

Summer Fuels Outlook

This outlook focuses on consumption of gasoline and diesel fuel in the United States, and related prices (see *Summer Fuels Outlook* table). Consumption of these fuels typically peaks during the summer months. In past years, EIA also included a section on electricity in this report. Beginning this year, we will issue a separate summer outlook for electricity markets with the publication of the May STEO.

EIA considers the summer season for gasoline and diesel fuel to run from April through September. We still expect the ongoing effects of the COVID-19 pandemic to significantly affect petroleum markets in the summer of 2021. However, markets will be less affected than they were last summer, and we expect COVID-19 impacts will diminish through 2021 as a rising share of the population is vaccinated against COVID-19. More vaccinations combined with the U.S. fiscal stimulus should support continuing economic recovery, which will drive petroleum demand growth. We expect more U.S. consumption of gasoline and distillate fuel than last summer, but less than the summer of 2019. However, we expect the highest gasoline prices since summer 2018.

Macroeconomic forecasts are a key driver of EIA's outlook. We use the macroeconomic model from IHS Markit. Based on this model, EIA's forecast assumes U.S. GDP will be 8.5% higher this summer compared with last summer. Higher economic growth in the forecast reflects rising levels of employment, disposable income, and consumer expenditures, all of which typically point to rising consumption of gasoline and diesel. However, even with these supportive factors, the forecast for both consumption and prices remains uncertain. In terms of consumption, behavioral patterns—notably those related to working from home and commuting—will significantly affect petroleum consumption levels even as vaccination rates continue to rise. Rising petroleum consumption will affect crude oil prices and refining margins. In addition, crude oil production restraint from OPEC and OPEC+ have contributed to rising oil prices in 2021, and the reduced production levels targeted by OPEC+ in the coming months will continue to be a key driver of oil prices.

Gasoline

EIA expects the retail price of regular-grade gasoline in the United States will average \$2.78 per gallon (gal) during summer 2021, which is more than last summer's average of \$2.07/gal. Last summer had the lowest average summer retail price in nominal terms since 2004 because wide-reaching COVID-19 impacts significantly reduced gasoline and other oil consumption, which caused a drop in crude oil prices.

EIA forecasts gasoline prices to be higher this summer compared with last summer because as COVID-19 impacts continue to subside with improved mitigation and vaccination efforts, vehicle miles traveled will increase, resulting in more gasoline demand. The forecast assumes overall economic activity, both in the United States and around the world, will be significantly higher this summer compared with last summer. The rise in economic activity drives our forecast of rising global oil consumption, and it contributes to significantly higher Brent crude oil prices this summer compared with last summer. We expect Brent will average \$64 per barrel (b) this summer, which would be \$28/b higher than last summer. In addition, we forecast that gasoline refining margins (the difference between the price of wholesale gasoline and Brent crude oil) will average 45 cents/gal from April through September, which is higher than last summer's average of 36 cents/gal and the highest summer average since 2017.

Consumption

EIA estimates that gasoline consumption increased through the first quarter of 2021, growing from 7.7 million barrels per day (b/d) in January to an estimated 8.6 million b/d in March, an increase of 890,000 b/d. For comparison, consumption in 2019 during the same period increased 410,000 b/d. The stronger growth during this period in 2021 likely reflects not only seasonal growth but also growth related to the diminishing impacts of the COVID-19 pandemic on gasoline consumption.

EIA expects that rising employment levels, more people receiving COVID-19 vaccinations in the United States, regional easing of COVID-19 restrictions, and higher summer driving season demand will push gasoline consumption during the summer of 2021 higher than during the first quarter of 2021 and last summer. Changes in gasoline consumption reflect both changes in highway travel and changes in the efficiency of the vehicle fleet. We forecast 15% more highway travel than last summer, but less travel than in the summer of 2019 summer. The effect of our forecast of increased highway travel is partially offset by a 1% increase in fleet-wide vehicle fuel efficiency. We forecast that gasoline consumption in 2021 will peak in August at 9.1 million b/d, which is up from 8.5 million b/d in August 2020 but down from the 9.8 million b/d in August 2019. We forecast that 2021 summertime gasoline consumption will average almost 8.8 million b/d, a 1.0 million b/d (13%) increase from 2020 but a 0.7 million b/d (7%) decrease from summer 2019.

Employment is a key driver of highway travel, and therefore, gasoline consumption. Based on macroeconomic forecasts from IHS Markit, EIA assumes that non-farm employment will increase throughout 2021 and will cause gasoline consumption to rise. In the forecast, non-farm employment increases by 3.5 million jobs from March to reach 147.0 million jobs in September.

This summer, however, employment's effect on gasoline consumption may be more limited because more people are working from home than in previous years. Increased workforce participation in work-from-home programs compared with pre-COVID levels is likely to continue, even as workplaces re-open. In addition, the share of new jobs that will involve working from home some or all of time is very uncertain. Although COVID-19 related travel recommendations

and social restrictions are likely to ease over the summer as more Americans are vaccinated and case levels fall, some behavioral changes might be more lasting, which could further limit increases in gasoline consumption. The degree to which these behavioral changes will occur contributes to the uncertainty in EIA's gasoline consumption forecast.

