

Short-Term Energy Outlook

STEO



Overview

U.S. energy market indicators	2021	2022	2023
Brent crude oil spot price (dollars per barrel)	\$70.89	\$102.13	\$95.33
Retail gasoline price (dollars per gallon)	\$3.02	\$4.02	\$3.61
U.S. crude oil production (million barrels per day)	11.25	11.83	12.31
Natural gas price at Henry Hub (dollars per MMBtu)	\$3.91	\$6.49	\$5.46
U.S. LNG gross exports (billion cubic feet per day)	9.8	10.8	12.3
Shares of U.S. electricity generation			
Natural gas	37%	38%	36%
Coal	23%	20%	19%
Renewables	20%	22%	24%
Nuclear	20%	19%	20%
U.S. GDP (percentage change)	5.9%	1.7%	-0.1%
U.S. CO₂ emissions (billion metric tons)	4.90	4.98	4.84

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

- The November 2022 *Short-Term Energy Outlook* (STEO) marks the [release of our new text format](#). We have reconfigured the text to provide readers with discussions and visualizations we think best convey our energy forecast and its key drivers.
- Uncertainty in macroeconomic conditions could significantly affect energy markets in the forecast period. Based on the S&P Global macroeconomic model, we now expect U.S. GDP will fall slightly in 2023, which we forecast will contribute to a drop in total U.S. energy consumption next year.
- We estimate U.S. natural gas inventories ended October 2022 at more than 3.5 trillion cubic feet (Tcf), which is 4% below the five-year average and higher than what we had been forecasting in recent months. They fall in our forecast by 2.1 Tcf this winter to 1.4 Tcf by the end of March 2023. This withdrawal would be similar to the five-year average and result in inventories that are 8% below the five-year average at the end of March 2023.
- Because of higher-than-expected storage levels heading into winter our forecast natural gas spot price at Henry Hub averages about \$6 per million British thermal units (MMBtu) across 4Q22 and 1Q23, which is more than \$1/MMBtu lower than we forecast in the October STEO. We expect natural gas prices will decline after January as the deficit to the five-year average in inventories decreases.

- We expect renewable sources to provide 22% of U.S. electricity generation in 2022 and 24% in 2023 as generation from natural gas declines from 38% in 2022 to 36% in 2023. The increase in renewables generation comes mostly from solar and wind capacity additions.
- U.S. distillate fuel inventories average 17% below the five-year average in our forecast for 2023. We estimate distillate inventories were 104 million barrels at the end of October, the lowest end-of-October level since 1951.
- Retail heating oil and diesel prices will continue to average more than \$5 per gallon for the rest of 4Q22. We expect a slightly contracting U.S. economy will reduce distillate prices in the first half of 2023 (1H23). However, the EU's ban on seaborne imports of petroleum products from Russia creates supply uncertainty for distillate markets in early 2023.
- Higher heating oil prices and consumption, due to colder forecasted temperatures this winter, result in our expectation that the average U.S. home that uses heating oil as its primary space heating fuel will see expenditures increase by 45% compared with last winter. In last month's [Winter Fuels Outlook](#), we forecast expenditures would rise 27% over last winter in the baseline.
- We forecast OPEC crude oil production will fall in November and December. Annual OPEC production averages 28.9 million barrels per day (b/d) in 2023, up by 0.3 million b/d from 2022.
- Growth in OPEC and non-OPEC oil production—most notably production in the United States—keeps the Brent crude oil price in our forecast lower on an annual average basis in 2023 than in 2022. However, we expect the Brent crude oil price will begin rising in 2H23.

Notable forecast changes

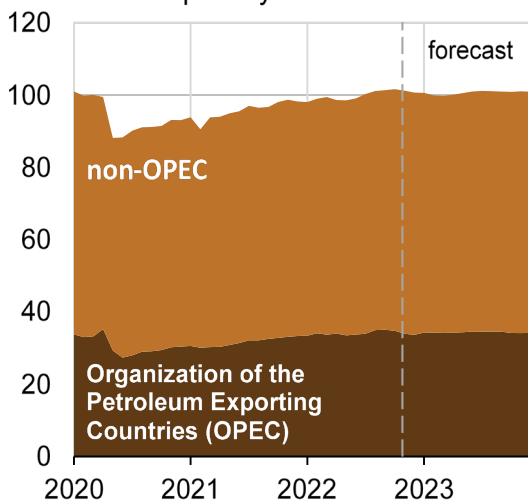
Current forecast: November 8, 2022; previous forecast: October 12, 2022	2022	2023
Real gross domestic product (percentage change)	1.7%	-0.1%
Previous	1.7%	1.3%
Henry Hub spot average (dollars per MMBtu)	\$6.49	\$5.46
Previous	\$6.88	\$5.77
Percentage change	-5.8%	-5.4%
Diesel fuel prices (dollars per gallon)	\$5.09	\$4.65
Previous	\$4.97	\$4.29
Percentage change	2.5%	8.4%

Data source: Energy Information Administration, *Short-Term Energy Outlook*

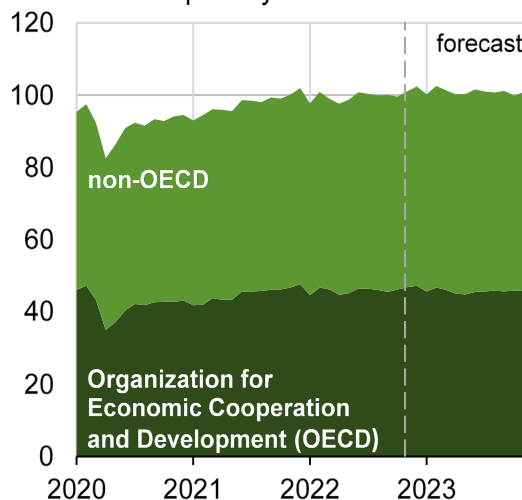
Global oil markets


Crude oil production: On October 5, 2022, OPEC+ producers agreed to reduce crude oil production targets by 2.0 million barrels per day (b/d) from their previously stated targets beginning in November 2022. The announcement had a limited effect on our global oil production forecast in the October STEO when the cuts were first incorporated because we had already included an expectation that OPEC+ would not meet the previously stated production targets. We expect that Saudi Arabia, Kuwait, and the United Arab Emirates will account for most of OPEC's share of the cut, while the forecast production for other OPEC members remains largely unchanged from our assessment made before the October 5 announcement. Total OPEC crude oil production in our forecast falls from an average of 29.2 million b/d in the third quarter of 2022 (3Q22) to 28.6 million b/d in 4Q22, largely unchanged from last month's STEO forecast. OPEC crude oil production in the forecast averages 28.9 million b/d in 2023.

World liquid fuels production
million barrels per day



World liquid fuels consumption
million barrels per day



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022 

Among the non-OPEC participants in OPEC+, the majority of the reductions in OPEC+ production will come from Russia, where we expect production declines will materialize as the result of Russia's full-scale invasion of Ukraine and sanctions imposed on Russia, rather than the newly announced production cuts. We expect that Russia's total liquids production will fall from an average of 10.9 million b/d in 3Q22 to 10.8 million b/d in 4Q22, before falling further to an average of 9.3 million b/d for all of 2023. This forecast is subject to significant uncertainty around the extent to which upcoming EU sanctions will impact trade flows and the ability for oil suppliers in Russia to find alternative shipping arrangements and buyers.

We expect global oil inventory levels to begin to fall again in early 2023, after increasing by an estimated 0.8 million b/d in 3Q22. We expect total global oil inventories will decline by 1.2 million b/d in 1Q23,

after a forecast build of 0.2 million b/d in 4Q22. We forecast global oil inventories will fall by 0.3 million b/d in 2023.

Crude oil prices: The Brent crude oil spot price averaged \$93 per barrel (b) in October. We expect the Brent price will average near that price through 1H23. Weakening global economic conditions, which could limit oil demand growth, create the potential for oil prices to end up lower than our forecast. Higher-than-forecast oil prices could stem from supply disruptions resulting from the EU's impending bans on the seaborne import of crude oil and petroleum products from Russia. Despite increasing concerns around weakening global economic conditions, we forecast that global oil consumption will outpace global oil production in 2023, which will contribute to increasing oil prices in 2H23. We forecast the Brent crude oil price will rise from an average of \$94/b in 1H23 to an average of \$98/b in 4Q23, averaging \$95/b for all of 2023.

Petroleum products

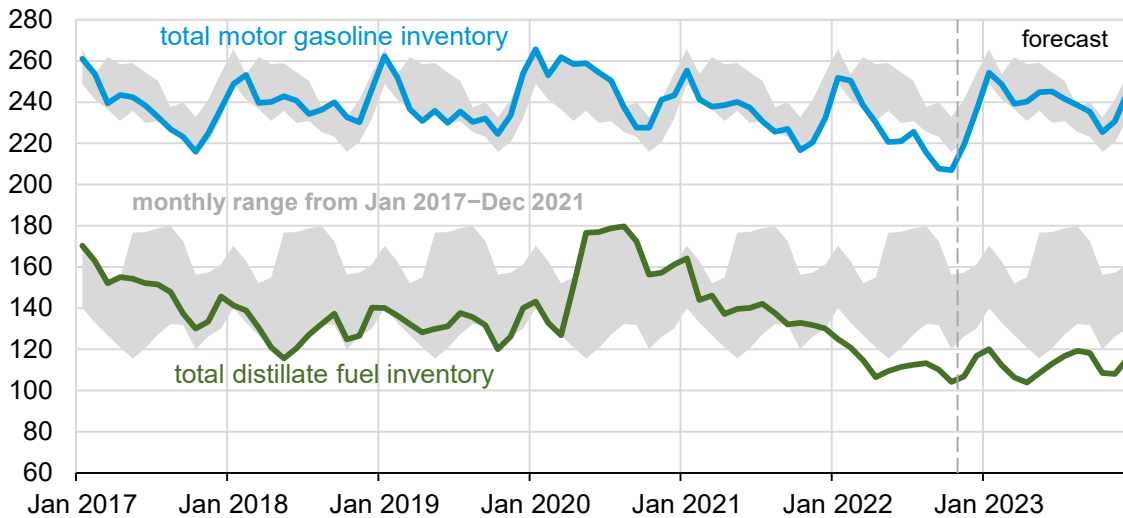
Distillate fuel: Distillate inventories have been well below the five-year average through all of 2022 in all major trading regions globally, a situation largely related to reduced distillate exports from Russia and trade dislocations following Russia's full-scale invasion of Ukraine in February. Seasonal increases in demand and refinery closures are now affecting inventories and [contributing to price increases](#). Wholesale diesel fuel prices averaged \$4.11 per gallon (gal) in October, an increase of 66 cents/gal (19%) from September and \$1.60/gal (64%) from October 2021. Diesel fuel use in the U.S. agricultural sector rises in autumn at the same time the use of heating oil in the residential sectors also begins to rise. This year, widespread [refinery strikes in France](#) are further reducing global diesel supplies. In addition, regional production of distillate in the U.S. Northeast has also been less than historical levels since the closures of the [Philadelphia Energy Solutions refinery](#) in 2019 and the Come-by-Chance refinery in Newfoundland in 2020, which was a source of imports for the region.

We forecast that distillate prices will rise in November before falling slightly in December as activity at some refineries in Europe increases and U.S. refiners finish their seasonal maintenance. However, we still expect U.S. distillate inventories will remain at or near multiyear lows through the end of our forecast. Ongoing constraints on global refining capacity will continue to limit distillate supplies and inventory builds during this time, although we forecast distillate refinery margins to moderate beginning in early 2023 as seasonal demand for the fuel decreases and refinery production remains greater than usual because of strong refining margins. Low global distillate supplies mean that there is limited potential for distillate imports to supplement U.S. domestic production, particularly after [the EU's ban](#) on seaborne refined product imports from Russia beginning in February 2023.

We expect [new refinery capacity](#) coming online in the Middle East, China, and the United States through 2023 to contribute to lowering distillate margins. We forecast U.S. distillate refinery margins (calculated as the difference between the wholesale diesel price and the Brent crude oil price) will average \$1.14/gal in 2023, compared with \$1.34/gal in 2022. Significant sources of uncertainty in our forecast include the potential for future disruptions relating to global refinery outages and unexpected developments linked to EU's ban on refined products from Russia.

U.S. gasoline and distillate inventories

million barrels



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022



Gasoline: After falling for three straight months, U.S. retail gasoline prices increased in October. We expect gasoline prices to resume their decline in November, as refiners increase production to meet distillate demand and gasoline inventories begin increasing. Rising gasoline production contributes to inventory builds in our forecast that will return gasoline stocks to levels within the five-year range by early 2023. The U.S. average retail price in our forecast falls from \$3.82/gal in October 2022 to \$3.60/gal in February 2023, with the largest price decrease on the [West Coast](#). Following this decrease, we expect U.S. retail gasoline prices to remain relatively flat for the rest of 2023.

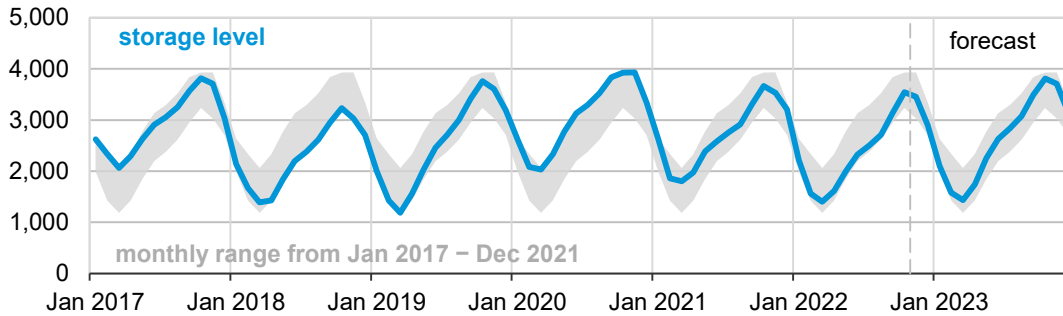
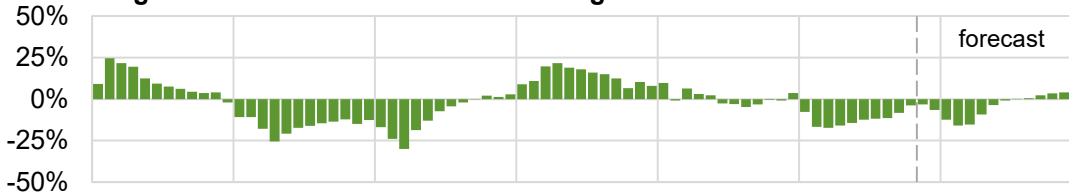

Natural gas

Natural gas storage: At the end of October, typically considered the end of storage injection season (March–October), we estimate working natural gas in storage was 3,544 billion cubic feet (Bcf), 4% below the five-year (2017–2021) average. [Higher-than-average injections](#) of natural gas into storage in September and October reduced the deficit of natural gas inventories to the five-year average and contributed to falling natural gas prices. The natural gas spot price at Henry Hub averaged \$8.80 per million British thermal units (MMBtu) in August but declined to an average of \$5.66/MMBtu in October.

Natural gas inventories play an important role in price formation. Inventory levels below the five-year average are often correlated with higher natural gas prices, while inventory levels above the five-year average are often correlated with lower natural gas prices. We expect natural gas inventories to fall by 2,110 Bcf this winter, which is similar to the five-year average winter withdrawal. We forecast that natural gas inventories will total 1,433 Bcf at the end of March, which is 8% below the five-year average. However, actual inventory outcomes will highly depend on realized temperatures throughout the winter.

U.S. working natural gas in storage

billion cubic feet

**Percentage deviation from 2017 – 2021 average**Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022 

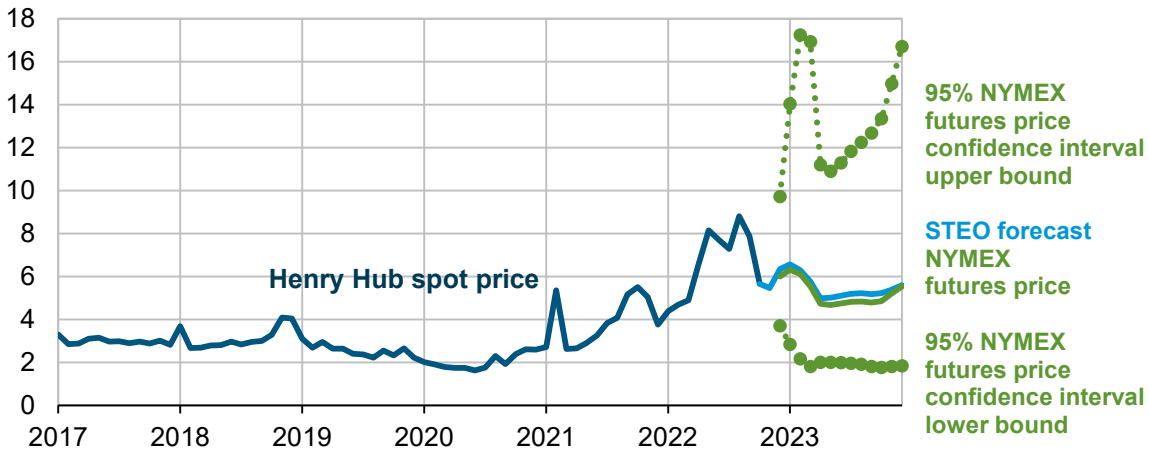
Natural gas production: Natural gas production has increased steadily throughout 2022, and dry natural gas production averages 100.4 billion cubic feet per day (Bcf/d) in our forecast for November. We expect declines in natural gas production during the winter months due to the possibility of extreme weather, which can cause production shut-ins. In addition, natural gas prices for the rest of the forecast remain lower than prices from 2Q22 and 3Q22. We expect that lower prices and some constraints in the pipeline capacity to move natural gas from production fields to consuming markets will reduce drilling activity, and we forecast natural gas production will average 99.7 Bcf/d in 2023, 2% more than in 2022, but down from current monthly average production.

Prices: We expect the benchmark Henry Hub natural gas spot price to average nearly \$5.50/MMBtu in November 2022, before rising to more than \$6/MMBtu in December and 1Q23. Natural gas prices typically increase in winter months as colder weather increases demand for natural gas for space-heating. Based on the current weather forecast from the National Oceanic and Atmospheric Administration, our forecast assumes colder weather, with 2% more [heating degree days](#) (HDD) from November to March compared with the 10-year (2011–2021) average. We expect inventory draws in December and January to outpace the five-year average, driven by a seasonal decline in natural gas production, rising demand for space heating, and increases in liquefied natural gas (LNG) exports that largely result from the [return of Freeport LNG](#). Although any delay in the return of Freeport LNG could contribute to some downward price pressures in the near term, these factors will likely limit any downward price pressures this winter, and the possibility for [price spikes](#) and volatility in the case of extremely cold weather is high. Price spikes could affect both Henry Hub and regional pricing hubs, [particularly in New England](#). Price spikes will have a limited effect on retail natural gas prices this winter, as there is typically a delay between changes in wholesale and retail prices for natural gas.

We expect downward pressures on natural gas prices will emerge in 2Q23. In 2023, the combination of natural gas consumption and exports in our forecast falls by more than 1 Bcf/d on average compared with 2022, while combined production and imports rise by a similar amount, leading to strong injections during the 2023 refill season.

Henry Hub natural gas price and NYMEX confidence intervals

dollars per million British thermal units



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

Note: Confidence interval derived from options market information for the five trading days ending November 3, 2022. Intervals not calculated for months with sparse trading in near-the-money options contracts.

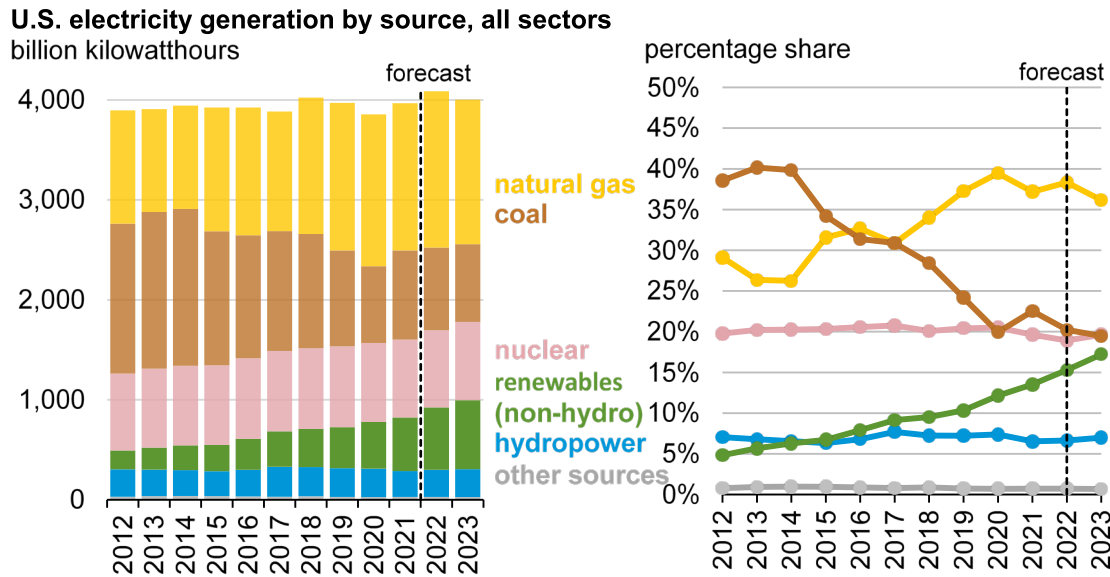


Electricity, coal, and renewables

Electricity generation: We forecast 2% less U.S. electricity generation in 2023 than in 2022, driven mostly by a decline in air-conditioning use because of cooler forecast temperatures next year, and also by slight economic contraction. Due to less electricity demand, we expect that generation from renewable sources will make up an increasing share of total U.S. electricity generation, rising from 22% this year to 24% in 2023. Without growth in U.S. electricity consumption, strong growth in renewables generating capacity results in lower shares of generation from all other sources next year, most notably natural gas and coal.

