614	58	27	170	588	58	1,006	857	844
U.S. Average	51	477	958	98	45	398	958	92	43	399	849	93	1,584	1,493	1,384
Cooling Degree Days, Prior 10-year Average															
New England	0	81	433	1	0	79	455	1	0	82	470	1	515	535	554
Middle Atlantic	0	166	566	5	0	165	589	6	0	170	609	6	738	760	785
E. N. Central	3	228	533	7	3	242	548	7	3	240	579	8	771	800	829
W. N. Central	7	277	659	11	7	298	669	11	7	296	698	12	953	985	1,013
South Atlantic	119	675	1,161	227	120	684	1,180	239	127	696	1,202	239	2,182	2,223	2,264
E. S. Central	34	539	1,031	63	36	554	1,049	67	36	556	1,081	70	1,667	1,706	1,743
W. S. Central	100	887	1,532	204	103	897	1,552	205	100	892	1,575	210	2,722	2,758	2,778
Mountain	24	426	923	84	25	438	933	81	24	433	940	83	1,457	1,477	1,480
Pacific	30	185	621	78	31	185	631	76	31	185	627	77	914	923	920
U.S. Average	45	408	856	94	46	417	873	97	47	420	893	98	1,403	1,433	1,458

- = 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>).

Appendix to the October 2019 Short-Term Energy Outlook

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

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

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

Table a1. Summary of Estimated Petroleum and Other Liquids Quantities

	Aug 2019	Sep 2019	Aug - Sep 2019 Average	Aug - Sep 2018 Average	2016 - 2018 Average
Global Petroleum and Other Liquids (million barrels per day)					
Global Petroleum and Other Liquids Production (a)	101.3	100.1	100.7	101.7	98.8
Global Petroleum and Other Liquids Consumption (b)	101.0	101.6	101.3	100.4	98.5
Biofuels Production (c)	3.1	2.9	3.0	3.0	2.5
Biofuels Consumption (c)	2.3	2.3	2.3	2.4	2.3
Iran Liquid Fuels Production	3.1	3.1	3.1	4.4	4.5
Iran Liquid Fuels Consumption	2.0	2.0	2.0	1.7	1.8
Petroleum and Petroleum Products Produced and Consumed in Countries Other Than Iran (million barrels per day)					
Production (d)	95.1	94.2	94.7	94.3	91.8
Consumption (d)	96.7	97.3	97.0	96.3	94.4
Production minus Consumption	-1.5	-3.1	-2.3	-2.0	-2.6
World Inventory Net Withdrawals Including Iran	-0.3	1.5	0.6	-1.2	-0.3
Estimated OECD Inventory Level (e) (million barrels)	2,893	2,882	2,888	2,856	2,961
Surplus Production Capacity (million barrels per day)					
OPEC Surplus Crude Oil Production Capacity (f)	2.2	1.2	1.7	1.3	1.6

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

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

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

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

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

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

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

Source: U.S. Energy Information Administration.

Table a2. Crude Oil and Petroleum Product Price Data

Item	Aug 2019	Sep 2019	Aug - Sep 2019 Average	Aug - Sep 2018 Average	2016 - 2018 Average
Brent Front Month Futures Price (\$ per barrel)	59.50	62.29	60.83	76.22	57.19
WTI Front Month Futures Price (\$ per barrel)	54.84	56.97	55.85	68.86	53.07
Dubai Front Month Futures Price (\$ per barrel)	59.28	61.86	60.51	75.42	55.04
Brent 1st - 13th Month Futures Spread (\$ per barrel)	2.56	4.41	3.44	2.58	-0.56
WTI 1st - 13th Month Futures Spread (\$ per barrel)	2.79	4.20	3.46	3.51	-0.92
RBOB Front Month Futures Price (\$ per gallon)	1.67	1.62	1.65	2.04	1.65
Heating Oil Front Month Futures Price (\$ per gallon)	1.83	1.94	1.88	2.20	1.71
RBOB - Brent Futures Crack Spread (\$ per gallon)	0.26	0.13	0.20	0.22	0.29
Heating Oil - Brent Futures Crack Spread (\$ per gallon)	0.41	0.45	0.43	0.38	0.35

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

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

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

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