Although cases of COVID-19 have fallen from their peak levels this year, the possibility that cases could increase and some form of regional travel or social restrictions could be reimposed is another uncertainty that could limit growth in gasoline consumption. Because of numerous uncertainties surrounding the ongoing COVID-19 pandemic in the coming months, actual gasoline consumption could vary significantly from forecast levels.

Prices

EIA forecasts monthly average retail gasoline prices to gradually fall from a 2021 annual peak average of \$2.86/gal in April to an average of \$2.78/gal in July and \$2.62/gal by September. Ahead of the summer driving season, retail gasoline prices reached the highest level in almost two years. According to EIA's weekly *Gasoline and Diesel Fuel Update*, the U.S. regular-grade gasoline price on March 22, 2021, was \$2.87/gal, which is 75 cents/gal higher than at the same time last year and the highest average price for any week since May 13, 2019. Current gasoline price levels reflect near-term strength in crude oil prices as a result of recovering global oil demand and ongoing oil supply restraint from OPEC+. Current price levels also reflect low gasoline inventory levels, partly resulting from reduced gasoline supply following significant refinery disruptions along the U.S. Gulf Coast in February and early March. We expect that growth in refinery output and rising crude oil supply from OPEC+ and U.S. tight oil producers will begin to put downward pressure on retail gasoline prices over the summer, despite an expected rise in gasoline demand.

Daily and weekly national average prices of gasoline can differ significantly from monthly and seasonal averages. Significant differences also exist across regions of the United States; monthly average prices in some areas exceed the national average price by 40 cents/gal or more. Unplanned refinery outages or other disruptions to supply can also lead to regional product prices rising higher than forecast levels. EIA forecasts average summer 2021 retail gasoline prices to range from a high of \$3.39/gal in the West Coast (PADD 5), to a low of \$2.47/gal in the Gulf Coast (PADD 3).

Because gasoline taxes and retail distribution costs are generally stable, movements in gasoline and diesel prices are primarily the result of changes in crude oil prices and wholesale margins, both of which are heading into summer 2021 at nearly their highest levels since before the COVID-19 pandemic began.

EIA forecasts the Brent crude oil price will average \$64/b (\$1.52/gal) this summer, compared with an average of \$36/b (\$0.86/gal) last summer. Any difference between actual crude oil prices and our forecast would likely be reflected in the retail price of fuel at the pump. Absent other factors specific to the gasoline and diesel fuel markets, each dollar per barrel of sustained

price change in crude oil compared with the forecast translates into a 2.4-cent-per-gallon change in product prices.

Recent increases in oil price volatility highlight the wide range of potential crude oil price outcomes that could develop over the summer. EIA's crude oil price forecast could change, depending on several factors. Notably, our forecast assumes OPEC+ will begin easing production restraints beginning in May. However, OPEC+ surprised many oil market participants at their March 4 meeting by extending production restraints. Although another extension is not in reflected in our forecast, if that were to occur it would likely contribute to higher-than-forecast crude oil and gasoline prices over the summer. In addition, we expect global oil demand to rise by 5.5 million b/d in 2021 by the third quarter compared with the same period last, but many factors, including the rate of global COVID-19 vaccinations, could drive this number higher or lower, which would affect oil prices.

The pricing and implied volatility of futures and options contracts reflects the uncertainty of the market's expectation of monthly average gasoline prices. New York Harbor RBOB futures contracts for June 2021 delivery that were traded during the five-day period ending April 1 averaged \$1.98/gal. The market-derived probability that the June RBOB futures contact will exceed \$2.10/gal at expiry (approximately consistent with a U.S. average regular-grade gasoline retail price that is higher than \$3.00/gal) was 32%.

Refining

EIA expects wholesale gasoline margins (the difference between the wholesale price of gasoline and the Brent crude oil price) will average 45 cents/gal this summer, which would be 9 cents/gal higher than last summer and 4 cents/gal higher than the five-summer average (2016–20). We forecast margins to be higher than the five-summer average as a result of our expectation that gasoline inventories will remain below their recent five-summer average.

U.S. gasoline margins began the year near their recent five-year average, but in recent weeks, they have started to trend higher as gasoline inventories have tightened, partly because of weather-driven disruptions to Gulf Coast petroleum markets during February. Although refinery output and gasoline inventories have started to increase following the disruptions in February, EIA forecasts that inventories will average 2% below their recent five-summer average, which we expect will add upward pressure to wholesale gasoline margins and retail prices. U.S. average wholesale gasoline margins averaged 27 cents/gal in January and increased to 48 cents/gal in March, 12 cents/gal above the recent five-year average for March. We forecast summer wholesale gasoline margins to remain above their recent five-summer averages, but expect these margins to fall closer to the previous five-year average in the fall as refinery capacity comes back online and gasoline output increases. Our forecast wholesale gasoline margins fall from a summer peak of 51 cents/gal in April to an average of 39 cents/gal by September.