Power generators are reporting that they plan to add 15 gigawatts (GW) of utility-scale solar photovoltaic (PV) capacity in 2022 and 30 GW in 2023. Small-scale solar capacity grows by 7 GW in 2022 and by almost 10 GW in 2023. Wind capacity additions in the forecast total 11 GW in 2022 and 5 GW in 2023. Battery additions to total 5 GW in 2022 and 9 GW in 2023.

Despite a forecast decline in natural gas prices from this year to next year, we expect the share of generation supplied by natural gas will fall from 38% this year to 36% in 2023 as more renewable generating capacity comes online. We expect the share of generation fueled by coal will fall from 20% this year to 19% in 2023. Generators plan to retire 12 GW of coal-fired capacity in 2022 and 9 GW in 2023, a decline of 10% from the level of capacity operating at the end of 2021.



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022



Coal production: We expect U.S. coal production will total 595 million short tons (MMst) in 2022, up 3% from 2021. The increase reflects strong international demand for U.S. coal and a need among power plant operators to replenish coal stocks. However, the ability of the coal industry to produce more coal has been limited in 2022 by labor shortages at mines and railroads, which constrained the supply and transport of coal requested by customers during the summer months. Limited supply growth has led to higher coal prices, and the average cost of coal for power generators rose to \$2.51 per million British thermal units (MMBtu) in August, up 22% from August 2021. In 2023, we forecast that moderating natural gas prices and coal plant retirements will lead to a 4% reduction in coal production. Less demand for coal in 2023 combined with rising coal inventories will result in delivered coal prices to the electric power sector declining below \$2.40/MMBtu by the end of 2023.

Coal inventories: On average, monthly U.S. coal inventories through August 2022 were 19% lower compared with the same period in 2021 as production was not sufficient to both replenish stocks and satisfy summer power demand. Although we expect coal production to decrease in 2023, further declines in coal consumption and net exports to lead to an 18% increase in coal inventories during 2023.

Economy, weather, and CO₂

U.S. macroeconomics: Our U.S. macroeconomic forecasts are based on the model produced and maintained by S&P Global (formerly IHS Markit). We incorporate STEO energy price forecasts into the model to obtain the final macroeconomic forecasts. S&P Global forecasts that the U.S. economy will enter a recession starting in 4Q22 and start recovering in 3Q23. On an annual basis, U.S. real GDP falls by 0.1% in 2023 in the forecast.

The forecast recession is primarily driven by a decline in real private fixed investment, which is expected to decline by 4.4% in 2023. A large component of this decline is in residential fixed investment, which

has fallen due to slowing demand for housing. As a result, housing starts are expected to decline by 21.1% in 2023. Demand for housing has fallen as the cost of purchasing a new home and mortgage rates have increased and as the U.S. Federal Reserve has raised interest rates in 2022 to combat inflationary pressures. Annual inflation based on the Consumer Price Index is expected to fall from 8.1% in 2022 to 4.1% in 2023. As the effects of monetary policy slows real economic activity, S&P Global forecasts a corresponding rise in the unemployment rate, peaking at 5.8% at the end of 2023.

Although the decline in economic activity mostly stems from the residential investment sector, other sectors of the economy will also see a decline in activity. In particular, industrial production is expected to fall by 0.1% in 2023, driven by expected declines in several manufacturing industries.

Emissions: We forecast total energy-related CO₂ emissions to increase slightly in 2022 compared with 2021, driven by more consumption of natural gas and petroleum products and offset by less coal consumption. Among fossil fuels, natural gas emissions increase the most in 2022 as a result of strong demand in the electric power sector and constraints in the coal market that have reduced coal-fired generation. Increases in petroleum emissions are attributable to increased travel following the pandemic.

We forecast CO₂ emissions will decrease slightly in 2023 compared with 2022, driven by less U.S. energy consumption resulting from the forecast decline in economic activity. We expect consumption of (and therefore emissions from) coal, petroleum, and natural gas to decline in 2023.

Weather: Based on forecasts from the National Oceanic and Atmospheric Administration, we expect a colder winter (October–March), with 7% more population-weighted HDDs in the United States compared with last winter and 2% more HDDs than the ten-year average.

The U.S. Energy Information Administration (EIA), the statistical and analytical agency within the U.S. Department of Energy (DOE), prepared this report. By law, our data, analyses, and forecasts are independent of approval by any other officer or employee of the U.S. Government. The views in this report do not represent those of DOE or any other federal agencies.

Short-Term Energy Outlook Chart Gallery



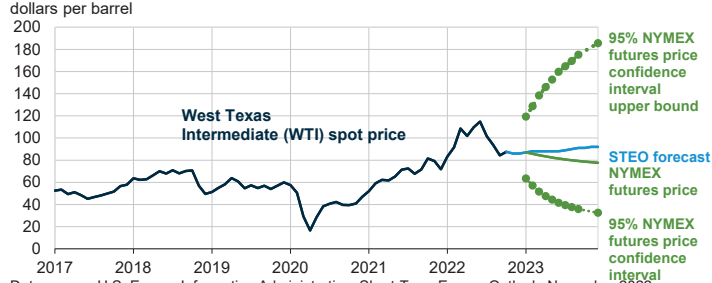
November 8, 2022



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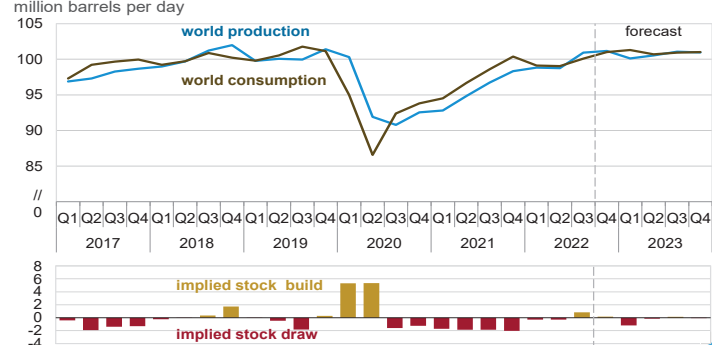
West Texas Intermediate (WTI) crude oil price and NYMEX confidence intervals



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022, CME Group, Bloomberg, L.P., and Refinitiv an LSEG Business
Note: Confidence interval derived from options market information for the five trading days ending November 3, 2022. Intervals not calculated for months with sparse trading in near-the-



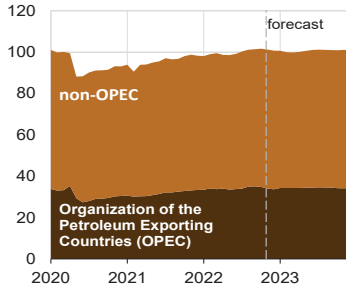
World liquid fuels production and consumption balance



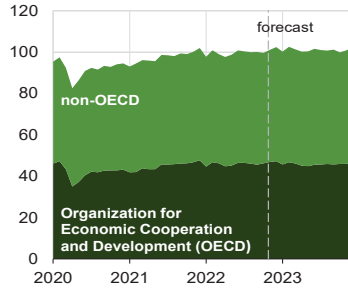
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022



World liquid fuels production
million barrels per day

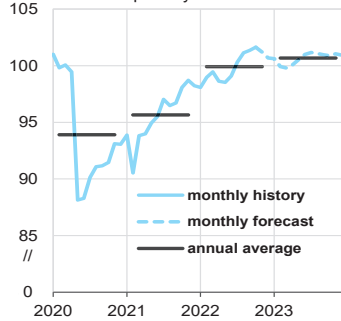


World liquid fuels consumption
million barrels per day

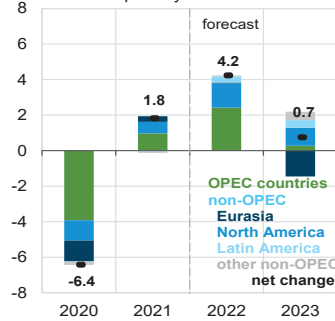


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022

World crude oil and liquid fuels production
million barrels per day

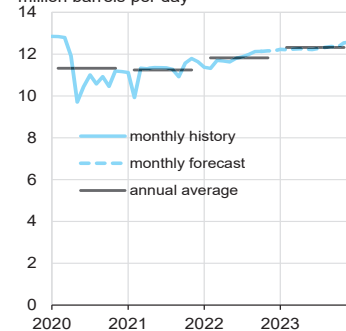


Components of annual change
million barrels per day

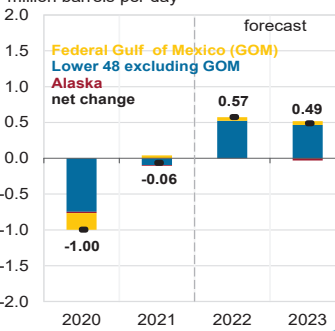


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022

U.S. crude oil production
million barrels per day

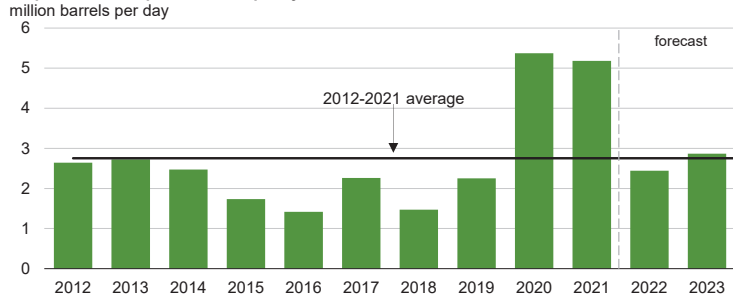


Components of annual change
million barrels per day



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022

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

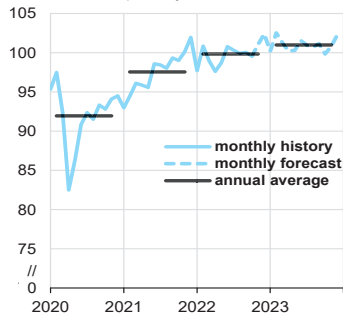


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022

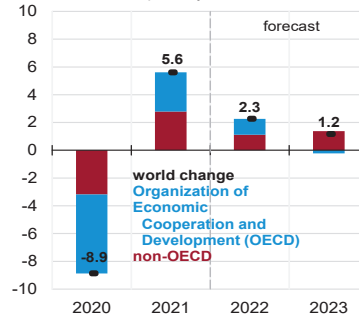
Note: Black line represents 2012-2021 average (2.8 million barrels per day).



World liquid fuels consumption
million barrels per day



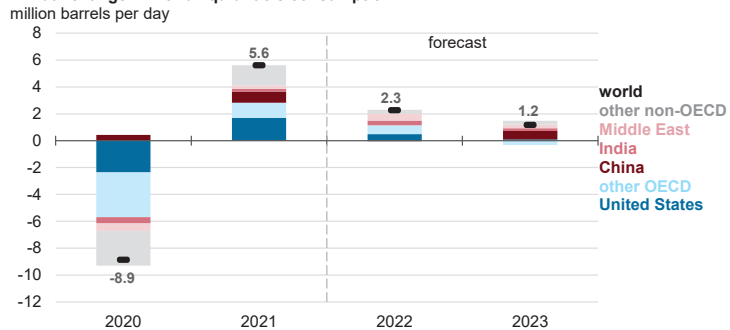
Components of annual change
million barrels per day



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022



Annual change in world liquid fuels consumption

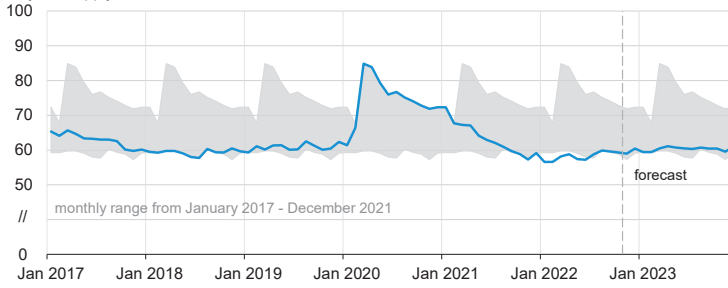


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022



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

days of supply

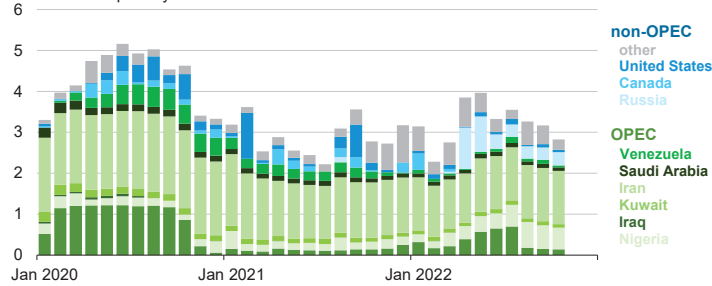


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022



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

million barrels per day

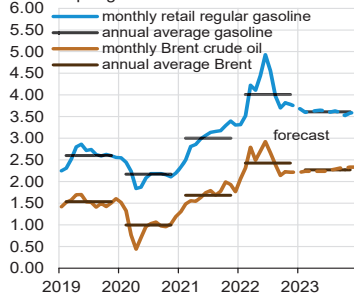


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022



U.S. gasoline and crude oil prices

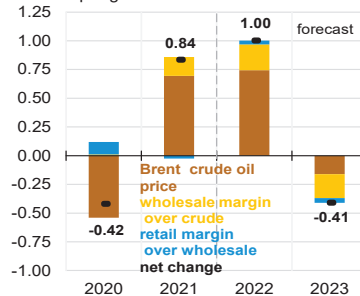
dollars per gallon



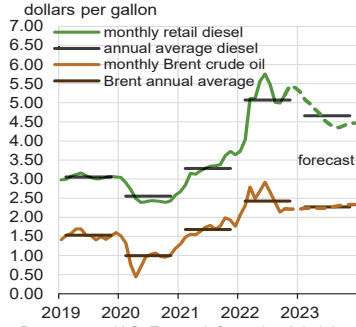
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022, and Refinitiv an LSEG Business

Components of annual gasoline price changes

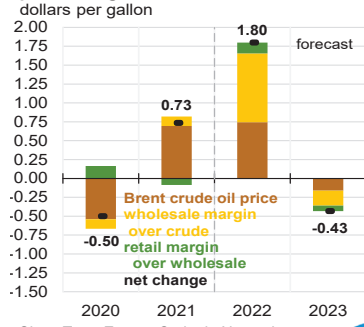
dollars per gallon



U.S. diesel and crude oil prices



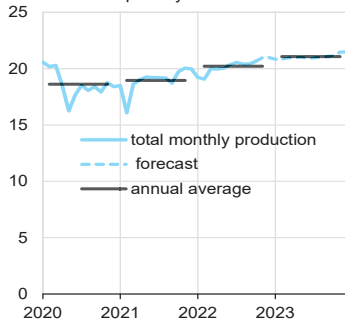
Components of annual diesel price changes



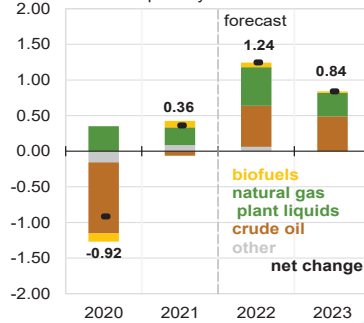
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022, and Refinitiv an LSEG Business



U.S. crude oil and liquid fuels production



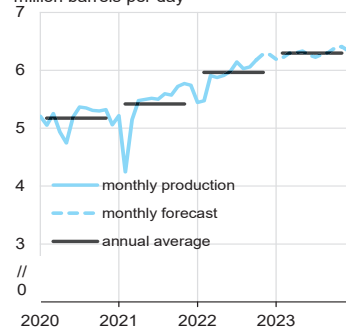
Components of annual change



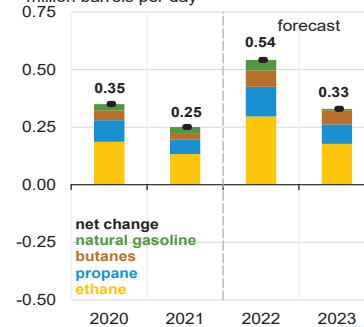
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022



U.S. natural gas plant liquids production



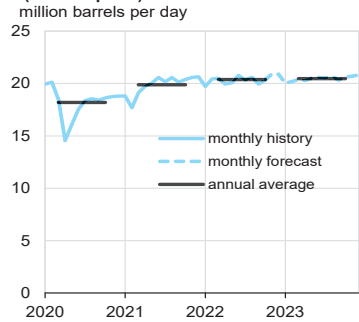
Components of annual change



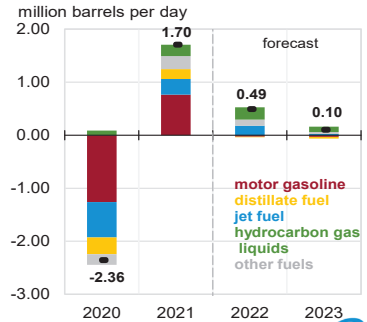
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022



U.S. liquid fuels product supplied (consumption)

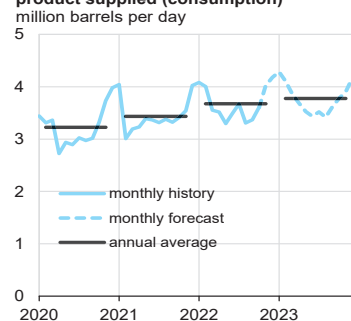


Components of annual change

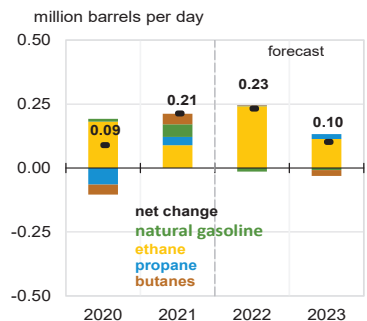


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022

U.S. hydrocarbon gas liquids product supplied (consumption)

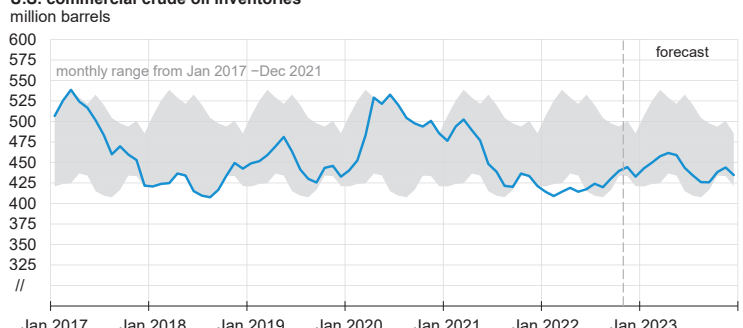


Components of annual change



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022

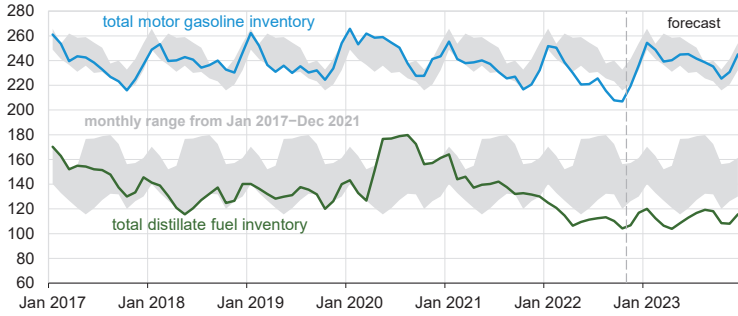
U.S. commercial crude oil inventories



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022

U.S. gasoline and distillate inventories

million barrels

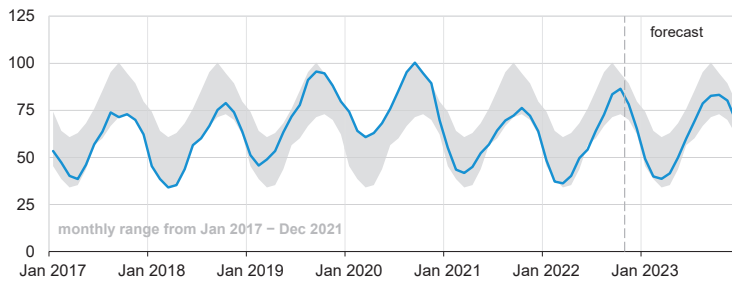


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022



U.S. commercial propane inventories

million barrels



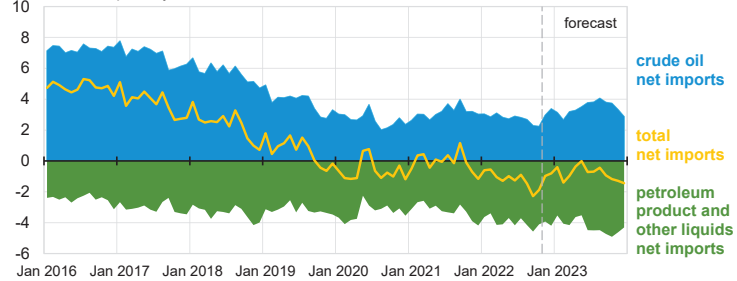
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022

Note: Excludes propylene.



