

PETROLEUM WATCH

CALIFORNIA ENERGY COMMISSION

INSIDE

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REFINERY NEWS

- Marathon Los Angeles:** On March 7, the refinery reported an overpressure event in a heater, causing the heater stack to lean. In March, the refinery began cutting production due to demand concerns resulting from COVID-19 ([Cal OES](#), [Reuters](#)).
- PBF Martinez:** In March, the refinery began cutting production due to demand concerns resulting from COVID-19 ([Reuters](#)).
- PBF Torrance:** In March, the refinery began cutting production due to demand concerns resulting from COVID-19 ([Reuters](#)).
- Phillips 66 Wilmington:** In March, the refinery began cutting production due to demand concerns resulting from COVID-19 ([Reuters](#)).

CALIFORNIA GASOLINE RETAIL PRICES BY BRAND

March 2020 vs. 2019

(Percentage Change)

76	3% lower
ARCO	3% lower
Chevron	3% lower
Hypermart	6% lower
Shell	3% lower
Unbranded	3% lower
Valero	4% lower

March 2020 Averages

76	\$3.37
ARCO	\$3.10
Chevron	\$3.45
Hypermart	\$2.94
Shell	\$3.42
Unbranded	\$3.16
Valero	\$3.24



Source: California Energy Commission (CEC) analysis of Oil Price Information Service (OPIS) data

CALIFORNIA DIESEL RETAIL PRICES BY REGION

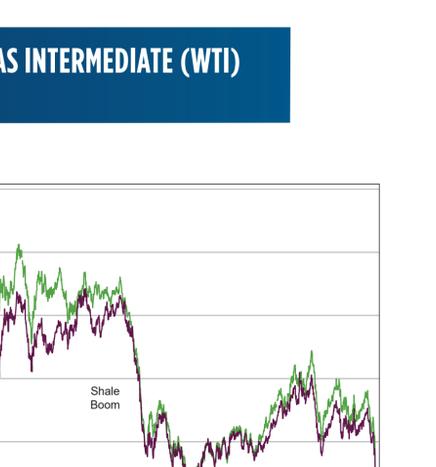
March 2020 vs. 2019

(Percentage Change)

Northern CA	9% lower
Central CA	8% lower
Southern CA	7% lower

March 2020 Averages

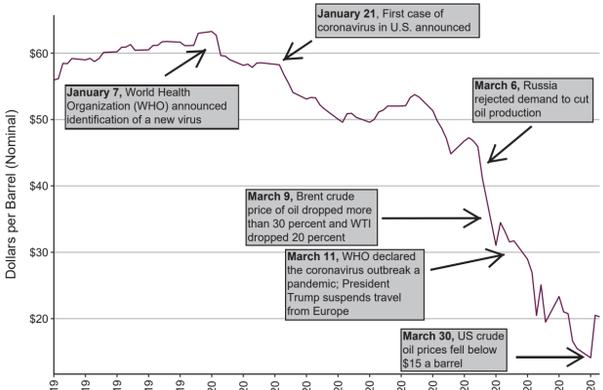
Northern CA	\$3.47
Central CA	\$3.41
Southern CA	\$3.56