Finished motor gasoline is supplied by four sources: domestic refinery output, fuel ethanol blending, imports of gasoline and gasoline blending components, and withdrawals from primary

inventories. EIA expects 1.1 million b/d more domestic net refinery production of gasoline this summer than last summer. We forecast fuel ethanol blending into gasoline this summer to increase by almost 100,000 b/d from last summer's level to 900,000 b/d, which would be nearly 10.2% of total gasoline consumption. Our forecast of net U.S. exports of gasoline (including blending components) are up by 40,000 b/d from last summer's level. We expect the rate of gasoline stock withdrawals to be almost 180,000 b/d less than last summer, when gasoline stocks fell by nearly 190,000 b/d. Despite lower rates of anticipated withdrawals of gasoline stocks, we expects lower initial summer gasoline inventory levels to result in gasoline inventories ending the summer driving season largely at the same level as last summer.

Inventories

At the beginning of the summer driving season (April 1), total U.S. gasoline stocks were 228.2 million barrels, 32.6 million barrels less than a year ago and 15.8 million barrels less than the five-year average for beginning-of-season stocks. This summer, EIA forecasts that the total gasoline stock draw will average 11,000 b/d. We forecast total gasoline inventories to end the summer at 226.2 million barrels, nearly unchanged from last year's end-of-summer level and 3.7 million barrels less than the five-year average. Stock withdrawals have become an increasingly significant source of motor gasoline supply in the United States for the summer season in recent years, having averaged almost 80,000 b/d during the summers of 2016–20. Withdrawals were almost 190,000 b/d last summer when COVID-19 impacts significantly reduced refinery output and both domestic and export demand for U.S. gasoline was increasingly met through withdrawals from elevated gasoline stocks.

Expenditures

For all of 2021, EIA forecasts that the regular-grade gasoline retail price will average \$2.66/gal in the United States, and that gasoline retail prices for all grades will average \$2.78/gal. As a result of these prices, we forecast that the average U.S. household will spend about \$480 (31%) more on motor fuel in 2021 than in 2020. In addition to higher forecast gasoline prices, rising expenditures reflect our expectation of increased driving in 2021. Individual households could experience a significant range in gasoline expenditures, depending on a wide range of factors including employment status and the ability to work from home. Despite our forecast of a 31% increase in average household gasoline expenditures from 2020, a year in which driving fell significantly, gasoline expenditures in 2021 would total slightly less than the average from 2011–20.

Diesel Fuel

The COVID-19 pandemic has not affected U.S. diesel fuel demand as much as it affected gasoline and jet fuel. Compared with 2019, distillate fuel (which includes diesel) consumption in 2020 fell by 8% in the United States, compared with declines of 14% for gasoline and 38% for jet fuel. U.S. diesel consumption has continued to remain relatively strong in the first quarter of 2021. EIA estimates that distillate fuel consumption in the first quarter of 2021 was down only 6% compared with the first quarter of 2019 and up 2% compared with the first quarter of 2020.

Stay-at-home orders and travel restrictions had more pronounced impacts on gasoline and jet fuel demand than on diesel fuel. The decline in gasoline and jet fuel consumption was the result of consumers traveling less. Because diesel fuel is used extensively in trucking, increased demand for home delivery and distribution of necessary goods and services likely supported diesel demand.

Consumption

EIA forecasts U.S. consumption of distillate fuel, which includes diesel fuel and heating oil, will average 4.0 million b/d this summer, a 11% increase (400,000 b/d) from last summer's consumption, which marked the least summer distillate consumption since 2009. However, forecast distillate consumption this summer would still be slightly lower than 2019 levels.

Because of diesel's use in the trucking and industrial sectors, it can be considered a barometer of economic activity. Based on macroeconomic data from IHS Markit, U.S. GDP in 2020 contracted by 3.5%, and EIA assumes that GDP will grow by 5.6% in 2021. We expect that our strong forecast of GDP growth in 2021 will support trucking and shipping activity and contribute to rising diesel consumption.

Distillate fuel is supplied by four sources: domestic refinery output, biodiesel blending, withdrawals from primary inventories, and imports. EIA expects refinery output of distillate fuel to average 4.6 million b/d this summer, a 140,000 b/d decrease from last summer. We forecast biodiesel production to average about 126,000 b/d this summer, a 6,000 b/d increase from last summer. Our projected net exports of distillate fuel average 700,000 b/d this summer, a 300,000 b/d decrease from last summer.

Refining and prices

EIA forecasts that wholesale diesel fuel margins will average 38 cents/gal in the United States this summer, 13 cents/gal higher than last summer's level and 1 cent/gal higher than the previous five-summer average. We forecast that diesel margins will be higher than in recent years because of the expected recovery in economic activity and continued trucking demand. In addition, we expect lower refinery runs amid lower overall petroleum demand to support refining margins.