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

million barrels per day

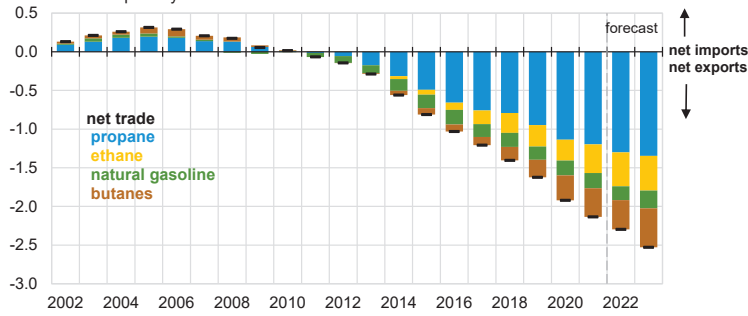


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022

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



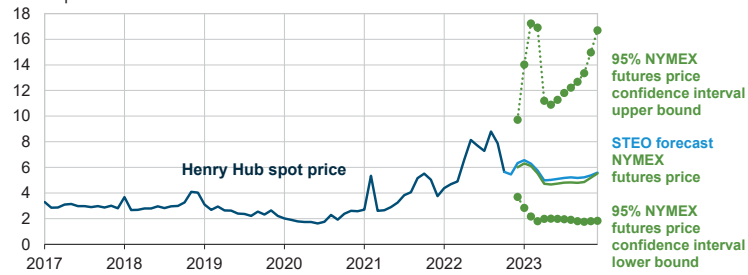
U.S. net trade of hydrocarbon gas liquids (HGL)
million barrels per day



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022



Henry Hub natural gas price and NYMEX confidence intervals
dollars per million British thermal units

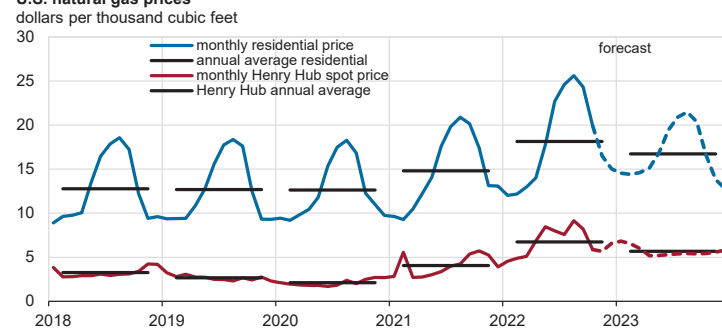


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022, CME Group, and Refinitiv an LSEG Business

Note: Confidence interval derived from options market information for the five trading days ending November 3, 2022. Intervals not calculated for months with sparse trading in near-



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

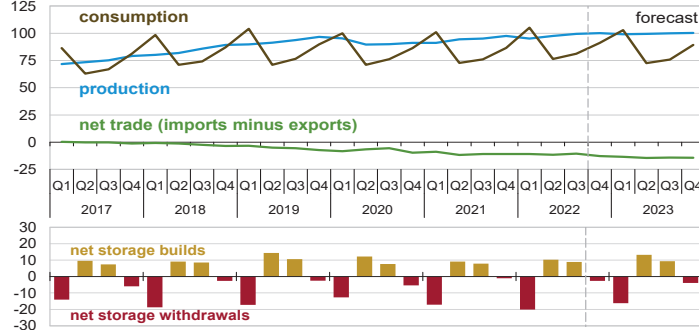


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022, and Refinitiv an LSEG Business



U.S. natural gas production, consumption, and net imports

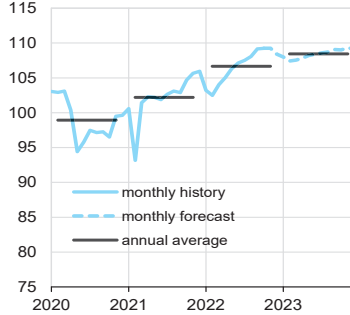
billion cubic feet per day



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022

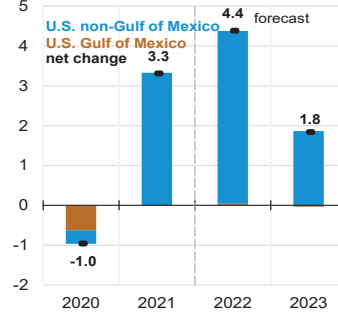
U.S. marketed natural gas production

billion cubic feet per day



Components of annual change

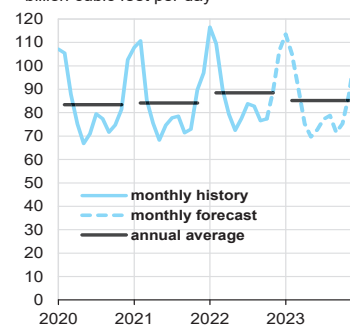
billion cubic feet per day



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022

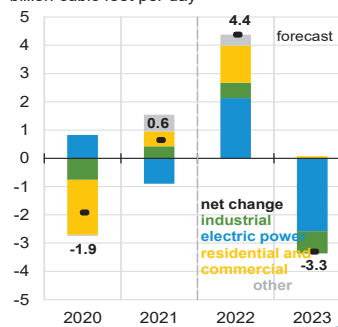
U.S. natural gas consumption

billion cubic feet per day



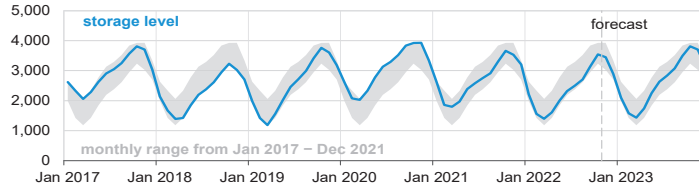
Components of annual change

billion cubic feet per day

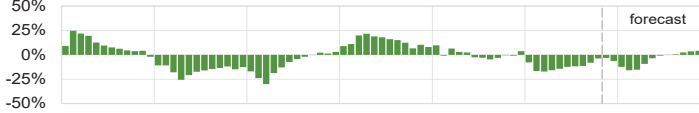



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022

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

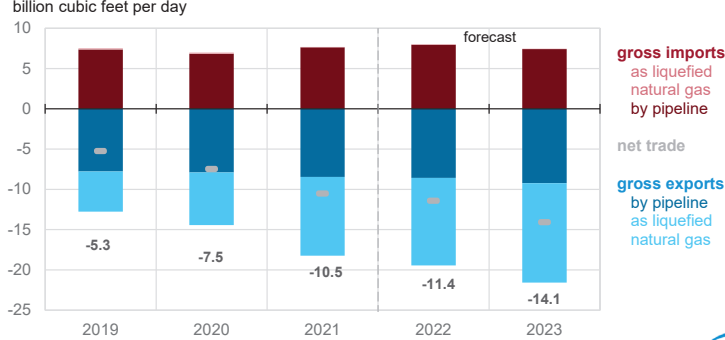


Percentage deviation from 2017 – 2021 average



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022 

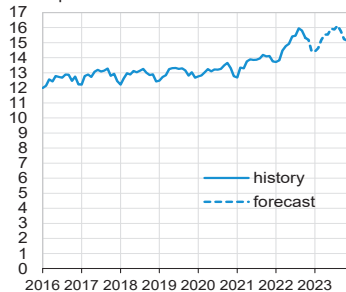
U.S. annual natural gas trade
billion cubic feet per day



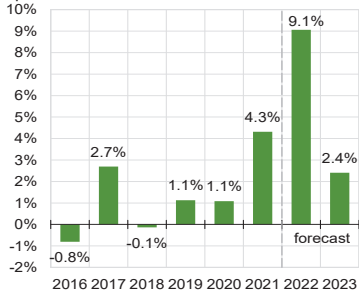
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022



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



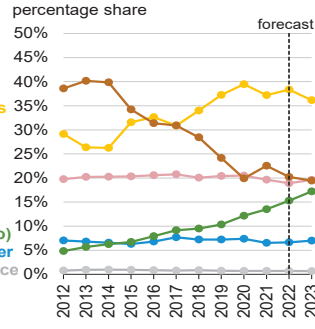
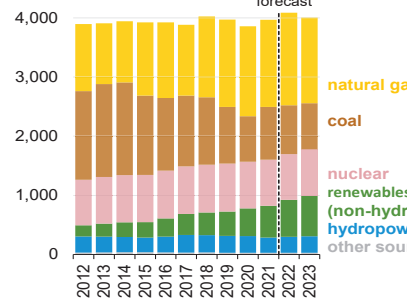
Annual growth in nominal residential electricity prices
percent



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022

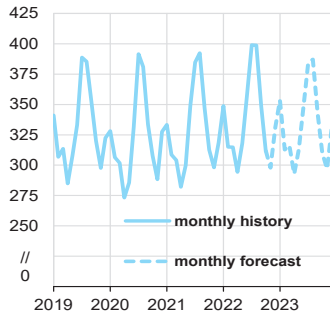


U.S. electricity generation by source, all sectors
billion kilowatthours

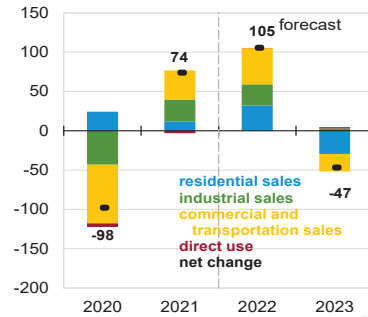


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022 **eia**

U.S. electricity consumption
billion kilowatthours

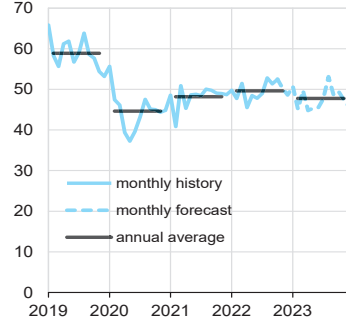


Components of annual change
billion kilowatthours

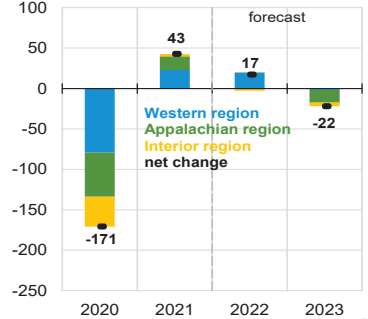


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022 **eia**

U.S. coal production
million short tons

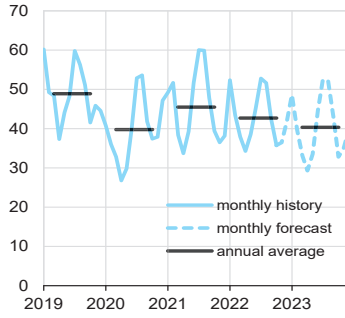


Components of annual change
million short tons

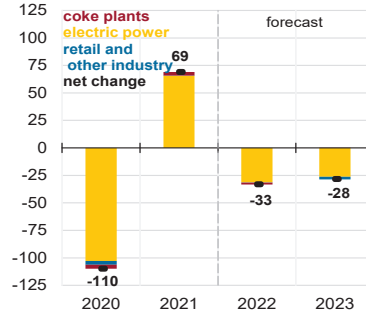


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022 **eia**

U.S. coal consumption
million short tons

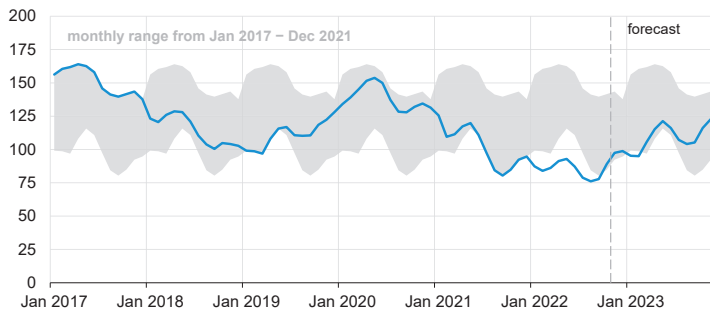


Components of annual change
million short tons



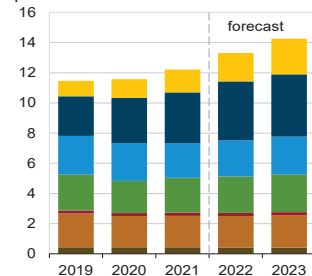
Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022

U.S. electric power coal inventories
million short tons

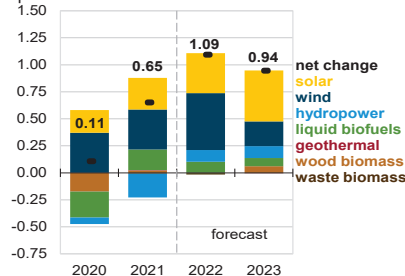


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022

U.S. renewable energy supply
quadrillion British thermal units



Components of annual change
quadrillion British thermal units

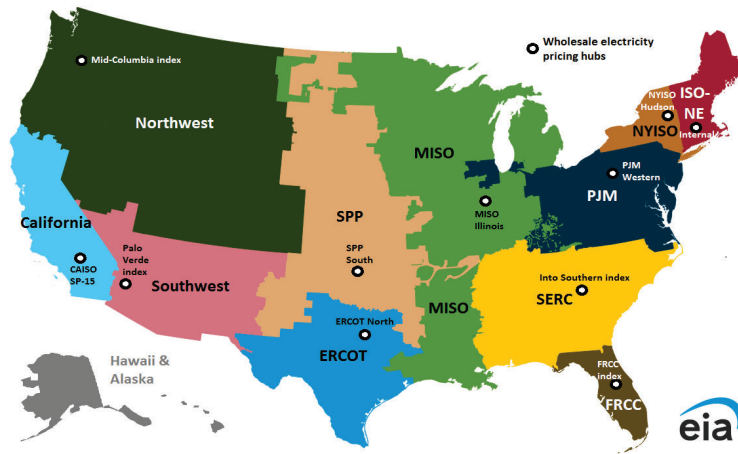


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022

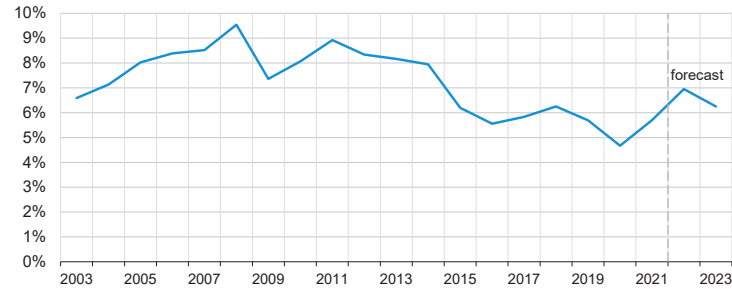
Note: Hydropower excludes pumped storage generation. Liquids include ethanol, biodiesel, renewable diesel, other biofuels, and biofuel losses and coproducts. Waste biomass includes municipal waste from biogenic sources, landfill gas, and non-wood waste.



Short-Term Energy Outlook electricity supply regions



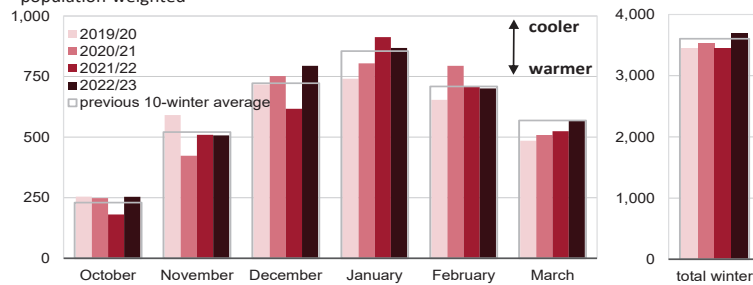
U.S. annual energy expenditures share of gross domestic product



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022



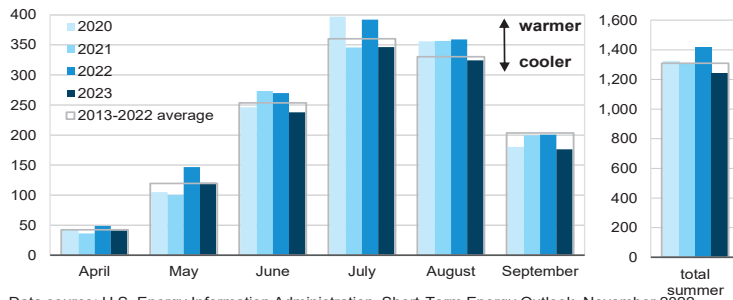
U.S. winter heating degree days population-weighted




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

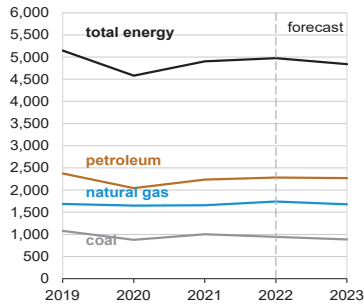


U.S. summer cooling degree days
population-weighted

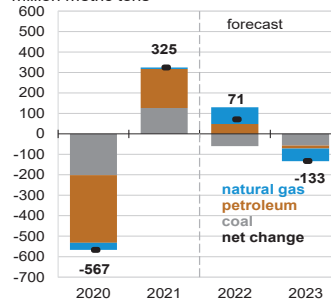


Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022
 Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Projections reflect NOAA's 14-16 month outlook. 