Source: CEC analysis of OPIS data

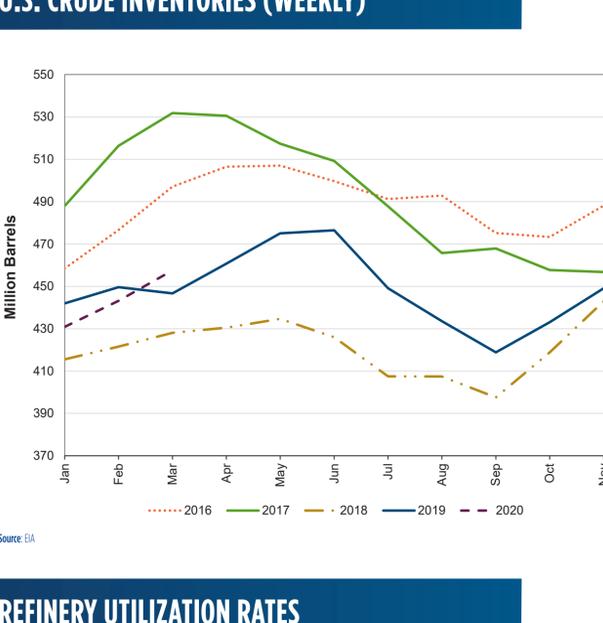
BRENT AND WEST TEXAS INTERMEDIATE (WTI) CRUDE PRICES

BRENT AND WTI CRUDE PRICES



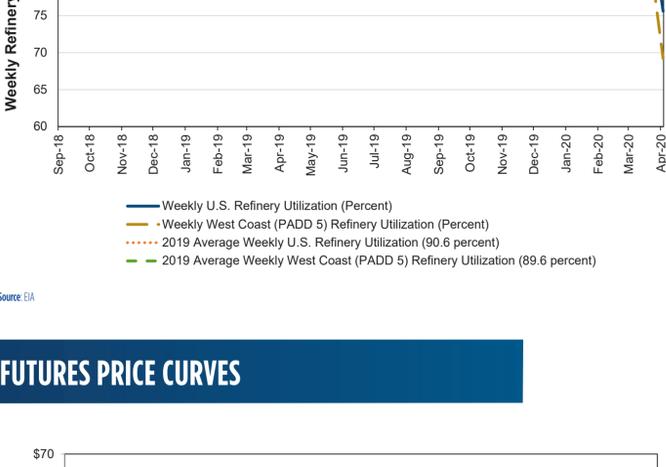
Source: U.S. Energy Information Administration (EIA) and Rystad Energy

WTI 120-DAY PRICE HISTORY



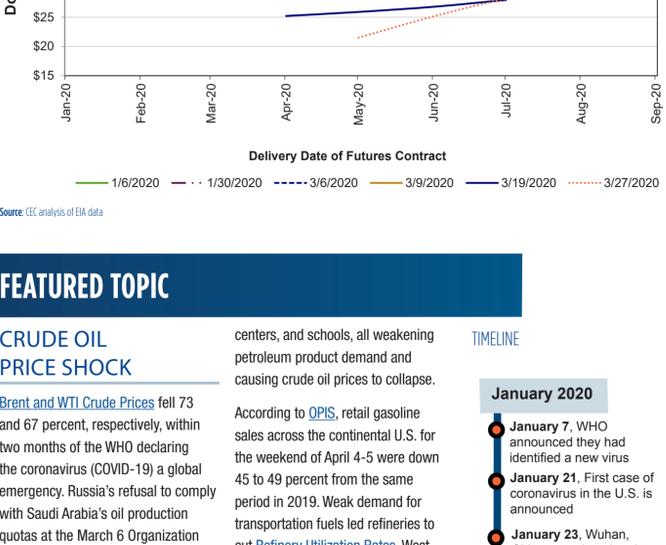
Source: EIA

U.S. CRUDE INVENTORIES (WEEKLY)



Source: EIA

REFINERY UTILIZATION RATES



Source: EIA

FUTURES PRICE CURVES



Source: CEC analysis of EIA data

FEATURED TOPIC

CRUDE OIL PRICE SHOCK

[Brent and WTI Crude Prices](#) fell 73 and 67 percent, respectively, within two months of the WHO declaring the coronavirus (COVID-19) a global emergency. Russia's refusal to comply with Saudi Arabia's oil production quotas at the March 6 Organization of Petroleum Exporting Countries (OPEC) summit sparked the abrupt price decreases. The combination of the rapid demand drop caused by COVID-19 and the OPEC crude production dispute created an extreme imbalance of crude demand and supply and swift price declines. Other factors contributed to the price shock, such as inventory builds and prolonged oil market price declines, referred to as a bear market. However, the primary driving force was the significant reduction in global demand from COVID-19 outbreak.

SUPPLY BUILD

High production rates and growing crude inventories pushed crude prices downward even before the WHO warned of COVID-19 in January. According to the EIA, U.S. oil fields produced at all-time high rates of 13 million barrels per day (bpd). This ramp up in crude production contributed to [U.S. Crude Inventories](#) increasing 8.8 percent between January 3 and March 27. Although inventories were not near historical peaks, the growth was larger than anticipated.