EIA expects the combination of higher wholesale diesel prices resulting from increasing refining margins, increasing economic activity, and higher crude oil prices to drive U.S. retail diesel prices higher this summer compared with last summer. We forecast that retail diesel fuel prices to average \$2.96/gal this summer, up from an average of \$2.43/gal last summer and up from the recent five-year summer average of \$2.73/gal. However, our forecast is subject to many of the same uncertainties as the gasoline price forecast, particularly related to crude oil prices, which are the main drivers of overall diesel fuel price levels.

Inventories

EIA estimates U.S. distillate inventories started this summer at 143.0 million barrels. This level is up from the 126.7 million barrels recorded at the start of last summer and 2.7 million barrels higher than the five-year summer start average. Distillate inventories in the United States typically build during the summer to prepare for the winter heating season. This summer, EIA forecasts the build will average about 6,000 b/d, well below the 246,000 b/d build recorded last summer and also below the five-summer average build of 42,000 b/d. We expect distillate fuel stocks will end the summer at 144.0 million barrels, which is down from the 171.7 million barrels recorded at the end of last summer and down from the five-year end-of-summer average of 147.8 million barrels.

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

Table SF01. U.S. Motor Gasoline Summer Outlook

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

	2020			2021			Year-over-year Change (percent)		
	Q2	Q3	Season	Q2	Q3	Season	Q2	Q3	Season
Nominal Prices (dollars per gallon)									
WTI Crude Oil (Spot) ^a	0.67	0.97	0.82	1.47	1.41	1.44	121.1	44.8	75.8
Brent Crude Oil Price (Spot)	0.70	1.02	0.86	1.56	1.49	1.52	121.3	45.9	76.6
U.S. Refiner Average Crude Oil Cost	0.64	0.97	0.81	1.45	1.39	1.42	126.3	42.7	75.9
Wholesale Gasoline Price b	1.04	1.37	1.22	2.04	1.91	1.97	95.8	39.2	61.4
Wholesale Diesel Fuel Price b	0.97	1.24	1.11	1.91	1.89	1.90	96.5	52.4	70.9
Regular Gasoline Retail Price ^c	1.94	2.18	2.07	2.85	2.72	2.78	46.5	24.5	34.0
Diesel Fuel Retail Price ^c	2.43	2.43	2.43	2.97	2.96	2.96	22.2	22.0	22.1
Gasoline Consumption/Supply (million barrels per day)									
Total Consumption	7.110	8.504	7.811	8.749	8.939	8.844	23.1	5.1	13.2
Total Refinery and Blender Net Supply ^d	6.346	7.442	6.897	7.946	8.143	8.045	25.2	9.4	16.6
Fuel Ethanol Blending	0.722	0.872	0.797	0.882	0.913	0.898	22.2	4.7	12.6
Total Stock Withdrawal ^e	0.083	0.290	0.187	-0.032	0.054	0.011			
Net Imports ^e	-0.042	-0.101	-0.071	-0.047	-0.172	-0.110			
Refinery Utilization (percent)	72.8	78.5	75.7	85.3	88.6	87.0			
Total Gasoline Stocks (million barrels)									
Beginning	260.8	253.3	260.8	228.2	231.2	228.2			
Ending	253.3	226.5	226.5	231.2	226.2	226.2			
Economic Indicators									
Real GDP (annualized billion 2012 dollars)	17,303	18,597	17,950	19,321	19,645	19,483	11.7	5.6	8.5
Real Income (annualized billion 2012 dollars)	16,630	15,851	16,241	17,254	15,691	16,472	3.8	-1.0	1.4
Non-Farm Employment (million jobs)	133.7	140.9	137.3	145.0	146.5	145.8	8.5	4.0	6.2

^a Spot Price of West Texas Intermediate (WTI) crude oil.

GDP = gross domestic product.

Notes: Minor discrepancies with other Energy Information Administration (EIA) published historical data are due to rounding. Historical data are printed in bold. Forecasts are in italic. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.

Sources: Historical data: latest data available from: EIA, Petroleum Supply Monthly, DOE/EIA-0109; Monthly Energy Review, DOE/EIA-035; U.S. Department of Commerce, Bureau of Economic Analysis (GDP and income); Refinitiv (WTI and Brent crude oil spot prices). Macroeconomic projections are based on IHS Markit Macroeconomic Forecast Model.

^b Price product sold by refiners to resellers.

^c Average retail price including taxes.

^d Finished gasoline net production minus gasoline blend components net inputs minus fuel ethanol blending and supply adjustment.

^eTotal stock withdrawal and net imports includes both finished gasoline and gasoline blend components.