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



Components of annual change
million metric tons




Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, November 2022 

Table 1. U.S. Energy Markets Summary

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Energy Production															
Crude Oil Production (a) (million barrels per day)	10.82	11.34	11.18	11.66	11.47	11.70	11.99	<i>12.15</i>	<i>12.22</i>	<i>12.24</i>	<i>12.32</i>	<i>12.48</i>	11.25	<i>11.83</i>	<i>12.31</i>
Dry Natural Gas Production (billion cubic feet per day)	91.14	94.43	95.14	97.49	95.10	97.59	99.42	<i>100.10</i>	<i>99.01</i>	<i>99.42</i>	<i>99.99</i>	<i>100.33</i>	94.57	<i>98.07</i>	<i>99.69</i>
Coal Production (million short tons)	140	143	148	147	149	142	153	<i>151</i>	<i>146</i>	<i>136</i>	<i>149</i>	<i>143</i>	578	<i>595</i>	<i>573</i>
Energy Consumption															
Liquid Fuels (million barrels per day)	18.58	20.13	20.30	20.54	20.22	20.27	20.31	<i>20.72</i>	<i>20.21</i>	<i>20.46</i>	<i>20.51</i>	<i>20.72</i>	19.89	<i>20.38</i>	<i>20.48</i>
Natural Gas (billion cubic feet per day)	101.03	72.76	75.96	86.56	105.13	76.42	81.10	<i>91.14</i>	<i>102.90</i>	<i>72.52</i>	<i>75.89</i>	<i>89.28</i>	84.01	<i>88.39</i>	<i>85.08</i>
Coal (b) (million short tons)	139	125	168	114	134	118	147	<i>114</i>	<i>121</i>	<i>107</i>	<i>148</i>	<i>108</i>	546	<i>512</i>	<i>484</i>
Electricity (billion kilowatt hours per day)	10.51	10.23	12.22	10.10	10.87	10.65	12.47	<i>10.22</i>	<i>10.92</i>	<i>10.49</i>	<i>12.11</i>	<i>10.19</i>	10.77	<i>11.06</i>	<i>10.93</i>
Renewables (c) (quadrillion Btu)	2.95	3.17	2.96	3.14	3.35	3.55	3.17	<i>3.24</i>	<i>3.50</i>	<i>3.88</i>	<i>3.41</i>	<i>3.47</i>	12.22	<i>13.32</i>	<i>14.26</i>
Total Energy Consumption (d) (quadrillion Btu)	25.26	23.28	24.66	24.70	26.56	23.70	25.04	<i>25.23</i>	<i>26.13</i>	<i>23.70</i>	<i>24.73</i>	<i>25.17</i>	97.91	<i>100.53</i>	<i>99.72</i>
Energy Prices															
Crude Oil West Texas Intermediate Spot (dollars per barrel)	58.09	66.19	70.61	77.27	95.18	108.93	93.07	<i>86.51</i>	<i>87.67</i>	<i>88.00</i>	<i>90.00</i>	<i>91.65</i>	68.21	<i>95.88</i>	<i>89.33</i>
Natural Gas Henry Hub Spot (dollars per million Btu)	3.56	2.94	4.36	4.77	4.66	7.48	7.99	<i>5.82</i>	<i>6.21</i>	<i>5.04</i>	<i>5.20</i>	<i>5.40</i>	3.91	<i>6.49</i>	<i>5.46</i>
Coal (dollars per million Btu)	1.91	1.93	2.03	2.05	2.19	2.26	2.49	<i>2.47</i>	<i>2.47</i>	<i>2.45</i>	<i>2.42</i>	<i>2.38</i>	1.98	<i>2.36</i>	<i>2.43</i>
Macroeconomic															
Real Gross Domestic Product (billion chained 2012 dollars - SAAR)	19,216	19,544	19,673	20,006	19,924	19,895	20,003	<i>19,963</i>	<i>19,872</i>	<i>19,863</i>	<i>19,949</i>	<i>20,039</i>	19,610	<i>19,946</i>	<i>19,931</i>
Percent change from prior year	1.2	12.5	5.0	5.7	3.7	1.8	1.7	<i>-0.2</i>	<i>-0.3</i>	<i>-0.2</i>	<i>-0.3</i>	<i>0.4</i>	5.9	<i>1.7</i>	<i>-0.1</i>
GDP Implicit Price Deflator (Index, 2012=100)	116.2	118.0	119.8	121.8	124.2	126.9	128.1	<i>129.7</i>	<i>131.0</i>	<i>131.9</i>	<i>132.8</i>	<i>133.7</i>	118.9	<i>127.2</i>	<i>132.4</i>
Percent change from prior year	2.4	4.4	5.0	6.1	6.9	7.6	7.0	<i>6.6</i>	<i>5.5</i>	<i>4.0</i>	<i>3.7</i>	<i>3.1</i>	4.5	<i>7.0</i>	<i>4.0</i>
Real Disposable Personal Income (billion chained 2012 dollars - SAAR)	17,325	15,921	15,735	15,537	15,109	15,052	15,093	<i>15,138</i>	<i>15,293</i>	<i>15,330</i>	<i>15,523</i>	<i>15,709</i>	16,130	<i>15,098</i>	<i>15,464</i>
Percent change from prior year	14.5	-4.4	-1.5	-0.4	-12.8	-5.5	-4.1	<i>-2.6</i>	<i>1.2</i>	<i>1.8</i>	<i>2.8</i>	<i>3.8</i>	1.9	<i>-6.4</i>	<i>2.4</i>
Manufacturing Production Index (Index, 2017=100)	96.9	98.3	99.2	100.6	101.5	102.4	102.9	<i>103.1</i>	<i>102.1</i>	<i>101.5</i>	<i>101.7</i>	<i>102.3</i>	98.8	<i>102.5</i>	<i>101.9</i>
Percent change from prior year	-0.8	15.8	5.1	4.5	4.8	4.2	3.8	<i>2.5</i>	<i>0.5</i>	<i>-0.9</i>	<i>-1.2</i>	<i>-0.8</i>	5.8	<i>3.8</i>	<i>-0.6</i>
Weather															
U.S. Heating Degree-Days	2,108	472	51	1,307	2,147	492	54	<i>1,556</i>	<i>2,138</i>	<i>496</i>	<i>76</i>	<i>1,552</i>	3,938	<i>4,249</i>	<i>4,263</i>
U.S. Cooling Degree-Days	50	410	902	127	46	465	952	<i>84</i>	<i>44</i>	<i>399</i>	<i>847</i>	<i>93</i>	1,489	<i>1,547</i>	<i>1,383</i>

(a) Includes lease condensate.

(b) Total consumption includes Independent Power Producer (IPP) consumption.

(c) Renewable energy includes minor components of non-marketed renewable energy that is neither bought nor sold, either directly or indirectly, as inputs to marketed energy.

EIA does not estimate or project end-use consumption of non-marketed renewable energy.

(d) The conversion from physical units to Btu is calculated using a subset of conversion factors used in the calculations of gross energy consumption in EIA's Monthly Energy Review (MER). Consequently, the historical data may not precisely match those published in the MER or the Annual Energy Review (AER).

(e) Refers to the refiner average acquisition cost (RAC) of crude oil.

- = no data available

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

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

Prices are not adjusted for inflation.

Historical data: Latest data available from Energy Information Administration databases supporting the following reports: *Petroleum Supply Monthly*, DOE/EIA-0109;

Petroleum Supply Annual, DOE/EIA-0340/2; *Weekly Petroleum Status Report*, DOE/EIA-0208; *Petroleum Marketing Monthly*, DOE/EIA-0380; *Natural Gas Monthly*, DOE/EIA-0130;

Electric Power Monthly, DOE/EIA-0226; *Quarterly Coal Report*, DOE/EIA-0121; and *International Petroleum Monthly*, DOE/EIA-0520.

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

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

Weather forecasts from National Oceanic and Atmospheric Administration.

Table 2. Energy Prices

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Crude Oil (dollars per barrel)															
West Texas Intermediate Spot Average	58.09	66.19	70.61	77.27	95.18	108.93	93.07	<i>86.51</i>	<i>87.67</i>	<i>88.00</i>	<i>90.00</i>	<i>91.65</i>	68.21	<i>95.88</i>	<i>89.33</i>
Brent Spot Average	61.12	68.91	73.45	79.42	101.17	113.84	100.53	<i>93.13</i>	<i>93.67</i>	<i>94.00</i>	<i>96.00</i>	<i>97.65</i>	70.89	<i>102.13</i>	<i>95.33</i>
U.S. Imported Average	55.29	64.75	68.42	73.66	89.85	107.23	92.32	<i>83.66</i>	<i>84.89</i>	<i>85.25</i>	<i>87.24</i>	<i>88.87</i>	65.92	<i>93.17</i>	<i>86.62</i>
U.S. Refiner Average Acquisition Cost	57.14	66.11	70.31	76.36	92.62	109.86	94.18	<i>86.01</i>	<i>87.15</i>	<i>87.50</i>	<i>89.48</i>	<i>91.16</i>	67.83	<i>95.70</i>	<i>88.86</i>
U.S. Liquid Fuels (cents per gallon)															
Refiner Prices for Resale															
Gasoline	180	216	232	243	278	376	311	<i>295</i>	<i>282</i>	<i>282</i>	<i>280</i>	<i>272</i>	219	<i>316</i>	<i>279</i>
Diesel Fuel	178	204	219	241	301	419	357	<i>428</i>	<i>384</i>	<i>341</i>	<i>317</i>	<i>323</i>	211	<i>377</i>	<i>341</i>
Fuel Oil	162	180	197	222	284	419	343	<i>420</i>	<i>379</i>	<i>338</i>	<i>304</i>	<i>316</i>	188	<i>375</i>	<i>356</i>
Refiner Prices to End Users															
Jet Fuel	163	182	199	226	283	400	340	<i>400</i>	<i>350</i>	<i>303</i>	<i>299</i>	<i>302</i>	195	<i>357</i>	<i>312</i>
No. 6 Residual Fuel Oil (a)	162	181	194	211	252	258	230	<i>206</i>	<i>221</i>	<i>222</i>	<i>227</i>	<i>232</i>	190	<i>235</i>	<i>225</i>
Retail Prices Including Taxes															
Gasoline Regular Grade (b)	256	297	316	333	371	450	408	<i>378</i>	<i>363</i>	<i>364</i>	<i>361</i>	<i>357</i>	302	<i>402</i>	<i>361</i>
Gasoline All Grades (b)	265	306	325	343	380	460	419	<i>390</i>	<i>376</i>	<i>377</i>	<i>375</i>	<i>371</i>	311	<i>413</i>	<i>375</i>
On-highway Diesel Fuel	290	321	336	366	432	549	516	<i>535</i>	<i>512</i>	<i>469</i>	<i>438</i>	<i>445</i>	329	<i>509</i>	<i>465</i>
Heating Oil	272	283	297	346	415	555	498	<i>536</i>	<i>499</i>	<i>452</i>	<i>409</i>	<i>432</i>	300	<i>479</i>	<i>463</i>
Natural Gas															
Henry Hub Spot (dollars per thousand cubic feet)	3.70	3.06	4.53	4.96	4.84	7.77	8.30	<i>6.05</i>	<i>6.45</i>	<i>5.23</i>	<i>5.40</i>	<i>5.61</i>	4.06	<i>6.74</i>	<i>5.67</i>
Henry Hub Spot (dollars per million Btu)	3.56	2.94	4.36	4.77	4.66	7.48	7.99	<i>5.82</i>	<i>6.21</i>	<i>5.04</i>	<i>5.20</i>	<i>5.40</i>	3.91	<i>6.49</i>	<i>5.46</i>
U.S. Retail Prices (dollars per thousand cubic feet)															
Industrial Sector	5.77	4.13	5.09	6.82	6.82	8.26	9.14	<i>7.75</i>	<i>8.02</i>	<i>6.48</i>	<i>6.26</i>	<i>6.64</i>	5.50	<i>7.93</i>	<i>6.88</i>
Commercial Sector	7.54	8.86	10.14	10.27	10.00	11.71	13.96	<i>12.29</i>	<i>11.48</i>	<i>11.38</i>	<i>11.27</i>	<i>10.15</i>	8.81	<i>11.39</i>	<i>11.03</i>
Residential Sector	9.71	13.82	20.27	13.71	12.32	16.57	24.81	<i>16.27</i>	<i>14.52</i>	<i>16.52</i>	<i>20.88</i>	<i>13.71</i>	12.21	<i>15.02</i>	<i>15.04</i>
U.S. Electricity															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	1.91	1.93	2.03	2.05	2.19	2.26	2.49	<i>2.47</i>	<i>2.47</i>	<i>2.45</i>	<i>2.42</i>	<i>2.38</i>	1.98	<i>2.36</i>	<i>2.43</i>
Natural Gas	7.24	3.26	4.36	5.42	5.68	7.38	8.18	<i>6.20</i>	<i>6.80</i>	<i>5.29</i>	<i>5.43</i>	<i>5.79</i>	4.97	<i>7.01</i>	<i>5.80</i>
Residual Fuel Oil (c)	11.28	13.09	14.22	16.10	16.91	26.17	26.07	<i>20.47</i>	<i>20.03</i>	<i>19.50</i>	<i>18.21</i>	<i>18.24</i>	13.66	<i>21.56</i>	<i>19.08</i>
Distillate Fuel Oil	13.54	15.20	16.19	18.03	21.11	30.70	26.94	<i>32.02</i>	<i>30.04</i>	<i>26.22</i>	<i>24.23</i>	<i>24.59</i>	15.50	<i>26.26</i>	<i>26.79</i>
Prices to Ultimate Customers (cents per kilowatthour)															
Industrial Sector	7.09	6.92	7.62	7.38	7.42	8.40	9.33	<i>7.83</i>	<i>7.67</i>	<i>8.21</i>	<i>9.03</i>	<i>7.72</i>	7.26	<i>8.27</i>	<i>8.18</i>
Commercial Sector	10.99	11.07	11.59	11.37	11.63	12.34	13.10	<i>12.16</i>	<i>12.28</i>	<i>12.72</i>	<i>13.25</i>	<i>12.03</i>	11.27	<i>12.35</i>	<i>12.60</i>
Residential Sector	13.10	13.84	13.99	13.97	13.98	15.08	15.73	<i>14.93</i>	<i>14.71</i>	<i>15.69</i>	<i>15.94</i>	<i>14.86</i>	13.72	<i>14.97</i>	<i>15.33</i>

(a) Average for all sulfur contents.

(b) Average self-service cash price.

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

- = no data available

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

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

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

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

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Production (million barrels per day) (a)															
OECD	30.25	30.84	31.13	32.23	31.62	31.87	32.47	33.32	33.61	33.38	33.52	34.22	31.12	32.33	33.68
U.S. (50 States)	17.79	19.16	19.03	19.91	19.44	20.12	20.45	20.87	20.89	20.98	21.03	21.36	18.98	20.22	21.06
Canada	5.62	5.37	5.49	5.68	5.66	5.51	5.68	5.90	5.96	5.67	5.88	6.10	5.54	5.69	5.90
Mexico	1.93	1.95	1.90	1.92	1.91	1.89	1.89	1.86	1.90	1.87	1.83	1.79	1.92	1.89	1.85
Other OECD	4.91	4.37	4.72	4.71	4.61	4.35	4.44	4.70	4.86	4.86	4.79	4.97	4.68	4.52	4.87
Non-OECD	62.56	63.98	65.60	66.11	67.21	66.87	68.46	67.85	66.50	67.17	67.54	66.73	64.57	67.60	66.99
OPEC	30.34	30.88	32.28	33.10	33.75	33.76	34.68	34.15	34.31	34.42	34.55	34.19	31.66	34.09	34.37
Crude Oil Portion	25.07	25.49	26.84	27.67	28.19	28.33	29.21	28.63	28.73	28.96	29.05	28.66	26.28	28.59	28.85
Other Liquids (b)	5.26	5.39	5.44	5.44	5.56	5.43	5.48	5.52	5.59	5.46	5.50	5.54	5.38	5.50	5.52
Eurasia	13.42	13.65	13.63	14.27	14.39	13.39	13.58	13.78	12.49	12.29	12.29	12.31	13.74	13.79	12.34
China	4.99	5.03	5.01	4.93	5.18	5.18	5.11	5.17	5.21	5.24	5.23	5.27	4.99	5.16	5.24
Other Non-OECD	13.80	14.41	14.69	13.80	13.90	14.54	15.08	14.74	14.49	15.22	15.47	14.96	14.18	14.57	15.04
Total World Production	92.81	94.82	96.74	98.33	98.83	98.75	100.92	101.17	100.11	100.54	101.07	100.95	95.70	99.93	100.67
Non-OPEC Production	62.48	63.94	64.46	65.23	65.08	64.98	66.24	67.02	65.80	66.12	66.52	66.76	64.03	65.84	66.30
Consumption (million barrels per day) (c)															
OECD	42.58	44.13	45.87	46.89	45.84	45.46	46.03	46.77	46.16	45.15	45.75	46.16	44.88	46.03	45.81
U.S. (50 States)	18.58	20.13	20.30	20.54	20.22	20.27	20.31	20.72	20.21	20.46	20.51	20.72	19.89	20.38	20.48
U.S. Territories	0.21	0.19	0.19	0.20	0.22	0.20	0.20	0.22	0.22	0.20	0.21	0.22	0.20	0.21	0.21
Canada	2.19	2.16	2.43	2.33	2.25	2.23	2.43	2.33	2.27	2.22	2.32	2.29	2.28	2.31	2.27
Europe	11.95	12.66	13.88	13.94	13.15	13.41	13.78	13.83	13.57	13.18	13.58	13.35	13.12	13.55	13.42
Japan	3.77	3.07	3.17	3.66	3.70	3.03	3.16	3.51	3.72	3.06	3.09	3.39	3.41	3.35	3.31
Other OECD	5.89	5.93	5.90	6.23	6.30	6.33	6.14	6.17	6.18	6.02	6.05	6.19	5.99	6.23	6.11
Non-OECD	51.94	52.54	52.73	53.48	53.28	53.58	54.06	54.24	55.14	55.54	55.19	54.84	52.68	53.79	55.18
Eurasia	4.57	4.63	4.98	4.84	4.49	4.36	4.71	4.64	4.25	4.40	4.71	4.63	4.76	4.55	4.50
Europe	0.74	0.74	0.74	0.76	0.76	0.76	0.76	0.77	0.75	0.77	0.77	0.77	0.75	0.76	0.76
China	15.27	15.48	14.99	15.33	15.14	15.12	15.11	15.55	16.27	16.16	15.54	15.46	15.27	15.23	15.85
Other Asia	13.43	12.98	12.84	13.69	13.83	13.84	13.52	13.90	14.41	14.38	13.80	14.09	13.23	13.77	14.17
Other Non-OECD	17.93	18.71	19.18	18.86	19.06	19.50	19.96	19.37	19.47	19.83	20.37	19.89	18.68	19.47	19.89
Total World Consumption	94.52	96.67	98.59	100.37	99.12	99.04	100.09	101.00	101.30	100.69	100.94	101.00	97.56	99.82	100.98
Total Crude Oil and Other Liquids Inventory Net Withdrawals (million barrels per day)															
U.S. (50 States)	0.36	0.51	0.37	0.83	0.81	0.51	0.45	0.64	0.01	-0.37	-0.06	0.50	0.52	0.60	0.02
Other OECD	0.88	0.14	0.91	0.73	-0.09	-0.29	-0.65	-0.27	0.38	0.16	-0.02	-0.14	0.66	-0.33	0.09
Other Stock Draws and Balance	0.46	1.20	0.58	0.48	-0.42	0.07	-0.63	-0.55	0.80	0.36	-0.05	-0.31	0.68	-0.38	0.20
Total Stock Draw	1.71	1.85	1.85	2.04	0.29	0.30	-0.83	-0.17	1.19	0.14	-0.13	0.05	1.86	-0.11	0.31
End-of-period Commercial Crude Oil and Other Liquids Inventories (million barrels)															
U.S. Commercial Inventory	1,311	1,281	1,251	1,199	1,154	1,180	1,216	1,200	1,200	1,249	1,260	1,224	1,199	1,200	1,224
OECD Commercial Inventory	2,916	2,873	2,759	2,640	2,604	2,656	2,752	2,760	2,726	2,761	2,774	2,751	2,640	2,760	2,751

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

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

(c) Consumption of petroleum by the OECD countries is synonymous with "petroleum product supplied," defined in the glossary of the EIA *Petroleum Supply Monthly*,

DOE/EIA-0109. Consumption of petroleum by the non-OECD countries is "apparent consumption," which includes internal consumption, refinery fuel and loss, and bunkering.

