



PETROLEUM WATCH

California Energy Commission

April 2018

Recent Petroleum News

Prices

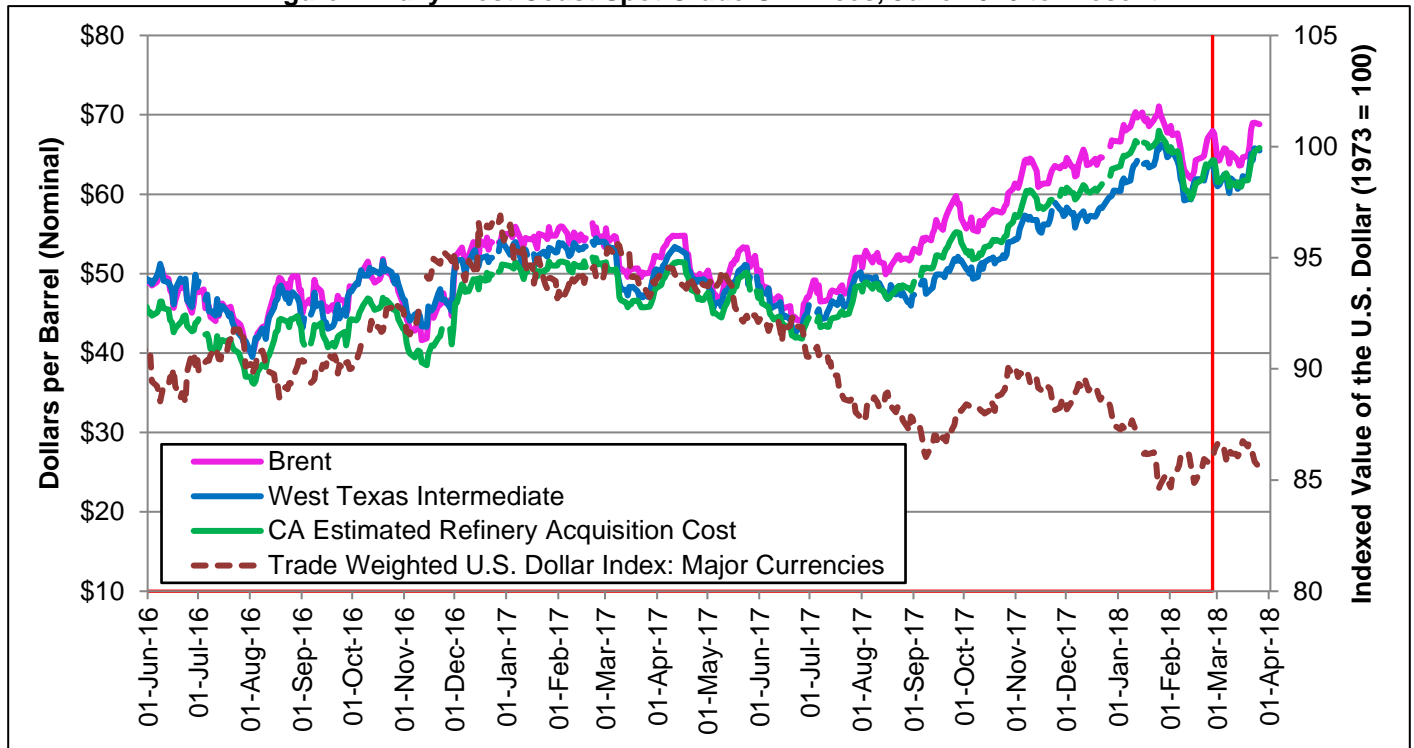
- **Crude Oil Prices:** Brent and West Texas Intermediate (WTI) crude prices closed at \$68.81 and \$65.49, respectively, on March 26 (**page 2**).
- **California Retail Gasoline Prices:** On March 26, prices reached \$3.49, an increase of \$0.13 since the end of February. Through March, California prices averaged \$0.83 higher than the national average (**page 4**).
- **California Retail Diesel Prices:** On March 26, prices reached \$3.67, an increase of \$0.01 from the end of February. Through March, California prices averaged \$0.66 higher than the national average (**page 5**).

Refining News

- **Andeavor Golden Eagle Refinery:** On February 9, the refinery underwent planned maintenance on a hydrodesulfurization unit and hydrocracking unit. This work was completed on March 12.
- **Chevron El Segundo Refinery:** On January 15, the refinery underwent planned maintenance on the alkylation and fluid catalytic cracking units. Work is underway.
- **Phillips 66 Wilmington Refinery:** On March 11, the refinery underwent planned maintenance on the reformer, fractionator and fluid catalytic cracking units. Work is underway.
- **Shell Martinez Refinery:** On March 16, the refinery shut a delayed coker unit for unplanned maintenance. The refinery restarted units on March 20.