2021 Summer Fuels Outlook













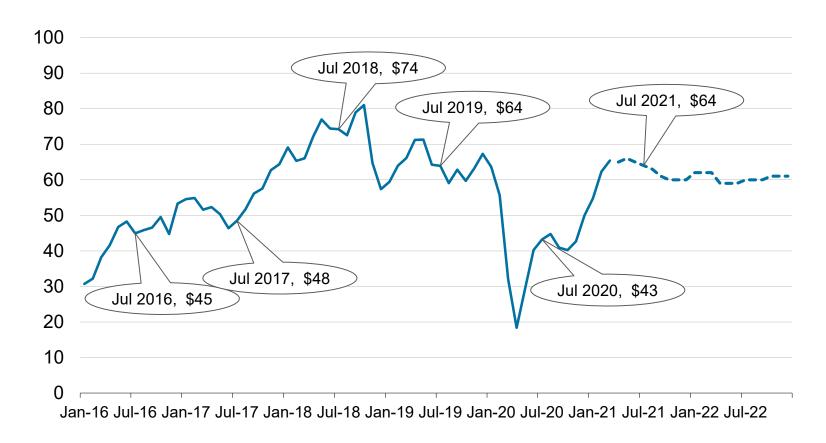


April 6, 2021



EIA forecasts Brent crude oil prices to average \$64 per barrel this summer (April–September), \$28 per barrel (67 cents per gallon) higher than last summer

Brent crude oil spot price (monthly average) dollars per barrel

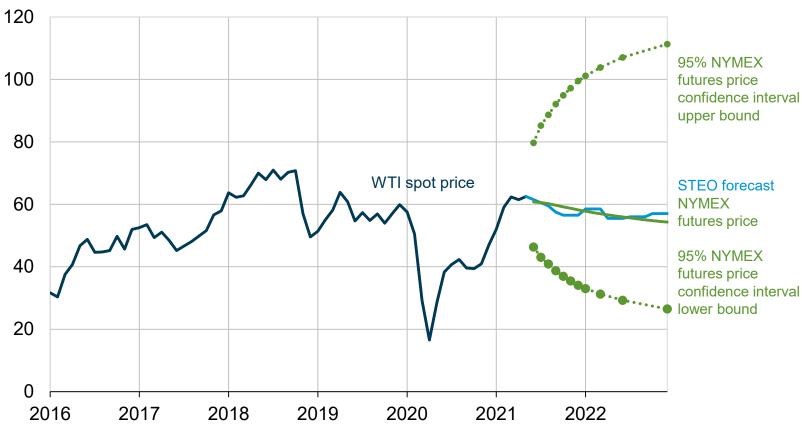


Source: Refinitiv and EIA, Short-Term Energy Outlook, April 2021



EIA expects oil prices to decline through the summer of 2021, but uncertainty is high

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



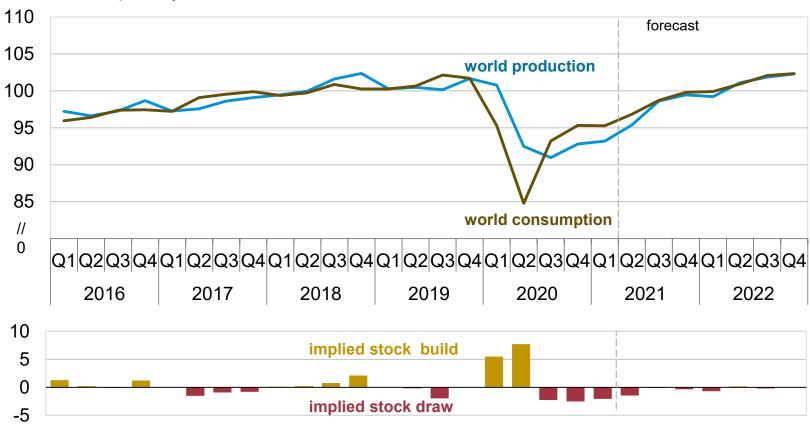
Note: Confidence interval derived from options market information for the five trading days ending April 1, 2021. Intervals not calculated for months with sparse trading in near-the-money options contracts.

Source: CME Group, Refinitiv, and EIA Short-Term Energy Outlook, April 2021



EIA expects global liquid fuels inventories to continuing falling sharply through the second quarter before balancing out and contributing to moderating oil prices

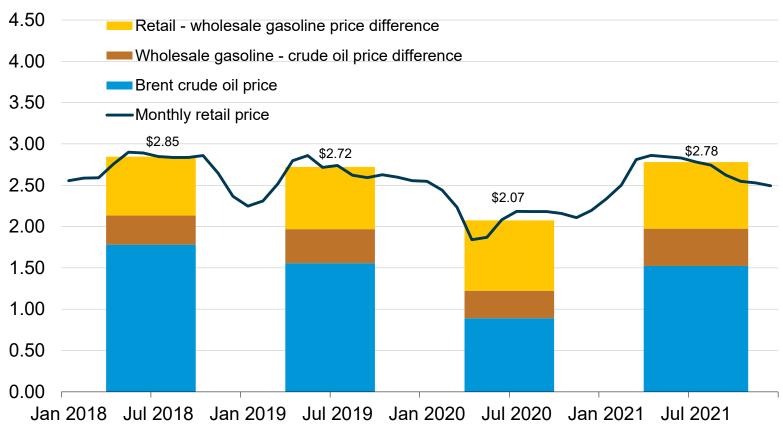
World liquid fuels production and consumption balance million barrels per day





EIA forecasts the regular-grade gasoline retail price to average \$2.78 per gallon in summer 2021 compared with \$2.07 per gallon last summer