- = no data available

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

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

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
North America	25.34	26.47	26.42	27.51	27.01	27.52	28.03	<i>28.63</i>	<i>28.75</i>	<i>28.51</i>	<i>28.73</i>	<i>29.25</i>	26.44	<i>27.80</i>	<i>28.81</i>
Canada	5.62	5.37	5.49	5.68	5.66	5.51	5.68	<i>5.90</i>	<i>5.96</i>	<i>5.67</i>	<i>5.88</i>	<i>6.10</i>	5.54	<i>5.69</i>	<i>5.90</i>
Mexico	1.93	1.95	1.90	1.92	1.91	1.89	1.89	<i>1.86</i>	<i>1.90</i>	<i>1.87</i>	<i>1.83</i>	<i>1.79</i>	1.92	<i>1.89</i>	<i>1.85</i>
United States	17.79	19.16	19.03	19.91	19.44	20.12	20.45	<i>20.87</i>	<i>20.89</i>	<i>20.98</i>	<i>21.03</i>	<i>21.36</i>	18.98	<i>20.22</i>	<i>21.06</i>
Central and South America	5.64	6.29	6.69	5.79	5.83	6.41	6.97	<i>6.62</i>	<i>6.35</i>	<i>7.11</i>	<i>7.40</i>	<i>6.91</i>	6.10	<i>6.46</i>	<i>6.95</i>
Argentina	0.65	0.69	0.73	0.74	0.77	0.78	0.79	<i>0.81</i>	<i>0.85</i>	<i>0.86</i>	<i>0.87</i>	<i>0.90</i>	0.70	<i>0.79</i>	<i>0.87</i>
Brazil	3.22	3.89	4.21	3.42	3.33	3.79	4.28	<i>3.82</i>	<i>3.49</i>	<i>4.22</i>	<i>4.52</i>	<i>3.98</i>	3.69	<i>3.81</i>	<i>4.05</i>
Colombia	0.77	0.74	0.77	0.77	0.77	0.77	0.78	<i>0.79</i>	<i>0.77</i>	<i>0.77</i>	<i>0.78</i>	<i>0.77</i>	0.76	<i>0.78</i>	<i>0.77</i>
Ecuador	0.51	0.50	0.49	0.41	0.48	0.47	0.49	<i>0.52</i>	<i>0.54</i>	<i>0.55</i>	<i>0.56</i>	<i>0.56</i>	0.48	<i>0.49</i>	<i>0.55</i>
Other Central and S. America	0.48	0.46	0.49	0.46	0.49	0.60	0.64	<i>0.68</i>	<i>0.71</i>	<i>0.71</i>	<i>0.68</i>	<i>0.70</i>	0.47	<i>0.60</i>	<i>0.70</i>
Europe	4.33	3.83	4.12	4.11	4.04	3.76	3.95	<i>4.21</i>	<i>4.36</i>	<i>4.37</i>	<i>4.30</i>	<i>4.49</i>	4.10	<i>3.99</i>	<i>4.38</i>
Norway	2.11	1.90	2.06	2.05	1.97	1.74	1.98	<i>2.14</i>	<i>2.32</i>	<i>2.33</i>	<i>2.33</i>	<i>2.41</i>	2.03	<i>1.96</i>	<i>2.35</i>
United Kingdom	1.07	0.81	0.93	0.93	0.97	0.91	0.85	<i>0.93</i>	<i>0.92</i>	<i>0.91</i>	<i>0.83</i>	<i>0.93</i>	0.94	<i>0.91</i>	<i>0.90</i>
Eurasia	13.42	13.65	13.63	14.27	14.39	13.39	13.58	<i>13.78</i>	<i>12.49</i>	<i>12.29</i>	<i>12.29</i>	<i>12.31</i>	13.74	<i>13.79</i>	<i>12.34</i>
Azerbaijan	0.75	0.70	0.71	0.71	0.70	0.67	0.65	<i>0.66</i>	<i>0.65</i>	<i>0.64</i>	<i>0.63</i>	<i>0.64</i>	0.72	<i>0.67</i>	<i>0.64</i>
Kazakhstan	1.87	1.86	1.72	2.01	2.01	1.77	1.62	<i>1.97</i>	<i>2.01</i>	<i>1.94</i>	<i>1.95</i>	<i>2.02</i>	1.86	<i>1.84</i>	<i>1.98</i>
Russia	10.42	10.71	10.80	11.16	11.30	10.59	10.92	<i>10.76</i>	<i>9.41</i>	<i>9.30</i>	<i>9.31</i>	<i>9.24</i>	10.78	<i>10.89</i>	<i>9.32</i>
Turkmenistan	0.25	0.25	0.25	0.25	0.26	0.26	0.26	<i>0.26</i>	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	<i>0.27</i>	0.25	<i>0.26</i>	<i>0.27</i>
Other Eurasia	0.13	0.14	0.14	0.13	0.14	0.11	0.13	<i>0.14</i>	<i>0.14</i>	<i>0.14</i>	<i>0.13</i>	<i>0.13</i>	0.13	<i>0.13</i>	<i>0.14</i>
Middle East	3.09	3.12	3.16	3.17	3.23	3.29	3.29	<i>3.25</i>	<i>3.24</i>	<i>3.24</i>	<i>3.23</i>	<i>3.23</i>	3.13	<i>3.26</i>	<i>3.23</i>
Oman	0.96	0.97	0.98	1.01	1.05	1.07	1.10	<i>1.08</i>	<i>1.06</i>	<i>1.06</i>	<i>1.06</i>	<i>1.06</i>	0.98	<i>1.07</i>	<i>1.06</i>
Qatar	1.80	1.82	1.83	1.83	1.85	1.86	1.86	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	<i>1.86</i>	1.82	<i>1.86</i>	<i>1.86</i>
Asia and Oceania	9.18	9.10	9.03	8.96	9.16	9.17	8.98	<i>9.11</i>	<i>9.16</i>	<i>9.16</i>	<i>9.13</i>	<i>9.15</i>	9.07	<i>9.10</i>	<i>9.15</i>
Australia	0.46	0.42	0.47	0.49	0.44	0.47	0.38	<i>0.39</i>	<i>0.39</i>	<i>0.38</i>	<i>0.37</i>	<i>0.37</i>	0.46	<i>0.42</i>	<i>0.38</i>
China	4.99	5.03	5.01	4.93	5.18	5.18	5.11	<i>5.17</i>	<i>5.21</i>	<i>5.24</i>	<i>5.23</i>	<i>5.27</i>	4.99	<i>5.16</i>	<i>5.24</i>
India	0.90	0.90	0.89	0.88	0.88	0.89	0.89	<i>0.88</i>	<i>0.90</i>	<i>0.90</i>	<i>0.89</i>	<i>0.88</i>	0.89	<i>0.89</i>	<i>0.89</i>
Indonesia	0.88	0.85	0.85	0.85	0.84	0.83	0.82	<i>0.81</i>	<i>0.81</i>	<i>0.80</i>	<i>0.79</i>	<i>0.78</i>	0.86	<i>0.82</i>	<i>0.80</i>
Malaysia	0.66	0.62	0.57	0.59	0.61	0.60	0.58	<i>0.61</i>	<i>0.62</i>	<i>0.61</i>	<i>0.61</i>	<i>0.60</i>	0.61	<i>0.60</i>	<i>0.61</i>
Vietnam	0.21	0.21	0.20	0.21	0.21	0.20	0.20	<i>0.19</i>	<i>0.19</i>	<i>0.18</i>	<i>0.18</i>	<i>0.18</i>	0.21	<i>0.20</i>	<i>0.18</i>
Africa	1.48	1.47	1.41	1.41	1.41	1.44	1.44	<i>1.43</i>	<i>1.44</i>	<i>1.44</i>	<i>1.42</i>	<i>1.42</i>	1.44	<i>1.43</i>	<i>1.43</i>
Egypt	0.66	0.67	0.65	0.66	0.66	0.68	0.66	<i>0.66</i>	<i>0.68</i>	<i>0.67</i>	<i>0.67</i>	<i>0.68</i>	0.66	<i>0.66</i>	<i>0.68</i>
South Sudan	0.16	0.16	0.15	0.16	0.15	0.15	0.16	<i>0.16</i>	<i>0.17</i>	<i>0.17</i>	<i>0.17</i>	<i>0.17</i>	0.16	<i>0.16</i>	<i>0.17</i>
Total non-OPEC liquids	62.48	63.94	64.46	65.23	65.08	64.98	66.24	<i>67.02</i>	<i>65.80</i>	<i>66.12</i>	<i>66.52</i>	<i>66.76</i>	64.03	<i>65.84</i>	<i>66.30</i>
OPEC non-crude liquids	5.26	5.39	5.44	5.44	5.56	5.43	5.48	<i>5.52</i>	<i>5.59</i>	<i>5.46</i>	<i>5.50</i>	<i>5.54</i>	5.38	<i>5.50</i>	<i>5.52</i>
Non-OPEC + OPEC non-crude	67.74	69.33	69.90	70.67	70.64	70.42	71.72	<i>72.54</i>	<i>71.39</i>	<i>71.58</i>	<i>72.01</i>	<i>72.29</i>	69.42	<i>71.33</i>	<i>71.82</i>
Unplanned non-OPEC Production Outages	0.61	0.50	0.80	0.86	0.76	1.31	0.80	-	-	-	-	-	0.70	-	-

- = no data available

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

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

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

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

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Crude Oil															
Algeria	0.86	0.88	0.92	0.95	0.97	1.00	1.02	-	-	-	-	-	0.90	-	-
Angola	1.11	1.08	1.11	1.13	1.15	1.19	1.16	-	-	-	-	-	1.11	-	-
Congo (Brazzaville)	0.28	0.27	0.26	0.26	0.27	0.29	0.29	-	-	-	-	-	0.26	-	-
Equatorial Guinea	0.11	0.10	0.10	0.09	0.09	0.09	0.09	-	-	-	-	-	0.10	-	-
Gabon	0.16	0.17	0.18	0.19	0.19	0.19	0.20	-	-	-	-	-	0.18	-	-
Iran	2.18	2.47	2.47	2.45	2.55	2.53	2.50	-	-	-	-	-	2.39	-	-
Iraq	3.94	3.98	4.07	4.25	4.30	4.42	4.55	-	-	-	-	-	4.06	-	-
Kuwait	2.33	2.36	2.45	2.53	2.61	2.69	2.80	-	-	-	-	-	2.42	-	-
Libya	1.18	1.16	1.18	1.12	1.06	0.76	0.95	-	-	-	-	-	1.16	-	-
Nigeria	1.31	1.32	1.28	1.31	1.27	1.11	0.97	-	-	-	-	-	1.30	-	-
Saudi Arabia	8.49	8.53	9.55	9.87	10.08	10.30	10.85	-	-	-	-	-	9.11	-	-
United Arab Emirates	2.61	2.65	2.76	2.86	2.94	3.04	3.17	-	-	-	-	-	2.72	-	-
Venezuela	0.52	0.53	0.53	0.68	0.70	0.72	0.66	-	-	-	-	-	0.56	-	-
OPEC Total	25.07	25.49	26.84	27.67	28.19	28.33	29.21	<i>28.63</i>	<i>28.73</i>	<i>28.96</i>	<i>29.05</i>	<i>28.66</i>	26.28	<i>28.59</i>	<i>28.85</i>
Other Liquids (a)	5.26	5.39	5.44	5.44	5.56	5.43	5.48	<i>5.52</i>	<i>5.59</i>	<i>5.46</i>	<i>5.50</i>	<i>5.54</i>	5.38	<i>5.50</i>	<i>5.52</i>
Total OPEC Production	30.34	30.88	32.28	33.10	33.75	33.76	34.68	<i>34.15</i>	<i>34.31</i>	<i>34.42</i>	<i>34.55</i>	<i>34.19</i>	31.66	<i>34.09</i>	<i>34.37</i>
Crude Oil Production Capacity															
Middle East	25.21	25.50	25.50	25.48	25.48	25.46	25.52	<i>25.60</i>	<i>25.90</i>	<i>26.03</i>	<i>26.03</i>	<i>26.03</i>	25.42	<i>25.52</i>	<i>26.00</i>
Other	6.12	6.10	5.96	5.98	5.83	5.45	5.34	<i>5.46</i>	<i>5.74</i>	<i>5.78</i>	<i>5.70</i>	<i>5.66</i>	6.04	<i>5.52</i>	<i>5.72</i>
OPEC Total	31.33	31.59	31.45	31.46	31.31	30.92	30.86	<i>31.06</i>	<i>31.64</i>	<i>31.81</i>	<i>31.73</i>	<i>31.69</i>	31.46	<i>31.04</i>	<i>31.72</i>
Surplus Crude Oil Production Capacity															
Middle East	5.66	5.52	4.21	3.53	3.00	2.48	1.66	<i>2.41</i>	<i>2.90</i>	<i>2.83</i>	<i>2.66</i>	<i>3.03</i>	4.72	<i>2.38</i>	<i>2.85</i>
Other	0.59	0.59	0.40	0.27	0.12	0.11	0.00	<i>0.01</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.01</i>	0.46	<i>0.06</i>	<i>0.02</i>
OPEC Total	6.25	6.10	4.61	3.80	3.12	2.59	1.66	<i>2.42</i>	<i>2.92</i>	<i>2.85</i>	<i>2.68</i>	<i>3.03</i>	5.18	<i>2.44</i>	<i>2.87</i>
Unplanned OPEC Production Outages	2.49	2.12	2.15	2.03	1.98	2.42	2.53	-	-	-	-	-	2.20	-	-

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

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

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

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

Forecasts are not published for individual OPEC countries.

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2021				2022				2023				2021	2022	2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
North America	22.40	23.95	24.34	24.60	24.24	24.49	24.54	24.75	24.17	24.40	24.55	24.75	23.83	24.51	24.47
Canada	2.19	2.16	2.43	2.33	2.25	2.23	2.43	2.33	2.27	2.22	2.32	2.29	2.28	2.31	2.27
Mexico	1.63	1.66	1.61	1.72	1.76	1.99	1.80	1.70	1.69	1.71	1.71	1.72	1.65	1.81	1.71
United States	18.58	20.13	20.30	20.54	20.22	20.27	20.31	20.72	20.21	20.46	20.51	20.72	19.89	20.38	20.48
Central and South America	6.09	6.17	6.34	6.34	6.27	6.40	6.50	6.53	6.30	6.43	6.53	6.47	6.24	6.43	6.43
Brazil	2.79	2.86	2.95	2.95	2.86	2.93	3.02	3.03	2.90	2.95	3.03	3.01	2.89	2.96	2.97
Europe	12.69	13.41	14.62	14.70	13.91	14.17	14.55	14.60	14.32	13.95	14.35	14.12	13.86	14.31	14.18
Eurasia	4.57	4.63	4.98	4.84	4.49	4.36	4.71	4.64	4.25	4.40	4.71	4.63	4.76	4.55	4.50
Russia	3.34	3.42	3.70	3.56	3.34	3.27	3.54	3.45	3.16	3.24	3.53	3.39	3.51	3.40	3.33
Middle East	8.13	8.80	9.26	8.76	8.99	9.30	9.73	8.97	9.26	9.46	9.99	9.39	8.74	9.25	9.53
Asia and Oceania	36.28	35.34	34.78	36.67	36.71	35.81	35.66	36.98	38.41	37.44	36.28	36.95	35.76	36.29	37.26
China	15.27	15.48	14.99	15.33	15.14	15.12	15.11	15.55	16.27	16.16	15.54	15.46	15.27	15.23	15.85
Japan	3.77	3.07	3.17	3.66	3.70	3.03	3.16	3.51	3.72	3.06	3.09	3.39	3.41	3.35	3.31
India	4.94	4.37	4.41	4.87	5.08	5.06	4.80	5.05	5.25	5.32	4.96	5.28	4.65	5.00	5.20
Africa	4.36	4.38	4.28	4.47	4.51	4.50	4.40	4.53	4.60	4.61	4.53	4.69	4.37	4.49	4.61
Total OECD Liquid Fuels Consumption	42.58	44.13	45.87	46.89	45.84	45.46	46.03	46.77	46.16	45.15	45.75	46.16	44.88	46.03	45.81
Total non-OECD Liquid Fuels Consumption	51.94	52.54	52.73	53.48	53.28	53.58	54.06	54.24	55.14	55.54	55.19	54.84	52.68	53.79	55.18
Total World Liquid Fuels Consumption	94.52	96.67	98.59	100.37	99.12	99.04	100.09	101.00	101.30	100.69	100.94	101.00	97.56	99.82	100.98
Real Gross Domestic Product (a)															
World Index, 2015 Q1 = 100	116.4	117.7	119.1	120.8	121.5	121.9	122.5	123.1	123.5	124.1	125.1	126.2	118.5	122.3	124.7
Percent change from prior year	3.5	11.6	5.1	4.7	4.3	3.5	2.9	1.9	1.7	1.8	2.1	2.5	6.1	3.2	2.0
OECD Index, 2015 = 100	110.0	112.9	112.9	112.9	110.0	112.9	112.9	110.0	112.9	112.9	112.9	110.0	110.0	112.9	112.9
Percent change from prior year	5.6	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	2.6	0.0
Non-OECD Index, 2015 = 100	123.8	128.3	132.9	132.9	123.8	128.3	132.9	123.8	128.3	132.9	132.9	123.8	123.8	128.3	132.9
Percent change from prior year	6.5	3.6	3.6	3.6	6.5	3.6	3.6	6.5	3.6	3.6	3.6	6.5	6.5	3.6	3.6
Nominal U.S. Dollar Index (b)															
Index, 2015 Q1 = 100	106.5	106.1	107.5	109.1	109.6	113.0	117.3	121.7	121.8	121.2	120.7	120.2	107.3	115.4	121.0
Percent change from prior year	-4.6	-8.2	-3.4	0.9	2.9	6.5	9.1	11.6	11.1	7.3	2.9	-1.2	-3.9	7.5	4.8

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

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

- = no data available

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

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 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 - November 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
HGL Production															
Natural Gas Processing Plants															
Ethane	1.88	2.20	2.19	2.32	2.33	2.43	2.43	2.59	2.63	2.67	2.57	2.62	2.15	2.45	2.62
Propane	1.63	1.76	1.77	1.82	1.77	1.85	1.91	1.96	1.94	1.94	1.95	2.00	1.74	1.87	1.96
Butanes	0.86	0.93	0.94	0.96	0.93	0.98	1.02	1.04	1.04	1.03	1.06	1.08	0.92	0.99	1.05
Natural Gasoline (Pentanes Plus)	0.53	0.61	0.66	0.64	0.59	0.67	0.71	0.65	0.63	0.66	0.69	0.67	0.61	0.66	0.66
Refinery and Blender Net Production															
Ethane/Ethylene	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.01
Propane	0.25	0.29	0.28	0.29	0.27	0.29	0.30	0.29	0.28	0.28	0.29	0.28	0.28	0.29	0.28
Propylene (refinery-grade)	0.27	0.31	0.29	0.29	0.28	0.28	0.27	0.28	0.27	0.28	0.28	0.28	0.29	0.28	0.28
Butanes/Butylenes	-0.09	0.24	0.18	-0.16	-0.07	0.25	0.19	-0.19	-0.08	0.27	0.20	-0.19	0.04	0.05	0.05
Renewable Fuels and Oxygenate Plant Net Production															
Natural Gasoline (Pentanes Plus)	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
HGL Net Imports															
Ethane	-0.31	-0.38	-0.37	-0.41	-0.50	-0.40	-0.43	-0.43	-0.45	-0.45	-0.45	-0.45	-0.37	-0.44	-0.45
Propane/Propylene	-1.08	-1.26	-1.22	-1.24	-1.18	-1.33	-1.25	-1.44	-1.33	-1.33	-1.34	-1.39	-1.20	-1.30	-1.35
Butanes/Butylenes	-0.34	-0.41	-0.38	-0.35	-0.28	-0.41	-0.35	-0.47	-0.51	-0.51	-0.52	-0.47	-0.37	-0.38	-0.50
Natural Gasoline (Pentanes Plus)	-0.22	-0.21	-0.18	-0.18	-0.17	-0.17	-0.18	-0.19	-0.23	-0.22	-0.23	-0.23	-0.20	-0.18	-0.23
HGL Refinery and Blender Net Inputs															
Butanes/Butylenes	0.40	0.29	0.31	0.53	0.44	0.31	0.33	0.49	0.41	0.28	0.31	0.51	0.38	0.39	0.38
Natural Gasoline (Pentanes Plus)	0.14	0.14	0.16	0.23	0.20	0.20	0.22	0.19	0.18	0.19	0.19	0.18	0.17	0.20	0.19
HGL Consumption															
Ethane/Ethylene	1.55	1.86	1.83	1.98	1.98	2.03	2.01	2.17	2.20	2.16	2.12	2.16	1.81	2.05	2.16
Propane	1.11	0.61	0.65	0.95	1.16	0.60	0.62	1.00	1.16	0.63	0.64	1.02	0.83	0.84	0.86
Propylene (refinery-grade)	0.29	0.32	0.30	0.30	0.30	0.29	0.29	0.29	0.29	0.30	0.29	0.29	0.31	0.29	0.29
Butanes/Butylenes	0.22	0.29	0.26	0.20	0.23	0.26	0.27	0.21	0.19	0.24	0.23	0.22	0.24	0.24	0.22
Natural Gasoline (Pentanes Plus)	0.26	0.24	0.30	0.22	0.21	0.24	0.26	0.26	0.23	0.22	0.24	0.25	0.26	0.24	0.23
HGL Inventories (million barrels)															
Ethane	70.4	72.3	69.8	67.4	51.1	51.7	49.1	51.0	47.6	53.3	54.6	57.3	70.0	50.7	53.2
Propane	41.8	56.8	72.2	63.9	36.3	54.1	83.5	65.2	38.6	60.0	82.7	69.7	63.9	65.2	69.7
Propylene (at refineries only)	1.1	1.2	1.3	1.4	1.0	1.2	1.0	1.3	1.3	1.6	1.8	1.7	1.4	1.3	1.7
Butanes/Butylenes	37.7	54.7	69.9	43.9	35.7	58.8	82.9	53.1	39.9	64.5	82.4	53.3	43.9	53.1	53.3
Natural Gasoline (Pentanes Plus)	23.0	22.5	22.5	20.7	19.4	22.7	26.1	25.0	22.2	23.1	23.6	22.6	20.7	25.0	22.6
Refinery and Blender Net Inputs															
Crude Oil	13.81	15.65	15.61	15.49	15.56	16.09	16.24	15.87	15.19	16.30	16.68	15.97	15.15	15.94	16.04
Hydrocarbon Gas Liquids	0.53	0.43	0.47	0.76	0.64	0.50	0.55	0.68	0.59	0.47	0.50	0.69	0.55	0.59	0.56
Other Hydrocarbons/Oxygenates	1.06	1.19	1.20	1.18	1.12	1.20	1.19	1.16	1.10	1.17	1.16	1.16	1.16	1.17	1.15
Unfinished Oils	-0.07	0.24	0.32	0.21	-0.12	0.21	0.27	0.31	0.08	0.28	0.38	0.28	0.18	0.17	0.26
Motor Gasoline Blend Components	0.70	0.92	0.82	0.28	0.33	0.84	0.68	0.26	0.48	0.72	0.59	0.53	0.68	0.53	0.58
Aviation Gasoline Blend Components	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Refinery and Blender Net Inputs	16.03	18.43	18.41	17.92	17.53	18.84	18.92	18.29	17.43	18.94	19.31	18.62	17.71	18.40	18.58
Refinery Processing Gain	0.85	0.98	0.96	1.04	0.95	1.07	1.00	1.02	1.03	1.00	1.02	1.02	0.96	1.01	1.02
Refinery and Blender Net Production															
Hydrocarbon Gas Liquids	0.44	0.85	0.76	0.42	0.49	0.84	0.76	0.39	0.48	0.83	0.77	0.37	0.62	0.62	0.61
Finished Motor Gasoline	8.75	9.83	9.83	9.70	9.22	9.74	9.72	9.64	9.07	9.64	9.83	9.88	9.53	9.58	9.61
Jet Fuel	1.10	1.32	1.41	1.42	1.48	1.71	1.66	1.57	1.51	1.57	1.64	1.53	1.31	1.61	1.56
Distillate Fuel	4.30	4.77	4.72	4.87	4.77	5.00	5.13	5.12	4.77	5.17	5.24	5.16	4.67	5.01	5.09
Residual Fuel	0.20	0.21	0.22	0.23	0.26	0.22	0.26	0.21	0.26	0.25	0.28	0.24	0.21	0.24	0.26
Other Oils (a)	2.10	2.43	2.44	2.33	2.26	2.39	2.37	2.39	2.36	2.48	2.56	2.47	2.32	2.35	2.47
Total Refinery and Blender Net Production	16.88	19.41	19.37	18.96	18.49	19.90	19.92	19.31	18.46	19.94	20.33	19.64	18.66	19.41	19.60
Refinery Distillation Inputs	14.25	16.17	16.23	16.02	16.07	16.61	16.75	16.24	15.53	16.52	16.95	16.26	15.67	16.42	16.32
Refinery Operable Distillation Capacity	18.13	18.13	18.13	18.05	17.94	17.94	17.96	17.96	17.96	18.09	18.21	18.21	18.11	17.95	18.12
Refinery Distillation Utilization Factor	0.79	0.89	0.89	0.89	0.90	0.93	0.93	0.90	0.86	0.91	0.93	0.89	0.87	0.91	0.90