On March 6, OPEC members and Russia (OPEC+) met to discuss production cuts to combat the price decay from COVID-19. Russia refused to cut its production by 500,000 bpd, which would have been half of the proposed collective reduction. In the response, Saudi Arabia discounted their oil prices and increased production rates.

According to the [Wall Street Journal](#), Saudi Arabian oil fields produce oil at the lowest cost possible in the world (\$8.98 per barrel in 2016) allowing Saudi Arabia to produce high levels in this pricing environment. Russia's production cost is over double the cost of Saudi Arabia's (\$19.21 per barrel in 2016), but the Russian concern is retaining market share. U.S. oil producers are vulnerable to price declines due to higher costs (\$23.35 per barrel for U.S. shale in 2016). Until these factors change, production and drilling rates in the U.S. will remain low. Producers are instead looking for storage for crude and refined products as demand is too weak to keep existing facilities from overflowing.

DEMAND DROP

The main factor in the crude oil price shock is the drop in demand for transportation fuels during the COVID-19 pandemic. The virus was first identified by investigation into an outbreak in Wuhan, China in December 2019. Since then the virus has quickly spread to every continent (except Antarctica), causing massive economic hardship within months.

China's lockdown began on January 23. This had had a huge effect on the global oil market as China accounted for more than 80 percent of the global oil demand growth in 2019. As the virus spread from country to country, international travel was quickly restricted. The U.S. suspended air travel from China on January 31 and then from Europe on March 11, causing flight cancellations and plummeting jet fuel demand. Cruise ship, tanker ship, and container ship owners slowed activity and the demand for heavy fuel oil lessened. As a result, the [International Energy Agency \(IEA\)](#) announced in March that global oil demand would drop as much as 20 percent in 2020.

On March 19, California responded with a stay-at-home order. By March 22, stay-at-home orders affected one of every three Americans. Businesses and shops shut down, and employers issued layoffs and furloughs for those who could not work from home. Non-essential travel bans resulted in empty freeways, shopping

centers, and schools, all weakening petroleum product demand and causing crude oil prices to collapse.

According to [OPIS](#), retail gasoline sales across the continental U.S. for the weekend of April 4-5 were down 45 to 49 percent from the same period in 2019. Weak demand for transportation fuels led refineries to cut [Refinery Utilization Rates](#). West Coast refineries cut rates from 92 percent in February to 69 percent on April 3. Overall, U.S. refinery utilization followed a similar trend but a higher rate of 76 percent by April 3. With refineries buying less crude oil, the demand for oil falls, followed by the price. The impact of stay-at-home orders will drive down demand for refined products even further.

BEAR MARKET

After the WHO declared COVID-19 a global health emergency on January 30, [CNBC](#) reported the Dow Jones Industrial Average (Dow) dropped 603 points, or 2.1 percent, making it one of the top five worst one-day point declines in the past 12 months. A week after the IEA announced demand growth would fall, the Dow ended February 24 at 1,031 points lower. In the wake of the oil feud between Saudi Arabia and Russia, the Dow had the worst single-day point drop in U.S. market history on March 9, at 2,014 points, or 7.8 percent. This decline was the beginning of multiple record setting one-day point losses in Dow Jones history. On March 15, the Federal Reserve cut interest rates to zero to help stabilize the market - instead the market reacted by falling 2,997 points the next day.

On March 23, [CNBC](#) reported the Dow hit a bottom of 18,321 points, matching November 8, 2016. On March 27, President Donald Trump signed a two-trillion-dollar stimulus package to help the U.S. economy as unemployment claims soared to over 6 million between March 21 and March 28, as reported by the [The Guardian](#). The Dow maintained daily average points of 21,508 between March 24 and April 3, while U.S. retail gasoline prices continued to decrease under \$1.91 a gallon. At the time of this writing, prices continue to be unstable and the U.S. market remains uncertain.