Regular-grade gasoline retail price dollars per gallon

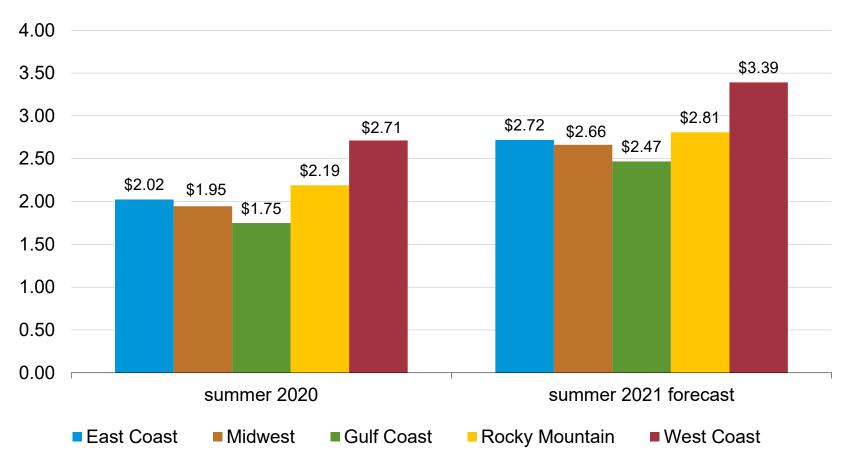


Source: EIA, Short-Term Energy Outlook, April 2021



Regular gasoline average summer retail prices vary by region and are typically the highest on the West Coast

U.S. regional summer average regular gasoline price dollars per gallon

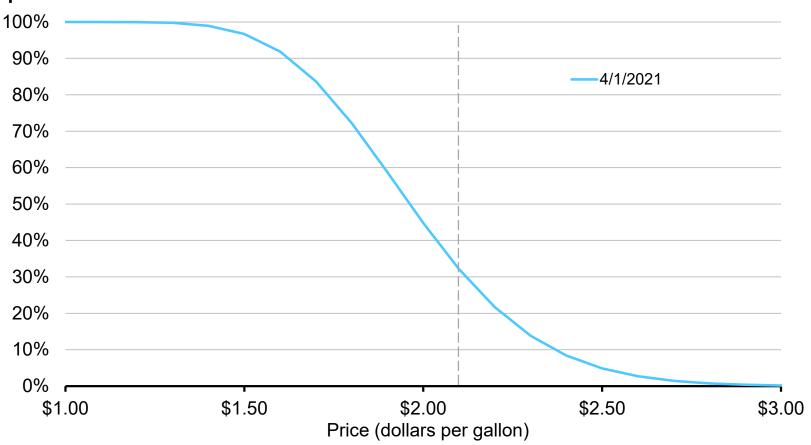


Source: EIA, Short-Term Energy Outlook, April 2021



Market-derived probabilities from futures and options values imply a 32% chance RBOB prices will exceed \$2.10 per gallon in June, a level roughly consistent with U.S. retail prices of \$3 per gallon

Probability of June 2021 RBOB expiring above different price levels percent

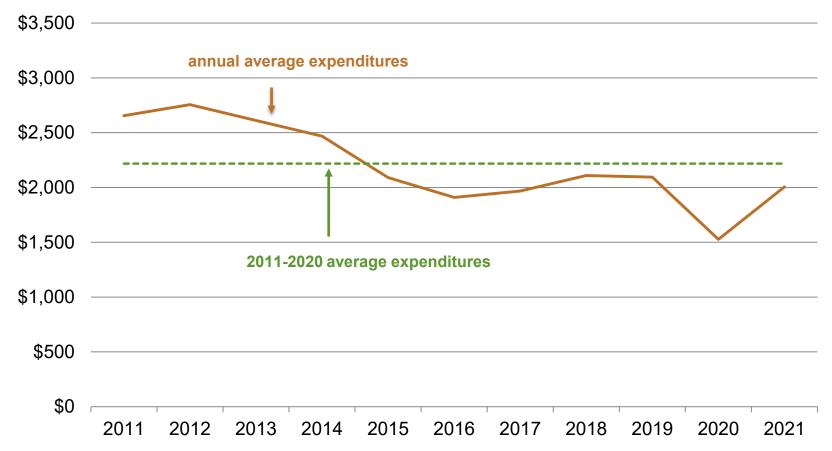


Source: CME Group, and Bloomberg, L.P.; EIA, Short-Term Energy Outlook, April 2021



Household transportation fuel expenditures are expected to increase in 2021 but remain below the 2011-2020 average