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

- = no data available

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Prices (cents per gallon)															
Refiner Wholesale Price	180	216	232	243	278	376	311	295	282	282	280	272	219	316	279
Gasoline Regular Grade Retail Prices Including Taxes															
PADD 1	252	287	304	327	364	438	392	350	350	356	351	350	294	387	352
PADD 2	247	288	304	315	352	436	398	367	344	347	350	344	290	389	346
PADD 3	227	267	282	298	340	414	358	320	320	328	326	322	270	358	324
PADD 4	247	311	360	351	360	446	436	380	367	369	370	362	319	407	367
PADD 5	312	366	391	410	452	543	510	513	462	439	430	425	372	505	439
U.S. Average	256	297	316	333	371	450	408	378	363	364	361	357	302	402	361
Gasoline All Grades Including Taxes	265	306	325	343	380	460	419	390	376	377	375	371	311	413	375
End-of-period Inventories (million barrels)															
Total Gasoline Inventories															
PADD 1	65.1	69.9	59.0	61.8	56.9	53.6	54.3	58.5	60.2	67.1	62.3	64.4	61.8	58.5	64.4
PADD 2	50.6	50.6	46.8	50.7	56.5	46.7	44.1	51.8	54.3	51.2	48.3	52.2	50.7	51.8	52.2
PADD 3	82.1	81.6	83.0	81.7	87.1	83.9	78.7	88.0	87.1	89.4	86.7	89.3	81.7	88.0	89.3
PADD 4	8.6	6.2	7.6	8.1	8.1	6.4	6.0	7.7	8.0	7.7	7.8	8.3	8.1	7.7	8.3
PADD 5	31.5	29.0	30.6	29.7	29.9	30.3	24.7	30.2	29.6	29.8	30.2	30.8	29.7	30.2	30.8
U.S. Total	237.8	237.3	227.0	232.2	238.5	221.0	207.7	236.2	239.2	245.2	235.3	245.0	232.2	236.2	245.0
Finished Gasoline Inventories															
U.S. Total	20.3	18.5	18.5	17.8	17.3	17.1	17.2	17.6	15.5	17.0	18.9	21.5	17.8	17.6	21.5
Gasoline Blending Components Inventories															
U.S. Total	217.6	218.7	208.5	214.4	221.2	203.8	190.6	218.6	223.7	228.2	216.4	223.5	214.4	218.6	223.5

- = no data available

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

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

Prices are not adjusted for inflation.

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

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

Historical data: Latest data available from Energy Information Administration databases supporting the following reports: *Petroleum Marketing Monthly*, DOE/EIA-0380; *Petroleum Supply Monthly*, DOE/EIA-0109; *Petroleum Supply Annual*, DOE/EIA-0340/2; and *Weekly Petroleum Status Report*, DOE/EIA-0208.

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

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 5a. U.S. Natural Gas Supply, Consumption, and Inventories
U.S. Energy Information Administration | Short-Term Energy Outlook - November 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Supply (billion cubic feet per day)															
Total Marketed Production	98.57	102.12	102.88	105.43	103.27	106.18	108.24	108.97	107.67	108.16	108.79	109.15	102.27	106.69	108.45
Alaska	1.02	0.95	0.90	1.02	1.06	1.00	0.96	1.02	1.01	0.93	0.85	0.98	0.97	1.01	0.94
Federal GOM (a)	2.33	2.30	1.82	2.10	2.05	2.11	2.22	2.34	2.28	2.21	2.07	2.02	2.14	2.18	2.15
Lower 48 States (excl GOM)	95.22	98.87	100.16	102.30	100.16	103.07	105.07	105.62	104.38	105.03	105.87	106.15	99.16	103.50	105.36
Total Dry Gas Production	91.14	94.43	95.14	97.49	95.10	97.59	99.42	100.10	99.01	99.42	99.99	100.33	94.57	98.07	99.69
LNG Gross Imports	0.15	0.02	0.03	0.04	0.15	0.01	0.07	0.06	0.10	0.04	0.04	0.06	0.06	0.07	0.06
LNG Gross Exports	9.27	9.81	9.60	10.32	11.50	10.80	9.84	11.27	12.40	12.53	12.10	12.28	9.76	10.85	12.33
Pipeline Gross Imports	8.68	6.81	7.24	7.82	8.89	7.73	7.62	7.56	8.30	6.86	7.04	7.46	7.63	7.95	7.41
Pipeline Gross Exports	8.31	8.66	8.50	8.40	8.43	8.45	8.37	9.11	9.40	8.84	9.15	9.56	8.47	8.59	9.24
Supplemental Gaseous Fuels	0.17	0.18	0.18	0.19	0.21	0.15	0.19	0.19	0.19	0.19	0.19	0.19	0.18	0.18	0.19
Net Inventory Withdrawals	17.18	-9.12	-7.87	1.03	20.14	-10.25	-8.85	2.61	16.25	-13.17	-9.38	3.95	0.24	0.84	-0.65
Total Supply	99.74	73.84	76.62	87.84	104.56	75.98	80.23	90.16	102.04	71.97	76.62	90.15	84.46	87.67	85.14
Balancing Item (b)	1.28	-1.08	-0.66	-1.28	0.57	0.43	0.87	0.98	0.86	0.55	-0.74	-0.87	-0.44	0.72	-0.06
Total Primary Supply	101.03	72.76	75.96	86.56	105.13	76.42	81.10	91.14	102.90	72.52	75.89	89.28	84.01	88.39	85.08
Consumption (billion cubic feet per day)															
Residential	26.05	7.58	3.67	14.61	26.09	7.85	3.64	16.94	25.83	7.92	4.14	17.02	12.92	13.58	13.68
Commercial	15.03	6.31	4.73	10.17	15.62	6.70	4.87	11.66	15.19	6.67	5.26	11.61	9.04	9.69	9.66
Industrial	24.21	21.67	21.45	23.59	25.49	22.38	21.62	23.64	23.96	21.28	21.21	23.53	22.73	23.28	22.49
Electric Power (c)	26.79	29.20	37.94	29.47	28.65	31.12	42.34	29.81	28.45	28.32	36.79	28.09	30.88	33.01	30.43
Lease and Plant Fuel	5.02	5.20	5.24	5.37	5.26	5.41	5.51	5.55	5.48	5.51	5.54	5.56	5.21	5.43	5.52
Pipeline and Distribution Use	3.77	2.65	2.78	3.19	3.87	2.81	2.98	3.38	3.85	2.67	2.80	3.32	3.09	3.26	3.16
Vehicle Use	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Total Consumption	101.03	72.76	75.96	86.56	105.13	76.42	81.10	91.14	102.90	72.52	75.89	89.28	84.01	88.39	85.08
End-of-period Inventories (billion cubic feet)															
Working Gas Inventory	1,801	2,585	3,306	3,210	1,401	2,325	3,137	2,896	1,433	2,632	3,495	3,132	3,210	2,896	3,132
East Region (d)	313	515	804	766	242	482	756	654	195	548	864	727	766	654	727
Midwest Region (d)	395	630	966	887	296	557	916	813	303	633	989	845	887	813	845
South Central Region (d)	760	993	1,053	1,143	587	885	1,003	1,041	699	1,046	1,125	1,089	1,143	1,041	1,089
Mountain Region (d)	113	175	205	171	90	137	184	174	96	142	207	187	171	174	187
Pacific Region (d)	197	246	248	218	165	240	247	184	110	232	279	252	218	184	252
Alaska	23	27	30	25	21	25	31	31	31	31	31	31	25	31	31

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

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

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

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

- = no data available

LNG: liquefied natural gas.

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Wholesale/Spot															
Henry Hub Spot Price	3.70	3.06	4.53	4.96	4.84	7.77	8.30	6.05	6.45	5.23	5.40	5.61	4.06	6.74	5.67
Residential Retail															
New England	14.70	16.23	20.39	17.65	17.69	20.93	26.87	21.70	20.28	20.33	22.50	17.89	16.15	19.82	19.72
Middle Atlantic	10.41	13.46	19.65	14.28	12.79	15.55	23.57	15.76	14.08	15.60	19.98	13.65	12.54	14.63	14.60
E. N. Central	7.42	12.74	22.45	11.38	9.81	14.81	26.18	14.54	12.79	14.76	20.55	11.37	10.20	12.57	13.12
W. N. Central	7.52	11.60	20.46	12.48	11.40	15.25	24.92	14.54	12.43	14.48	20.37	11.89	10.22	13.39	13.07
S. Atlantic	11.69	17.52	26.47	16.15	13.91	22.15	31.77	18.18	15.82	20.04	26.12	15.44	14.83	17.42	17.12
E. S. Central	9.41	15.00	23.30	14.36	11.80	17.16	28.60	16.92	14.33	18.98	25.16	15.63	12.11	14.37	16.28
W. S. Central	9.18	15.73	23.63	17.68	12.62	20.91	30.36	16.23	12.68	17.74	23.41	14.29	13.04	15.87	14.91
Mountain	7.93	10.64	15.52	10.83	10.31	12.87	19.09	13.09	12.26	13.48	16.61	11.12	9.78	12.01	12.44
Pacific	14.14	14.95	15.84	16.39	17.07	17.80	20.65	19.16	18.61	18.53	18.81	17.82	15.18	18.22	18.38
U.S. Average	9.71	13.82	20.27	13.71	12.32	16.57	24.81	16.27	14.52	16.52	20.88	13.71	12.21	15.02	15.04
Commercial Retail															
New England	10.39	11.15	12.42	12.59	12.62	14.46	16.06	14.73	14.33	13.80	12.83	12.34	11.35	13.94	13.54
Middle Atlantic	7.92	7.99	8.26	10.13	10.36	10.79	11.44	11.70	11.66	10.92	9.96	10.12	8.61	10.97	10.89
E. N. Central	6.12	8.63	11.05	8.70	8.12	10.46	14.38	11.45	10.54	10.87	11.38	9.14	7.62	9.88	10.21
W. N. Central	6.35	7.72	9.99	10.05	10.22	11.73	14.80	11.49	10.67	10.55	11.33	9.43	7.90	11.14	10.32
S. Atlantic	8.76	9.86	10.44	11.20	10.51	12.23	13.77	12.52	11.90	12.27	12.26	11.22	9.81	11.80	11.80
E. S. Central	8.25	9.93	12.00	11.82	10.41	12.80	15.63	13.31	12.09	12.51	12.52	11.19	9.86	12.20	11.92
W. S. Central	6.94	8.62	10.20	10.91	10.09	12.86	14.87	12.64	10.78	10.74	10.61	9.72	8.64	11.95	10.46
Mountain	6.46	7.70	9.14	8.93	8.78	9.98	12.46	11.20	10.71	10.75	11.15	9.72	7.68	10.05	10.45
Pacific	10.52	10.37	11.38	12.19	13.08	13.67	15.48	14.53	13.36	12.26	11.86	11.07	11.16	13.97	12.19
U.S. Average	7.54	8.86	10.14	10.27	10.00	11.71	13.96	12.29	11.48	11.38	11.27	10.15	8.81	11.39	11.03
Industrial Retail															
New England	8.60	8.09	7.86	10.10	11.11	12.09	12.10	12.23	11.96	10.76	9.35	10.37	8.74	11.81	10.84
Middle Atlantic	8.20	7.79	8.32	11.11	10.80	10.10	12.01	11.75	11.55	10.53	9.72	9.87	8.80	11.11	10.76
E. N. Central	5.62	8.64	8.45	8.18	7.66	9.10	10.68	9.61	9.36	8.43	8.00	8.05	7.14	8.82	8.66
W. N. Central	4.89	4.61	5.48	6.97	7.96	8.58	9.41	8.82	8.60	7.16	6.72	7.21	5.55	8.65	7.48
S. Atlantic	4.88	4.58	5.66	7.36	7.44	8.84	10.83	8.67	8.66	7.27	7.07	7.46	5.63	8.84	7.67
E. S. Central	4.50	4.07	5.11	6.87	6.53	8.70	10.48	8.35	8.31	6.98	6.62	7.05	5.14	8.39	7.29
W. S. Central	5.90	3.28	4.49	6.11	5.58	7.69	8.40	6.44	6.71	5.49	5.55	5.70	4.92	7.04	5.85
Mountain	5.24	5.55	6.96	7.67	7.11	8.39	10.31	9.69	9.43	8.71	8.47	8.09	6.31	8.73	8.71
Pacific	8.08	7.05	7.60	8.69	8.82	9.02	10.01	10.52	10.11	9.19	8.72	8.69	7.95	9.58	9.25
U.S. Average	5.77	4.13	5.09	6.82	6.82	8.26	9.14	7.75	8.02	6.48	6.26	6.64	5.50	7.93	6.88

- = no data available

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

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

Prices are not adjusted for inflation.

Regions refer to U.S. Census divisions.

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

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Supply (million short tons)															
Production	140.3	142.7	148.3	146.7	149.0	141.7	153.2	151.4	145.6	135.6	149.4	142.8	578.1	595.3	573.2
Appalachia	40.8	39.5	36.6	38.9	40.2	38.7	38.7	38.9	38.6	36.9	33.0	32.2	155.8	156.4	140.7
Interior	25.0	23.3	22.7	22.5	23.8	21.9	22.7	22.5	22.7	20.7	22.1	20.9	93.5	90.9	86.4
Western	74.5	80.0	89.0	85.3	85.0	81.1	91.7	90.1	84.3	78.0	94.2	89.6	328.8	347.9	346.2
Primary Inventory Withdrawals	1.0	0.3	3.3	0.0	-1.9	0.0	3.4	-0.3	-2.0	0.0	3.4	-0.1	4.6	1.2	1.3
Imports	1.1	1.5	1.1	1.7	1.3	1.6	2.2	2.2	2.0	2.3	2.6	2.3	5.4	7.4	9.2
Exports	20.7	22.0	20.6	21.8	20.2	23.0	20.5	20.2	20.1	21.6	20.3	21.9	85.1	83.9	83.9
Metallurgical Coal	10.3	11.7	11.3	11.7	10.5	13.1	11.6	10.2	10.0	11.0	10.1	10.6	45.0	45.3	41.7
Steam Coal	10.4	10.3	9.3	10.1	9.7	9.9	9.0	10.1	10.1	10.6	10.3	11.2	40.1	38.7	42.2
Total Primary Supply	121.7	122.5	132.1	126.6	128.2	120.4	138.3	133.1	125.5	116.2	135.1	123.1	503.0	520.1	499.9
Secondary Inventory Withdrawals	20.4	0.3	30.5	-14.1	8.8	-1.1	7.9	-20.9	-6.0	-10.6	10.7	-17.2	37.1	-5.3	-23.0
Waste Coal (a)	2.2	1.7	2.0	2.0	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	7.9	7.5	7.2
Total Supply	144.2	124.5	164.6	114.6	138.8	121.2	148.2	114.1	121.3	107.4	147.6	107.7	547.9	522.3	484.0
Consumption (million short tons)															
Coke Plants	4.4	4.5	4.4	4.4	4.2	3.9	3.9	3.9	3.9	4.0	4.0	4.2	17.6	15.8	16.0
Electric Power Sector (b)	128.0	113.8	157.0	102.7	122.6	107.4	136.5	103.5	110.7	97.8	138.0	97.1	501.4	470.0	443.7
Retail and Other Industry	6.9	6.3	6.5	7.0	6.9	6.7	6.3	6.7	6.7	5.6	5.6	6.4	26.7	26.6	24.3
Residential and Commercial	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.4	0.2	0.2	0.3	0.8	0.9	1.0
Other Industrial	6.6	6.2	6.3	6.8	6.7	6.6	6.1	6.4	6.3	5.4	5.4	6.1	25.9	25.8	23.3
Total Consumption	139.2	124.6	167.9	114.1	133.7	118.0	146.6	114.1	121.3	107.4	147.6	107.7	545.7	512.4	484.0
Discrepancy (c)	5.0	-0.1	-3.2	0.5	5.2	3.2	1.5	0.0	0.0	0.0	0.0	0.0	2.2	9.9	0.0
End-of-period Inventories (million short tons)															
Primary Inventories (d)	22.6	22.4	19.0	19.0	21.0	20.9	17.5	17.8	19.8	19.8	16.4	16.5	19.0	17.8	16.5
Secondary Inventories	115.8	115.5	85.0	99.1	90.3	91.4	83.5	104.4	110.4	121.0	110.2	127.4	99.1	104.4	127.4
Electric Power Sector	111.5	110.9	80.4	94.7	86.2	87.3	77.8	98.9	105.7	116.2	105.3	122.6	94.7	98.9	122.6
Retail and General Industry	2.5	2.6	2.6	2.6	2.4	2.4	3.6	3.5	2.9	3.0	3.1	3.1	2.6	3.5	3.1
Coke Plants	1.5	1.9	1.8	1.7	1.6	1.6	1.9	1.8	1.6	1.7	1.7	1.7	1.7	1.8	1.7
Commercial & Institutional	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1
Coal Market Indicators															
Coal Miner Productivity															
(Tons per hour)	6.08	6.08	6.08	6.08	6.05	6.05	6.05	6.05	5.98	5.98	5.98	5.98	6.08	6.05	5.98
Total Raw Steel Production															
(Million short tons per day)	0.246	0.258	0.267	0.260	0.253	0.253	0.247	0.230	0.241	0.235	0.237	0.248	0.258	0.246	0.240
Cost of Coal to Electric Utilities															
(Dollars per million Btu)	1.91	1.93	2.03	2.05	2.19	2.26	2.49	2.47	2.47	2.45	2.42	2.38	1.98	2.36	2.43