OIL FUTURES IN CONTANGO

Large oil producers, consumers, and traders exchange futures contracts to arrange sale of crude oil delivery at a specified future month, allowing for price certainty and protection from price fluctuations of the underlying commodity. Oil producers sell futures to guarantee a minimum income and protect against price drops, while oil consumers, such as airlines, try to protect against price spikes by locking in cheaper prices for the months ahead. For WTI oil futures, the trading month ends the third business day prior to the 25th of each month. Trades occurring after that day are for the next futures month.

Futures contract prices provide a look into market trends by comparing future prices from next month to a month further in the future. Analysts plot a day's many delivery month prices together as [Futures Price Curves](#) to look for trends. Backwardation (downward slope) occurs when the upcoming future price (one month away) is higher than later future contracts. Contango is the opposite (upward slope), occurring when upcoming contract prices are lower than contract prices further away. On [Futures Price Curves](#), backwardation shows as the January 6 curve (green) while contango looks like the March 27 curve (orange). Moving further into backwardation or contango means a steepening of the futures curve.

EIA provides crude oil futures contract data for up to four months for crude oil from Cushing, Oklahoma. Oil futures started out this year in backwardation, but the expiration of OPEC's current supply cut followed by Saudi Arabia's announcement of increased production increased supply and lowered future prices. This was followed by demand reductions

TIMELINE

- January 2020**
 - January 7, WHO announced they had identified a new virus
 - January 21, First case of coronavirus in the U.S. is announced
 - January 23, Wuhan, China was placed under quarantine
 - January 30, WHO declared coronavirus a global emergency
- February 2020**
 - February 15, IEA announced that demand growth would fall to the lowest rate since 2011
- March 2020**
 - March 6, Russia objects to production cuts at OPEC summit
 - March 8, Saudi Arabia discounted oil prices
 - March 9, Brent crude price of oil dropped more than 30 percent and WTI dropped 20 percent
 - March 11, WHO declared the coronavirus outbreak a pandemic; President Trump suspends travel from Europe
 - March 13, President Trump declares a national emergency over the coronavirus outbreak
 - March 17, European Union bars most travelers from outside the bloc for 30 days
 - March 19, California declares shelter-in-place
 - March 22, One in three Americans are ordered to stay home
 - March 28, Unemployment claims rise to over six million within two weeks
 - March 30, U.S. crude oil prices fell below \$15 a barrel

Sources: [B3C](#), [Bloomberg](#), [Business Insider](#), [Department of Labor](#), [Financial Times](#), [Oilprice.com](#), [New York Times](#), [The Guardian](#)

from stay-at-home order to prevent the spread of COVID-19. WTI futures curves changed from backwardation to contango during this time. Contango is typically observed in periods of oversupply. Futures contract prices for August show an increase in price and prices moving further into contango. This indicates oversupply will continue but inventories may start to tighten by August as supply and demand factors change.

TAKEAWAYS

Crude oil prices crashed with comparable magnitudes during the 2008 recession and again in 2014 with the U.S. shale Revolution. The reduction in economic activity and financial unrest in 2008 caused demand for the oil to drop and bring prices to the \$30 per barrel range ([Brent and WTI Crude Prices](#)). Towards the end of 2014, the shale boom introduced new drilling techniques. U.S. oil fields deemed economically unfeasible became profitable resulting in an oil production surge. OPEC suddenly lost its largest importers and prices fell from \$100 per barrel to below \$60. Usually these price devaluations benefit drivers who will pay less at the pump while the producers suffer. The annual average retail price per gallon for the U.S. in 2008 was \$3.24 and decreased to \$2.35 in 2009. During the shale boom, the national price per gallon averaged \$3.35 in 2014 and dropped to an annual average of \$2.14 in 2016.

Expect the prices of oil and refined products to stay relatively low in the months going forward, like the price trends in 2008 and 2014. The futures curves suggest that prices will pickup in May, but at \$35 less than January 2020. The main factor for prices is that demand is dependent on the activity of the global economy. Unemployment, travel lockdowns, and stay-at-home orders are forcing businesses and governments to brace for the next recession. The oil industry appears to be expecting massive slowdowns in production and spending, alongside bankruptcies and restructurings for 2020 and 2021.

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