Average annual household expenditures on gasoline and motor oil

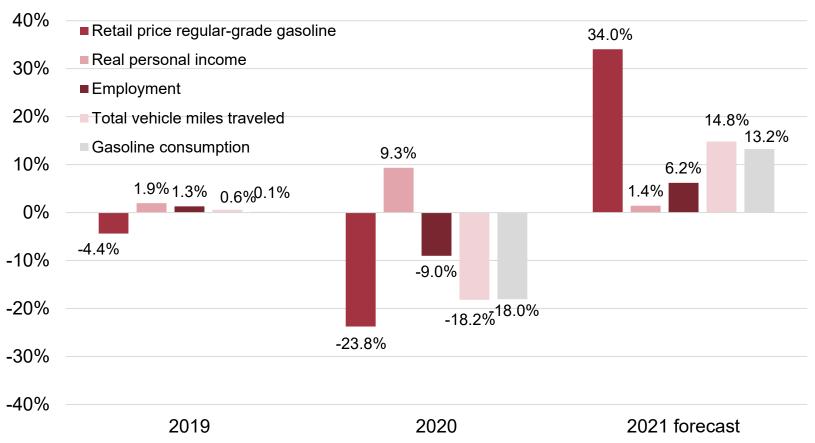


Source: U.S. Bureau of Labor Statistics, Consumer Expenditure Survey; EIA, Short-Term Energy Outlook, April 2021



In summer 2021 forecast growth in employment and a recovery in driving activity contributes to rising gasoline consumption

Summer gasoline market indicators Percent change from prior summer

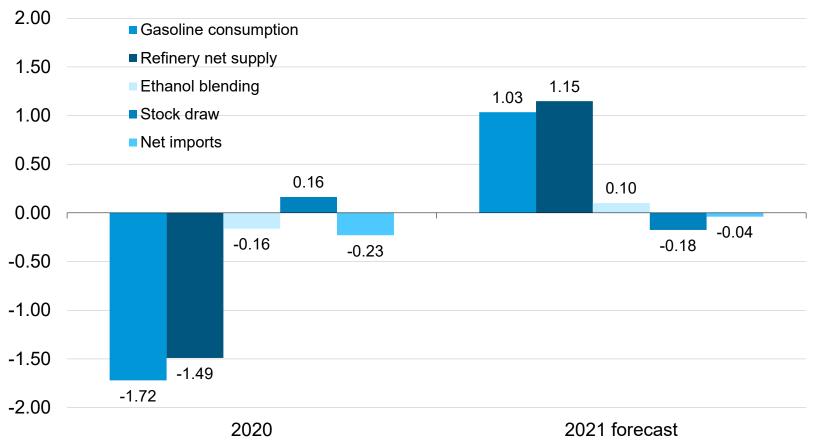


Source: EIA, Short-Term Energy Outlook, April 2021



EIA forecasts gasoline consumption and production to be up compared with last summer, and inventories to draw as is typical in the summer after rising from April to September last year

Summer gasoline supply and consumption growth million barrels per day (y-o-y changes)

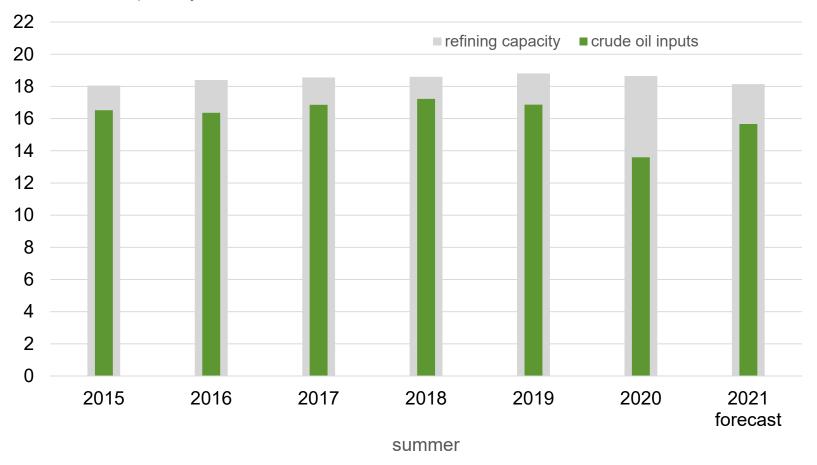


Source: EIA, Short-Term Energy Outlook, April 2021



EIA forecasts refinery inputs of crude oil and utilization to increase in the summer of 2021 but stay below 2015-2019 levels

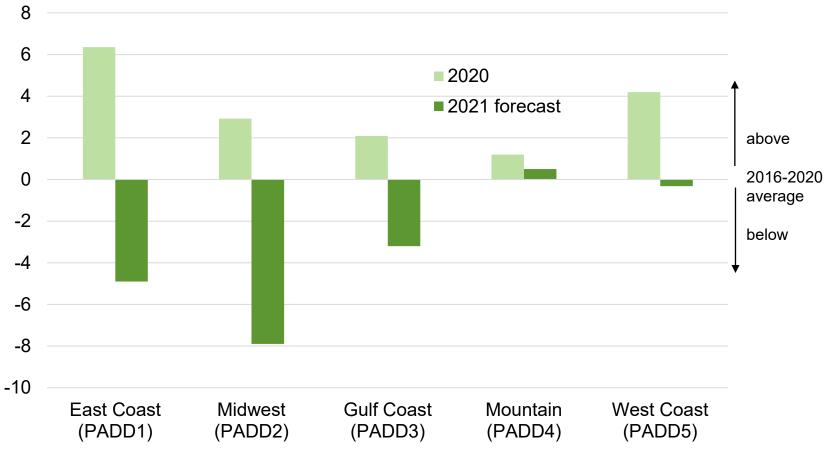
Summer U.S. refining capacity and refinery inputs of crude oil million barrels per day