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

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

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

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

- = no data available

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

Table 7a. U.S. Electricity Industry Overview

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Electricity Supply (billion kilowatthours)															
Electricity Generation	989	985	1,166	975	1,033	1,028	1,192	983	<i>1,014</i>	<i>1,007</i>	<i>1,153</i>	<i>978</i>	4,116	<i>4,235</i>	<i>4,151</i>
Electric Power Sector (a)	952	949	1,127	935	994	991	1,153	944	<i>976</i>	<i>969</i>	<i>1,112</i>	<i>939</i>	3,963	<i>4,082</i>	<i>3,996</i>
Industrial Sector (b)	34	33	36	36	35	33	36	35	<i>35</i>	<i>34</i>	<i>37</i>	<i>36</i>	140	<i>140</i>	<i>142</i>
Commercial Sector (b)	3	3	4	3	3	3	3	3	<i>3</i>	<i>3</i>	<i>4</i>	<i>3</i>	13	<i>13</i>	<i>13</i>
Net Imports	11	11	11	6	7	10	12	9	<i>11</i>	<i>12</i>	<i>14</i>	<i>11</i>	39	<i>38</i>	<i>48</i>
Total Supply	1,000	997	1,177	981	1,040	1,037	1,204	992	<i>1,025</i>	<i>1,019</i>	<i>1,167</i>	<i>989</i>	4,155	<i>4,272</i>	<i>4,200</i>
Losses and Unaccounted for (c)	54	66	52	52	61	68	57	51	<i>43</i>	<i>64</i>	<i>53</i>	<i>51</i>	225	<i>237</i>	<i>211</i>
Electricity Consumption (billion kilowatthours unless noted)															
Sales to Ultimate Customers	913	898	1,089	894	944	937	1,112	906	<i>949</i>	<i>921</i>	<i>1,078</i>	<i>903</i>	3,795	<i>3,900</i>	<i>3,851</i>
Residential Sector	379	329	446	324	379	346	455	328	<i>380</i>	<i>335</i>	<i>434</i>	<i>330</i>	1,477	<i>1,509</i>	<i>1,479</i>
Commercial Sector	304	321	377	322	322	335	387	328	<i>323</i>	<i>330</i>	<i>375</i>	<i>321</i>	1,325	<i>1,371</i>	<i>1,349</i>
Industrial Sector	229	247	264	247	242	255	268	249	<i>244</i>	<i>255</i>	<i>268</i>	<i>250</i>	987	<i>1,014</i>	<i>1,017</i>
Transportation Sector	2	2	2	2	2	2	2	2	<i>2</i>	<i>2</i>	<i>2</i>	<i>2</i>	6	<i>6</i>	<i>6</i>
Direct Use (d)	33	32	35	35	34	33	35	34	<i>34</i>	<i>33</i>	<i>36</i>	<i>35</i>	136	<i>136</i>	<i>138</i>
Total Consumption	946	931	1,124	929	979	969	1,147	941	<i>983</i>	<i>955</i>	<i>1,114</i>	<i>938</i>	3,930	<i>4,036</i>	<i>3,989</i>
Average residential electricity usage per customer (kWh)	2,746	2,383	3,234	2,348	2,716	2,478	3,261	2,352	<i>2,700</i>	<i>2,380</i>	<i>3,080</i>	<i>2,344</i>	10,711	<i>10,806</i>	<i>10,504</i>
End-of-period Fuel Inventories Held by Electric Power Sector															
Coal (mmst)	111.5	110.9	80.4	94.7	86.2	87.3	77.8	98.9	<i>105.7</i>	<i>116.2</i>	<i>105.3</i>	<i>122.6</i>	94.7	<i>98.9</i>	<i>122.6</i>
Residual Fuel (mmb)	8.0	7.4	6.9	7.0	5.7	5.8	6.1	6.4	<i>4.2</i>	<i>4.2</i>	<i>2.4</i>	<i>3.1</i>	7.0	<i>6.4</i>	<i>3.1</i>
Distillate Fuel (mmb)	16.0	15.5	15.3	16.0	15.5	15.4	15.0	15.1	<i>14.9</i>	<i>14.7</i>	<i>14.7</i>	<i>15.0</i>	16.0	<i>15.1</i>	<i>15.0</i>
Prices															
Power Generation Fuel Costs (dollars per million Btu)															
Coal	1.91	1.93	2.03	2.05	2.19	2.26	2.49	2.47	<i>2.47</i>	<i>2.45</i>	<i>2.42</i>	<i>2.38</i>	1.98	<i>2.36</i>	<i>2.43</i>
Natural Gas	7.24	3.26	4.36	5.42	5.68	7.38	8.18	6.20	<i>6.80</i>	<i>5.29</i>	<i>5.43</i>	<i>5.79</i>	4.97	<i>7.01</i>	<i>5.80</i>
Residual Fuel Oil	11.28	13.09	14.22	16.10	16.91	26.17	26.07	20.47	<i>20.03</i>	<i>19.50</i>	<i>18.21</i>	<i>18.24</i>	13.66	<i>21.56</i>	<i>19.08</i>
Distillate Fuel Oil	13.54	15.20	16.19	18.03	21.11	30.70	26.94	32.02	<i>30.04</i>	<i>26.22</i>	<i>24.23</i>	<i>24.59</i>	15.50	<i>26.26</i>	<i>26.79</i>
Prices to Ultimate Customers (cents per kilowatt-hour)															
Residential Sector	13.10	13.84	13.99	13.97	13.98	15.08	15.73	14.93	<i>14.71</i>	<i>15.69</i>	<i>15.94</i>	<i>14.86</i>	13.72	<i>14.97</i>	<i>15.33</i>
Commercial Sector	10.99	11.07	11.59	11.37	11.63	12.34	13.10	12.16	<i>12.28</i>	<i>12.72</i>	<i>13.25</i>	<i>12.03</i>	11.27	<i>12.35</i>	<i>12.60</i>
Industrial Sector	7.09	6.92	7.62	7.38	7.42	8.40	9.33	7.83	<i>7.67</i>	<i>8.21</i>	<i>9.03</i>	<i>7.72</i>	7.26	<i>8.27</i>	<i>8.18</i>
Wholesale Electricity Prices (dollars per megawatt-hour)															
ERCOT North hub	616.34	39.74	52.31	49.79	42.73	83.19	130.71	54.37	<i>52.89</i>	<i>41.56</i>	<i>55.33</i>	<i>42.90</i>	189.54	<i>77.75</i>	<i>48.17</i>
CAISO SP15 zone	44.74	36.90	72.02	60.47	45.20	60.34	110.03	70.55	<i>54.51</i>	<i>49.71</i>	<i>80.86</i>	<i>44.49</i>	53.53	<i>71.53</i>	<i>57.39</i>
ISO-NE Internal hub	55.26	33.67	52.57	65.75	116.48	73.28	99.14	78.67	<i>155.64</i>	<i>54.30</i>	<i>53.53</i>	<i>80.86</i>	51.81	<i>91.89</i>	<i>86.08</i>
NYISO Hudson Valley zone	44.74	31.85	50.42	57.54	100.10	79.72	104.71	87.13	<i>118.43</i>	<i>56.26</i>	<i>59.95</i>	<i>70.09</i>	46.14	<i>92.91</i>	<i>76.18</i>
PJM Western hub	35.09	33.71	51.32	62.57	58.33	93.00	110.99	79.75	<i>83.91</i>	<i>67.18</i>	<i>70.62</i>	<i>64.83</i>	45.67	<i>85.52</i>	<i>71.63</i>
Midcontinent ISO Illinois hub	44.97	33.82	49.36	57.71	47.88	89.21	101.80	65.69	<i>66.00</i>	<i>56.27</i>	<i>58.56</i>	<i>52.89</i>	46.47	<i>76.14</i>	<i>58.43</i>
SPP ISO South hub	250.31	30.86	48.63	45.72	37.25	72.85	109.97	57.03	<i>54.06</i>	<i>47.49</i>	<i>53.94</i>	<i>44.54</i>	93.88	<i>69.27</i>	<i>50.01</i>
SERC index, Into Southern	41.10	32.93	44.18	51.34	42.45	84.96	94.82	62.19	<i>61.08</i>	<i>52.42</i>	<i>54.99</i>	<i>49.07</i>	42.39	<i>71.10</i>	<i>54.39</i>
FRCC index, Florida Reliability	27.73	32.17	42.76	49.02	41.11	78.70	92.71	62.49	<i>61.24</i>	<i>54.21</i>	<i>55.02</i>	<i>49.35</i>	37.92	<i>68.75</i>	<i>54.95</i>
Northwest index, Mid-Columbia	34.56	51.51	91.61	60.46	39.85	59.39	137.82	75.90	<i>59.42</i>	<i>50.25</i>	<i>84.55</i>	<i>49.51</i>	59.53	<i>78.24</i>	<i>60.93</i>
Southwest index, Palo Verde	41.72	46.57	79.86	53.60	39.02	60.50	128.25	56.39	<i>46.45</i>	<i>48.52</i>	<i>76.95</i>	<i>39.76</i>	55.44	<i>71.04</i>	<i>52.92</i>

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

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

kWh = kilowatt-hours. Btu = British thermal units.

Prices are not adjusted for inflation.

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

Historical data sources:

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Residential Sector															
New England	12.9	10.8	14.0	11.0	13.1	10.5	13.9	<i>10.8</i>	<i>12.8</i>	<i>10.4</i>	<i>12.5</i>	<i>10.8</i>	48.7	<i>48.4</i>	<i>46.4</i>
Middle Atlantic	36.0	30.3	41.9	30.5	36.1	30.0	42.5	<i>30.6</i>	<i>36.2</i>	<i>30.1</i>	<i>39.1</i>	<i>30.6</i>	138.7	<i>139.3</i>	<i>136.0</i>
E. N. Central	50.1	43.1	56.3	43.2	50.9	43.8	54.2	<i>44.0</i>	<i>50.2</i>	<i>42.6</i>	<i>53.7</i>	<i>44.6</i>	192.6	<i>192.9</i>	<i>191.0</i>
W. N. Central	29.9	23.7	31.0	24.0	30.6	24.7	31.4	<i>23.9</i>	<i>30.5</i>	<i>23.7</i>	<i>30.4</i>	<i>23.5</i>	108.6	<i>110.7</i>	<i>108.1</i>
S. Atlantic	95.2	85.1	111.5	83.1	96.0	91.6	115.7	<i>84.5</i>	<i>99.1</i>	<i>89.3</i>	<i>113.3</i>	<i>86.4</i>	374.9	<i>387.8</i>	<i>388.0</i>
E. S. Central	33.5	25.3	35.8	25.9	32.7	27.7	37.0	<i>26.8</i>	<i>34.1</i>	<i>27.1</i>	<i>36.3</i>	<i>27.1</i>	120.5	<i>124.2</i>	<i>124.6</i>
W. S. Central	56.8	50.0	76.2	47.5	55.7	57.9	80.8	<i>48.2</i>	<i>53.5</i>	<i>54.2</i>	<i>75.1</i>	<i>48.9</i>	230.5	<i>242.6</i>	<i>231.7</i>
Mountain	23.7	26.9	35.2	22.3	24.2	26.3	35.9	<i>23.1</i>	<i>24.1</i>	<i>25.4</i>	<i>33.9</i>	<i>23.4</i>	108.1	<i>109.4</i>	<i>106.8</i>
Pacific contiguous	39.0	32.2	43.0	34.8	38.5	32.4	42.5	<i>35.0</i>	<i>38.5</i>	<i>31.4</i>	<i>38.4</i>	<i>33.5</i>	149.0	<i>148.5</i>	<i>141.8</i>
AK and HI	1.3	1.1	1.2	1.3	1.3	1.1	1.2	<i>1.3</i>	<i>1.2</i>	<i>1.1</i>	<i>1.2</i>	<i>1.3</i>	4.9	<i>4.8</i>	<i>4.8</i>
Total	378.5	328.5	445.8	323.7	379.1	346.0	455.2	<i>328.4</i>	<i>380.2</i>	<i>335.2</i>	<i>433.7</i>	<i>330.0</i>	1,476.6	<i>1,508.7</i>	<i>1,479.1</i>
Commercial Sector															
New England	11.7	11.7	13.5	11.5	12.1	11.8	13.7	<i>11.8</i>	<i>12.1</i>	<i>11.7</i>	<i>13.0</i>	<i>11.5</i>	48.5	<i>49.4</i>	<i>48.3</i>
Middle Atlantic	34.6	33.2	39.7	34.3	36.0	34.3	40.3	<i>34.6</i>	<i>36.3</i>	<i>34.1</i>	<i>38.5</i>	<i>33.8</i>	141.9	<i>145.2</i>	<i>142.8</i>
E. N. Central	41.7	42.1	48.9	42.1	43.3	42.9	48.6	<i>42.5</i>	<i>43.2</i>	<i>42.1</i>	<i>47.5</i>	<i>41.5</i>	174.8	<i>177.2</i>	<i>174.3</i>
W. N. Central	24.0	23.7	27.6	24.0	25.1	24.6	27.9	<i>24.2</i>	<i>25.1</i>	<i>24.1</i>	<i>27.2</i>	<i>23.7</i>	99.3	<i>101.8</i>	<i>100.1</i>
S. Atlantic	70.8	77.3	89.6	75.3	75.1	82.5	92.9	<i>76.3</i>	<i>75.5</i>	<i>81.2</i>	<i>90.9</i>	<i>75.7</i>	313.1	<i>326.9</i>	<i>323.2</i>
E. S. Central	20.7	21.5	26.0	20.9	21.0	22.4	26.7	<i>20.7</i>	<i>21.0</i>	<i>21.8</i>	<i>26.0</i>	<i>20.5</i>	89.0	<i>90.9</i>	<i>89.3</i>
W. S. Central	42.4	50.5	58.7	49.5	46.7	51.7	61.2	<i>51.4</i>	<i>47.4</i>	<i>51.0</i>	<i>59.3</i>	<i>50.8</i>	201.0	<i>211.0</i>	<i>208.4</i>
Mountain	21.9	24.8	28.8	23.2	23.2	25.4	29.5	<i>23.8</i>	<i>23.2</i>	<i>25.0</i>	<i>28.5</i>	<i>23.4</i>	98.7	<i>101.9</i>	<i>100.2</i>
Pacific contiguous	35.2	35.3	43.1	39.6	37.7	37.9	44.6	<i>40.9</i>	<i>37.8</i>	<i>37.3</i>	<i>42.6</i>	<i>39.1</i>	153.2	<i>161.1</i>	<i>156.8</i>
AK and HI	1.3	1.3	1.3	1.4	1.3	1.3	1.4	<i>1.4</i>	<i>1.3</i>	<i>1.3</i>	<i>1.4</i>	<i>1.4</i>	5.3	<i>5.3</i>	<i>5.3</i>
Total	304.3	321.5	377.2	321.8	321.5	334.7	386.9	<i>327.5</i>	<i>322.9</i>	<i>329.6</i>	<i>374.9</i>	<i>321.4</i>	1,324.8	<i>1,370.7</i>	<i>1,348.7</i>
Industrial Sector															
New England	3.8	4.0	4.2	3.9	3.9	3.9	4.1	<i>3.8</i>	<i>3.8</i>	<i>3.8</i>	<i>4.1</i>	<i>3.8</i>	15.8	<i>15.7</i>	<i>15.5</i>
Middle Atlantic	17.6	17.9	19.4	18.1	17.5	18.2	19.5	<i>18.1</i>	<i>17.7</i>	<i>18.3</i>	<i>19.4</i>	<i>18.1</i>	73.1	<i>73.4</i>	<i>73.4</i>
E. N. Central	44.5	46.4	48.6	46.0	45.9	47.0	49.1	<i>45.8</i>	<i>46.1</i>	<i>46.7</i>	<i>48.7</i>	<i>45.7</i>	185.5	<i>187.9</i>	<i>187.2</i>
W. N. Central	23.0	24.2	26.0	24.6	24.0	24.8	26.6	<i>24.7</i>	<i>24.3</i>	<i>24.4</i>	<i>26.1</i>	<i>24.5</i>	97.9	<i>100.1</i>	<i>99.4</i>
S. Atlantic	33.4	35.9	38.2	36.1	36.3	37.4	38.8	<i>36.4</i>	<i>36.8</i>	<i>37.4</i>	<i>38.6</i>	<i>36.6</i>	143.7	<i>149.1</i>	<i>149.4</i>
E. S. Central	23.7	24.9	26.1	25.0	24.7	25.8	25.9	<i>24.4</i>	<i>24.4</i>	<i>25.5</i>	<i>25.6</i>	<i>24.3</i>	99.7	<i>100.8</i>	<i>99.7</i>
W. S. Central	44.1	49.7	54.3	51.5	49.8	53.4	55.4	<i>53.6</i>	<i>51.7</i>	<i>55.7</i>	<i>57.8</i>	<i>55.7</i>	199.7	<i>212.2</i>	<i>220.9</i>
Mountain	19.2	21.6	23.2	20.4	19.9	21.7	23.7	<i>20.6</i>	<i>19.9</i>	<i>21.8</i>	<i>23.9</i>	<i>20.8</i>	84.4	<i>85.9</i>	<i>86.5</i>
Pacific contiguous	18.2	20.9	23.1	20.4	19.0	21.0	23.6	<i>20.3</i>	<i>18.4</i>	<i>20.2</i>	<i>22.5</i>	<i>19.4</i>	82.5	<i>84.0</i>	<i>80.5</i>
AK and HI	1.1	1.2	1.2	1.2	1.1	1.2	1.2	<i>1.2</i>	<i>1.1</i>	<i>1.2</i>	<i>1.2</i>	<i>1.2</i>	4.6	<i>4.7</i>	<i>4.7</i>
Total	228.5	246.7	264.4	247.2	242.1	254.6	268.2	<i>249.0</i>	<i>244.2</i>	<i>255.0</i>	<i>267.7</i>	<i>250.0</i>	986.8	<i>1,013.8</i>	<i>1,017.0</i>
Total All Sectors (a)															
New England	28.5	26.6	31.7	26.5	29.2	26.3	31.9	<i>26.5</i>	<i>28.8</i>	<i>26.0</i>	<i>29.6</i>	<i>26.2</i>	113.4	<i>114.0</i>	<i>110.6</i>
Middle Atlantic	89.1	82.3	101.8	83.7	90.5	83.3	103.2	<i>84.1</i>	<i>91.0</i>	<i>83.2</i>	<i>97.8</i>	<i>83.3</i>	356.9	<i>361.2</i>	<i>355.4</i>
E. N. Central	136.4	131.7	154.0	131.3	140.3	133.8	152.1	<i>132.4</i>	<i>139.6</i>	<i>131.5</i>	<i>150.0</i>	<i>131.9</i>	553.4	<i>558.5</i>	<i>552.9</i>
W. N. Central	77.0	71.6	84.6	72.6	79.7	74.1	85.9	<i>72.8</i>	<i>79.9</i>	<i>72.3</i>	<i>83.8</i>	<i>71.7</i>	305.8	<i>312.6</i>	<i>307.6</i>
S. Atlantic	199.7	198.6	239.6	194.9	207.7	211.8	247.7	<i>197.6</i>	<i>211.7</i>	<i>208.1</i>	<i>243.0</i>	<i>198.9</i>	832.7	<i>864.8</i>	<i>861.7</i>
E. S. Central	77.8	71.8	87.8	71.9	78.4	76.0	89.6	<i>72.0</i>	<i>79.5</i>	<i>74.4</i>	<i>87.8</i>	<i>71.8</i>	309.2	<i>315.9</i>	<i>313.5</i>
W. S. Central	143.4	150.2	189.2	148.5	152.3	163.0	197.5	<i>153.2</i>	<i>152.6</i>	<i>160.9</i>	<i>192.3</i>	<i>155.4</i>	631.4	<i>666.0</i>	<i>661.2</i>
Mountain	64.9	73.3	87.3	66.0	67.3	73.4	89.1	<i>67.5</i>	<i>67.3</i>	<i>72.2</i>	<i>86.4</i>	<i>67.7</i>	291.4	<i>297.4</i>	<i>293.6</i>
Pacific contiguous	92.5	88.6	109.3	95.0	95.4	91.5	111.0	<i>96.4</i>	<i>94.9</i>	<i>89.1</i>	<i>103.6</i>	<i>92.2</i>	385.5	<i>394.3</i>	<i>379.8</i>
AK and HI	3.7	3.6	3.7	3.9	3.7	3.6	3.7	<i>3.8</i>	<i>3.7</i>	<i>3.6</i>	<i>3.7</i>	<i>3.8</i>	14.9	<i>14.9</i>	<i>14.8</i>
Total	913.0	898.2	1,089.1	894.3	944.5	936.9	1,111.9	<i>906.4</i>	<i>948.9</i>	<i>921.3</i>	<i>1,077.9</i>	<i>903.0</i>	3,794.5	<i>3,899.6</i>	<i>3,851.1</i>

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

- = no data available

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

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

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

Regions refer to U.S. Census divisions.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Residential Sector															
New England	21.38	21.34	21.43	21.95	23.93	24.31	25.12	26.15	<i>27.96</i>	<i>27.94</i>	<i>28.18</i>	<i>28.40</i>	21.51	24.85	<i>28.12</i>
Middle Atlantic	15.63	16.51	16.93	16.85	17.12	18.31	18.63	17.58	<i>17.80</i>	<i>18.46</i>	<i>18.40</i>	<i>17.28</i>	16.49	17.94	<i>18.00</i>
E. N. Central	13.39	14.50	14.14	14.48	14.22	15.51	16.06	15.47	<i>14.92</i>	<i>16.06</i>	<i>16.41</i>	<i>15.43</i>	14.10	15.32	<i>15.71</i>
W. N. Central	10.88	12.77	13.29	11.90	11.28	13.27	14.25	12.15	<i>11.47</i>	<i>13.57</i>	<i>14.35</i>	<i>12.00</i>	12.21	12.75	<i>12.85</i>
S. Atlantic	11.66	12.34	12.48	12.48	12.68	13.61	14.15	13.36	<i>13.24</i>	<i>14.13</i>	<i>14.38</i>	<i>13.15</i>	12.24	13.49	<i>13.76</i>
E. S. Central	11.20	12.24	11.99	12.02	11.97	13.09	13.75	12.63	<i>12.42</i>	<i>13.22</i>	<i>13.53</i>	<i>12.54</i>	11.83	12.89	<i>12.94</i>
W. S. Central	11.85	11.70	11.80	12.28	11.83	12.97	13.80	13.76	<i>12.76</i>	<i>13.53</i>	<i>14.02</i>	<i>13.53</i>	11.89	13.14	<i>13.51</i>
Mountain	11.53	12.09	12.33	12.27	12.14	12.86	13.20	12.81	<i>12.52</i>	<i>13.24</i>	<i>13.44</i>	<i>12.89</i>	12.08	12.80	<i>13.06</i>
Pacific	16.75	18.15	19.43	17.55	18.12	20.58	21.67	18.16	<i>18.90</i>	<i>21.62</i>	<i>22.26</i>	<i>18.38</i>	18.01	19.68	<i>20.29</i>
U.S. Average	13.10	13.84	13.99	13.97	13.98	15.08	15.73	14.93	<i>14.71</i>	<i>15.69</i>	<i>15.94</i>	<i>14.86</i>	13.72	14.97	<i>15.33</i>
Commercial Sector															
New England	16.31	15.96	16.78	16.89	18.54	17.56	18.52	18.92	<i>20.40</i>	<i>18.96</i>	<i>19.63</i>	<i>19.50</i>	16.49	18.39	<i>19.63</i>
Middle Atlantic	12.51	13.24	14.31	13.53	14.05	14.93	16.39	14.61	<i>14.73</i>	<i>15.05</i>	<i>16.17</i>	<i>14.09</i>	13.43	15.04	<i>15.04</i>
E. N. Central	10.40	10.70	10.66	10.92	11.08	11.85	12.03	11.65	<i>11.71</i>	<i>12.22</i>	<i>12.08</i>	<i>11.44</i>	10.67	11.66	<i>11.87</i>
W. N. Central	9.10	10.19	10.83	9.61	9.65	10.70	11.33	9.11	<i>9.22</i>	<i>9.96</i>	<i>10.91</i>	<i>8.76</i>	9.97	10.24	<i>9.75</i>
S. Atlantic	9.29	9.18	9.52	9.95	10.30	10.87	11.10	10.67	<i>10.88</i>	<i>11.23</i>	<i>11.21</i>	<i>10.36</i>	9.49	10.76	<i>10.94</i>
E. S. Central	10.98	11.24	11.27	11.26	11.69	12.20	13.05	12.58	<i>12.57</i>	<i>12.74</i>	<i>13.32</i>	<i>12.58</i>	11.19	12.42	<i>12.83</i>
W. S. Central	10.37	8.89	8.55	8.65	8.65	9.60	9.81	8.81	<i>8.80</i>	<i>9.51</i>	<i>9.81</i>	<i>8.87</i>	9.04	9.26	<i>9.28</i>
Mountain	9.11	9.76	10.20	9.59	9.56	10.31	10.78	9.92	<i>9.84</i>	<i>10.53</i>	<i>10.93</i>	<i>9.94</i>	9.70	10.18	<i>10.35</i>
Pacific	14.52	15.99	18.08	16.12	16.09	17.77	20.42	17.91	<i>17.83</i>	<i>19.38</i>	<i>21.49</i>	<i>18.28</i>	16.27	18.15	<i>19.30</i>
U.S. Average	10.99	11.07	11.59	11.37	11.63	12.34	13.10	12.16	<i>12.28</i>	<i>12.72</i>	<i>13.25</i>	<i>12.03</i>	11.27	12.35	<i>12.60</i>
Industrial Sector															
New England	13.50	12.99	13.71	14.13	15.14	15.22	15.97	15.51	<i>16.00</i>	<i>15.76</i>	<i>16.29</i>	<i>15.64</i>	13.58	15.47	<i>15.93</i>
Middle Atlantic	6.52	6.59	7.11	7.30	7.87	8.28	8.97	7.47	<i>7.92</i>	<i>7.85</i>	<i>8.40</i>	<i>7.17</i>	6.89	8.17	<i>7.84</i>
E. N. Central	6.97	6.97	7.38	7.70	7.72	8.55	9.32	8.26	<i>8.03</i>	<i>8.41</i>	<i>9.08</i>	<i>8.21</i>	7.26	8.48	<i>8.44</i>
W. N. Central	6.97	7.30	8.00	7.06	7.16	7.99	8.84	7.25	<i>7.39</i>	<i>8.02</i>	<i>8.82</i>	<i>7.33</i>	7.35	7.83	<i>7.90</i>
S. Atlantic	6.24	6.31	7.04	6.89	6.85	8.08	8.75	7.04	<i>7.08</i>	<i>7.80</i>	<i>8.35</i>	<i>6.89</i>	6.64	7.70	<i>7.54</i>
E. S. Central	5.75	5.86	6.27	6.26	6.35	7.36	8.35	6.87	<i>6.62</i>	<i>7.17</i>	<i>8.06</i>	<i>6.76</i>	6.04	7.25	<i>7.16</i>
W. S. Central	7.22	5.46	6.00	6.13	6.20	7.26	7.92	6.60	<i>6.36</i>	<i>6.80</i>	<i>7.25</i>	<i>6.29</i>	6.17	7.02	<i>6.69</i>
Mountain	6.27	6.63	7.39	6.54	6.59	7.27	8.26	6.91	<i>6.76</i>	<i>7.32</i>	<i>8.23</i>	<i>6.89</i>	6.74	7.30	<i>7.34</i>
Pacific	9.69	10.71	12.62	11.06	10.34	11.97	14.27	11.75	<i>10.76</i>	<i>12.27</i>	<i>14.52</i>	<i>11.97</i>	11.10	12.20	<i>12.48</i>
U.S. Average	7.09	6.92	7.62	7.38	7.42	8.40	9.33	7.83	<i>7.67</i>	<i>8.21</i>	<i>9.03</i>	<i>7.72</i>	7.26	8.27	<i>8.18</i>
All Sectors (a)															
New England	18.20	17.67	18.40	18.54	20.48	19.88	21.05	21.34	<i>23.13</i>	<i>22.04</i>	<i>22.74</i>	<i>22.56</i>	18.21	20.70	<i>22.64</i>
Middle Atlantic	12.57	12.98	14.00	13.37	14.07	14.67	15.89	14.14	<i>14.61</i>	<i>14.69</i>	<i>15.51</i>	<i>13.75</i>	13.26	14.74	<i>14.68</i>
E. N. Central	10.38	10.62	10.90	10.96	11.11	11.89	12.58	11.75	<i>11.64</i>	<i>12.10</i>	<i>12.65</i>	<i>11.67</i>	10.72	11.85	<i>12.03</i>
W. N. Central	9.16	10.07	10.86	9.50	9.53	10.65	11.62	9.48	<i>9.52</i>	<i>10.49</i>	<i>11.51</i>	<i>9.33</i>	9.92	10.36	<i>10.24</i>
S. Atlantic	9.91	10.01	10.50	10.46	10.79	11.56	12.16	11.15	<i>11.32</i>	<i>11.85</i>	<i>12.23</i>	<i>10.93</i>	10.23	11.45	<i>11.62</i>
E. S. Central	9.48	9.72	10.08	9.80	10.12	10.88	11.98	10.66	<i>10.68</i>	<i>11.01</i>	<i>11.88</i>	<i>10.60</i>	9.78	10.96	<i>11.07</i>
W. S. Central	9.99	8.69	9.13	8.93	9.01	10.03	10.91	9.59	<i>9.36</i>	<i>9.93</i>	<i>10.68</i>	<i>9.41</i>	9.17	9.96	<i>9.90</i>
Mountain	9.16	9.69	10.31	9.55	9.61	10.33	11.09	9.99	<i>9.89</i>	<i>10.51</i>	<i>11.17</i>	<i>10.02</i>	9.73	10.32	<i>10.45</i>
Pacific	14.50	15.52	17.45	15.55	15.75	17.42	19.58	16.69	<i>16.88</i>	<i>18.54</i>	<i>20.24</i>	<i>16.98</i>	15.83	17.45	<i>18.21</i>
U.S. Average	10.88	10.94	11.61	11.21	11.49	12.28	13.27	11.97	<i>12.07</i>	<i>12.55</i>	<i>13.28</i>	<i>11.87</i>	11.18	12.30	<i>12.48</i>

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

- = no data available

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

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

Prices are not adjusted for inflation.

Regions refer to U.S. Census divisions.

See "Census division" in EIA's Energy Glossary (<http://www.eia.doe.gov/glossary/index.html>) for a list of States in each region.**Historical data:** Latest data available from Energy Information Administration databases supporting the following reports: *Electric Power Monthly*, DOE/EIA-0226; and *Electric*

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

Forecasts: EIA Short-Term Integrated Forecasting System.

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
United States															
Natural Gas	319.3	345.7	453.9	354.7	337.9	365.1	505.1	357.0	335.7	331.9	439.6	338.1	1,473.6	1,565.1	1,445.4
Coal	230.0	203.8	280.9	178.1	217.5	189.1	238.7	180.4	196.5	170.7	241.6	169.1	892.8	825.6	777.9
Nuclear	198.4	186.6	202.8	190.4	195.6	184.3	201.7	190.8	193.9	187.7	206.4	196.2	778.2	772.4	784.2
Renewable Energy Sources:	197.9	207.3	183.3	206.6	235.5	247.1	202.2	210.6	243.5	274.6	219.6	230.1	795.2	895.5	967.8
Conventional Hydropower	68.7	65.8	60.7	63.8	76.5	70.8	66.3	57.1	70.9	81.1	66.4	61.2	259.0	270.8	279.6
Wind	97.0	96.1	76.8	108.8	119.5	121.7	82.1	114.7	127.6	128.4	87.5	120.1	378.6	437.9	463.7
Solar (a)	21.3	34.7	34.6	23.3	28.9	44.3	42.6	28.5	34.6	55.0	54.7	38.5	113.9	144.3	182.8
Biomass	7.2	6.8	7.2	6.7	6.7	6.5	7.2	6.3	6.6	6.3	6.8	6.3	27.9	26.7	26.0
Geothermal	3.8	3.9	4.0	4.0	3.9	3.8	4.1	4.0	3.9	3.8	4.2	3.9	15.7	15.8	15.8
Pumped Storage Hydropower	-1.1	-1.0	-1.8	-1.2	-1.2	-1.3	-1.8	-1.3	-1.1	-1.4	-1.9	-1.3	-5.1	-5.7	-5.7
Petroleum (b)	5.2	3.5	4.7	4.4	6.6	4.1	4.2	4.0	5.4	3.7	4.2	4.0	17.8	18.8	17.4
Other Gases	0.7	0.8	0.9	0.7	0.8	0.9	0.9	0.8	0.8	0.7	0.9	0.8	3.2	3.3	3.2
Other Nonrenewable Fuels (c)	1.8	1.8	1.8	1.8	1.6	1.6	1.7	1.8	1.5	1.5	1.5	1.7	7.2	6.6	6.2
Total Generation	952.3	948.7	1,126.7	935.6	994.2	990.9	1,152.6	944.0	976.2	969.5	1,112.0	938.8	3,963.2	4,081.7	3,996.4
New England (ISO-NE)															
Natural Gas	12.2	11.0	15.7	12.6	11.8	12.4	17.2	13.8	12.3	12.1	15.0	11.8	51.5	55.3	51.2
Coal	0.5	0.0	0.0	0.0	0.3	0.0	0.1	0.1	0.3	0.1	0.1	0.1	0.6	0.4	0.6
Nuclear	7.1	7.1	7.3	5.6	7.1	5.6	7.4	7.3	7.1	5.6	7.3	6.2	27.1	27.3	26.2
Conventional hydropower	1.7	1.5	1.5	1.5	1.7	1.4	1.2	1.8	2.0	2.2	1.2	1.8	6.3	6.2	7.2
Nonhydro renewables (d)	2.8	2.9	2.6	2.8	3.1	3.2	3.0	2.8	3.1	3.2	3.0	2.9	11.2	12.1	12.3
Other energy sources (e)	0.4	0.3	0.3	0.4	1.4	0.4	0.3	0.4	1.0	0.3	0.3	0.4	1.5	2.5	2.0
Total generation	24.7	22.9	27.6	23.1	25.4	23.0	29.2	26.2	25.9	23.6	26.8	23.2	98.2	103.9	99.4
Net energy for load (f)	29.4	27.0	32.5	27.6	30.2	26.0	33.1	27.4	29.9	27.5	31.9	28.5	116.4	116.6	117.8
New York (NYISO)															
Natural Gas	12.9	14.1	19.7	15.2	14.0	15.5	22.1	13.6	13.4	16.6	18.9	13.7	61.9	65.1	62.7
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nuclear	9.3	7.7	7.2	7.0	6.4	7.0	6.4	6.7	6.6	6.4	7.0	7.0	31.1	26.5	27.1
Conventional hydropower	6.9	6.8	6.9	7.2	7.1	6.6	6.6	6.9	7.2	7.3	7.3	7.6	27.9	27.2	29.4
Nonhydro renewables (d)	1.8	1.8	1.6	1.9	2.2	2.1	1.8	2.1	2.4	2.7	2.2	2.8	7.1	8.1	10.2
Other energy sources (e)	0.6	0.2	0.4	0.1	1.4	0.1	0.2	0.1	0.7	0.1	0.2	0.1	1.3	1.8	1.2
Total generation	31.5	30.6	35.8	31.4	31.0	31.4	37.0	29.3	30.4	33.2	35.7	31.2	129.3	128.7	130.5
Net energy for load (f)	36.6	34.7	42.8	34.9	37.6	34.0	43.4	35.0	36.9	35.4	41.5	35.0	149.0	150.0	148.7
Mid-Atlantic (PJM)															
Natural Gas	72.7	70.8	88.9	78.5	76.9	74.4	102.5	75.5	85.6	74.3	94.5	80.7	310.9	329.3	335.1
Coal	50.5	39.9	55.4	29.5	48.6	35.4	41.8	29.5	40.9	30.7	42.7	28.3	175.4	155.3	142.5
Nuclear	68.3	64.6	70.5	68.3	69.0	65.1	69.7	66.7	67.8	67.1	72.0	68.7	271.7	270.5	275.7
Conventional hydropower	2.6	2.3	2.2	2.2	2.6	2.2	1.5	2.1	2.7	2.7	1.7	2.1	9.3	8.5	9.1
Nonhydro renewables (d)	11.0	10.7	9.2	11.5	13.2	12.9	10.3	11.9	14.1	13.7	11.8	13.4	42.4	48.4	53.0
Other energy sources (e)	0.9	0.6	0.4	0.6	0.6	0.4	0.2	0.5	0.6	0.3	0.2	0.6	2.5	1.8	1.7
Total generation	206.0	188.9	226.7	190.6	211.0	190.4	226.2	186.2	211.7	188.8	223.0	193.7	812.1	813.7	817.1
Net energy for load (f)	194.5	177.6	215.3	182.9	200.9	180.1	213.7	183.9	200.9	181.4	206.8	182.7	770.2	778.7	771.8
Southeast (SERC)															
Natural Gas	57.6	57.2	73.2	64.3	64.1	67.5	86.4	66.0	64.4	61.6	77.1	60.7	252.3	284.1	263.8
Coal	36.3	33.7	44.3	23.3	32.3	32.8	32.7	28.1	30.3	27.6	41.6	26.8	137.7	125.8	126.3
Nuclear	53.8	52.2	54.1	52.0	51.4	51.1	55.5	52.1	52.5	53.8	57.3	57.4	212.2	210.1	221.0
Conventional hydropower	11.6	10.4	10.9	11.0	11.9	9.8	8.9	10.1	12.8	10.1	9.3	10.2	43.9	40.7	42.4
Nonhydro renewables (d)	3.9	5.7	5.4	4.1	5.0	7.0	6.4	4.9	5.7	8.0	7.3	5.6	19.1	23.4	26.6
Other energy sources (e)	0.0	-0.2	-0.5	-0.2	-0.2	-0.3	-0.6	-0.3	-0.2	-0.4	-0.6	-0.3	-0.9	-1.3	-1.5
Total generation	163.2	159.0	187.3	154.6	164.6	167.9	189.4	160.9	165.5	160.8	191.9	160.4	664.2	682.7	678.5
Net energy for load (f)	161.3	154.7	183.9	154.5	166.7	168.3	182.6	152.8	164.9	161.0	186.7	157.5	654.4	670.3	670.1
Florida (FRCC)															
Natural Gas	34.5	43.8	52.5	40.9	38.3	46.7	55.9	39.9	33.0	39.6	51.6	47.3	171.8	180.7	171.6
Coal	4.7	5.3	5.6	2.8	3.5	4.2	3.7	2.8	2.7	4.0	3.6	1.8	18.3	14.2	12.0
Nuclear	7.8	7.2	7.2	5.8	7.3	7.9	7.5	7.9	7.0	6.9	7.5	7.7	28.1	30.6	29.2
Conventional hydropower	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.2
Nonhydro renewables (d)	2.4	3.1	2.9	2.6	2.9	3.7	3.8	3.3	3.8	5.3	4.8	4.1	11.0	13.7	18.0
Other energy sources (e)	0.8	0.7	0.7	0.6	0.7	0.6	0.7	0.7	0.7	0.6	0.7	0.7	2.8	2.7	2.8
Total generation	50.3	60.2	68.9	52.8	52.8	63.1	71.6	54.6	47.3	56.5	68.2	61.6	232.2	242.1	233.7
Net energy for load (f)	52.4	63.8	72.4	55.6	53.9	66.2	77.5	54.2	50.5	60.2	67.9	53.0	244.2	251.8	231.5

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

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

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

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

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

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

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

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

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

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

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

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Renewable Energy Electric Generating Capacity (megawatts, end of period)															
Electric Power Sector (a)															
Biomass	6,130	6,110	6,081	6,087	6,083	6,084	6,020	5,994	5,991	6,027	6,027	6,009	6,087	5,994	6,009
Waste	3,680	3,660	3,646	3,652	3,649	3,649	3,585	3,560	3,557	3,592	3,592	3,590	3,652	3,560	3,590
Wood	2,450	2,450	2,435	2,435	2,435	2,435	2,435	2,435	2,435	2,435	2,435	2,419	2,435	2,435	2,419
Conventional Hydroelectric	79,538	79,608	79,611	79,611	79,649	79,649	79,584	79,680	79,679	79,711	79,738	79,745	79,611	79,680	79,745
Geothermal	2,523	2,523	2,523	2,523	2,523	2,540	2,578	2,578	2,603	2,603	2,603	2,603	2,523	2,578	2,603
Large-Scale Solar (b)	50,533	52,435	55,700	61,009	63,175	65,236	67,014	75,959	79,521	83,980	89,292	106,071	61,009	75,959	106,071
Wind	120,974	124,729	126,684	132,629	134,862	137,384	138,029	144,123	144,798	145,176	145,736	148,901	132,629	144,123	148,901
Other Sectors (c)															
Biomass	6,319	6,321	6,325	6,306	6,306	6,300	6,312	6,339	6,339	6,330	6,330	6,330	6,306	6,339	6,330
Waste	826	828	827	817	817	817	817	817	817	817	817	817	817	817	817
Wood	5,493	5,493	5,498	5,489	5,489	5,483	5,495	5,522	5,522	5,513	5,513	5,513	5,489	5,522	5,513
Conventional Hydroelectric	301	301	299	299	299	302	302	302	302	302	300	300	299	302	300
Large-Scale Solar (b)	477	479	519	541	559	569	571	575	580	589	634	634	541	575	634
Small-Scale Solar (d)	28,846	30,325	31,515	32,972	34,720	36,197	37,935	40,025	42,216	44,530	46,973	49,556	32,972	40,025	49,556
Residential Sector	18,023	19,102	20,039	21,022	22,260	23,446	24,829	26,371	27,995	29,719	31,549	33,490	21,022	26,371	33,490
Commercial Sector	8,734	9,086	9,300	9,728	10,220	10,496	10,809	11,296	11,802	12,329	12,879	13,456	9,728	11,296	13,456
Industrial Sector	2,089	2,137	2,176	2,223	2,240	2,256	2,298	2,358	2,420	2,482	2,545	2,610	2,223	2,358	2,610
Wind	122	122	122	125	125	125	125	125	125	125	125	125	125	125	125
Renewable Electricity Generation (billion kilowatthours)															
Electric Power Sector (a)															
Biomass	7.2	6.8	7.2	6.7	6.7	6.5	7.2	6.3	6.6	6.3	6.8	6.3	27.9	26.7	26.0
Waste	4.0	3.9	3.8	3.8	3.5	3.6	3.7	3.6	3.6	3.6	3.7	3.6	15.5	14.4	14.5
Wood	3.2	2.8	3.4	2.9	3.2	3.0	3.5	2.7	3.0	2.7	3.2	2.7	12.4	12.3	11.5
Conventional Hydroelectric	68.7	65.8	60.7	63.8	76.5	70.8	66.3	57.1	70.9	81.1	66.4	61.2	259.0	270.8	279.6
Geothermal	3.8	3.9	4.0	4.0	3.9	3.8	4.1	4.0	3.9	3.8	4.2	3.9	15.7	15.8	15.8
Large-Scale Solar (b)	21.3	34.7	34.6	23.3	28.9	44.3	42.6	28.5	34.6	55.0	54.7	38.5	113.9	144.3	182.8
Wind	97.0	96.1	76.8	108.8	119.5	121.7	82.1	114.7	127.6	128.4	87.5	120.1	378.6	437.9	463.7
Other Sectors (c)															
Biomass	6.9	6.8	7.1	6.8	6.7	6.8	7.1	6.8	6.7	6.8	7.1	6.8	27.6	27.4	27.4
Waste	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	2.8	2.8	2.8
Wood	6.2	6.1	6.4	6.1	5.9	6.1	6.4	6.1	5.9	6.1	6.4	6.1	24.8	24.5	24.5
Conventional Hydroelectric	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.2	1.2	1.2
Large-Scale Solar (b)	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.8	1.0	1.0
Small-Scale Solar (d)	9.8	14.7	14.5	10.0	12.0	17.7	17.8	12.4	14.3	21.8	22.2	15.5	49.0	59.8	73.8
Residential Sector	5.9	9.1	8.9	6.1	7.6	11.2	11.3	8.0	9.2	14.3	14.7	10.3	30.1	38.1	48.5
Commercial Sector	3.1	4.5	4.5	3.0	3.6	5.2	5.2	3.6	4.2	6.1	6.2	4.3	15.1	17.7	20.8
Industrial Sector	0.8	1.1	1.1	0.8	0.8	1.2	1.2	0.8	0.9	1.3	1.3	0.9	3.8	4.1	4.5
Wind	0.3	0.3	0.2	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.2	0.3	0.3

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

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

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

(d) Solar photovoltaic systems smaller than one megawatt.

- = no data available

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

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

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

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

Forecasts: EIA Short-Term Integrated Forecasting System.