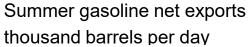
End-of-March 2021 gasoline inventories in most U.S. regions were below the average of the five previous end-of-March levels; year-ago inventories were above average

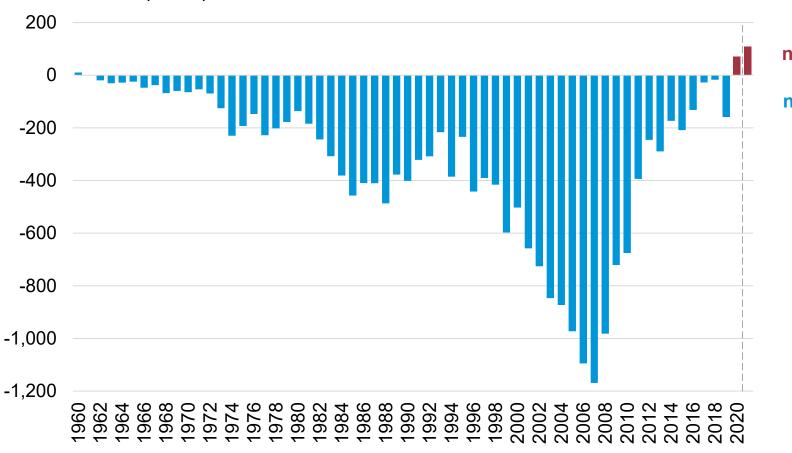
Motor gasoline end-of-March inventories difference from average by PAD district million barrels per day





EIA forecasts the United States to be a net exporter of gasoline this summer for the second year in a row after 59 summers of net imports





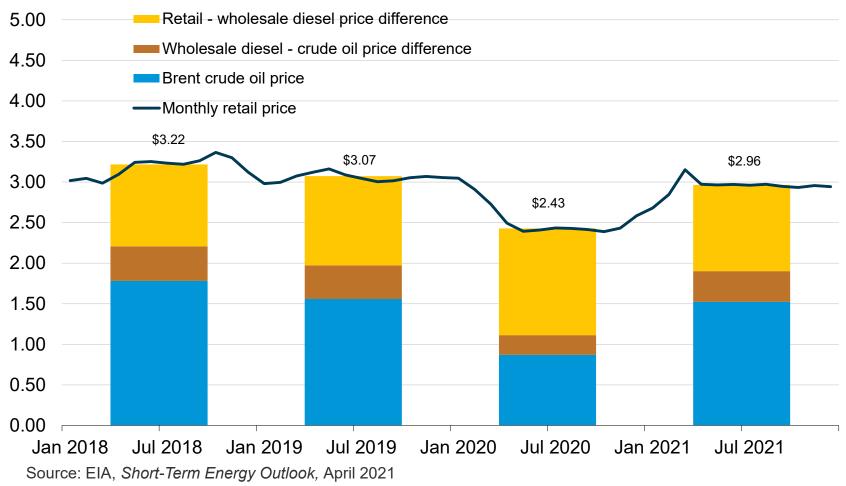
net exports

net imports



The summer retail diesel price forecast averages \$2.90 per gallon, up 47 cents per gallon from last summer

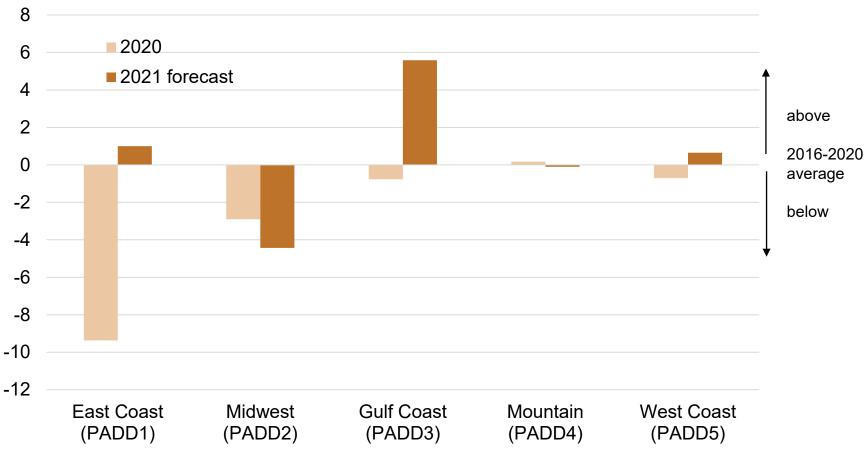
Diesel retail price dollars per gallon





End-of-March 2021 distillate inventories were lower than the average of the five previous end-of-March levels in the Midwest and above average in the Gulf coast, and near average in the other regions

Distillate fuel end-of-March inventories difference from average by PAD district million barrels per day





For more information

U.S. Energy Information Administration home page | www.eia.gov

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