Crude Oil Prices

Figure 1: Daily West Coast Spot Crude Oil Prices, June 2016 to Present



Source: U.S. Energy Information Administration (EIA), Oil Price Information Service (OPIS), and Federal Reserve Bank of St. Louis.
 Note: Red lines on all graphs indicate end of previous *Petroleum Watch* data. Areas to the right indicate new data since last month.

Crude oil prices in March showed little variation and an overall downward trend before jumping in the second to last week of March (Figure 1). From March 1 to March 19, the West Texas Intermediate (WTI) and the California Estimated Refiner Acquisition Cost (CA-RAC) averaged \$62, and the Brent averaged \$64.50.¹ After March 19, all indices rose roughly \$4 on reports of potential reciprocal tariffs imposed by China on United States products. China accounts for roughly 20 percent of United States crude oil exports, with only Canada importing more United States crude oil.²

While end-of-March crude oil prices are below the 2018 high of \$71.08 for Brent (January 25), current price levels are the highest seen in the past three years. The last time crude oil prices were this high was December 2014, when crude oil prices were midway through a \$115-to-\$46 drop in prices between June 2014 and January 2015. Current Brent prices are still roughly 40 percent below that June 2014 high. The June 2014-to-January 2015 drop in international crude oil prices was the result of the United States lifting its export ban on crude oil.

Crude Oil Prices	
March 2018 vs 2017	
(Percent Change)	
Brent	27% higher
WTI	26% higher
CA-RAC	31% higher
March 2018 Averages	
Brent	\$65.59
WTI	\$62.38
CA-RAC	\$62.43
March 26, 2018	
Brent	\$68.81
WTI	\$65.49
CA-RAC	\$65.82

1 CA-RAC is a weighted average of the prices of California (San Joaquin Valley) crude, Alaskan crude, and foreign crude.

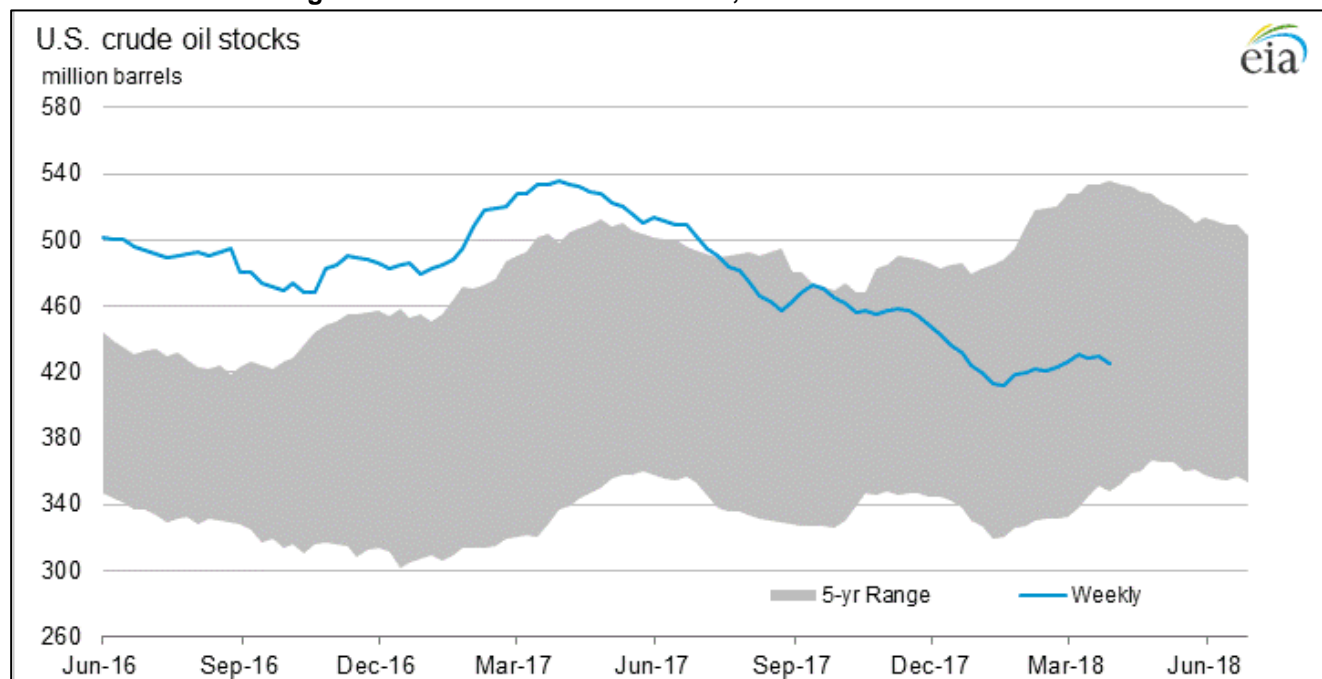
2 Energy Information Administration: <https://www.eia.gov/todayinenergy/detail.php?id=35352>.

Crude Oil Production and Storage

Monthly crude oil production, crude imports, refinery input levels and crude inventories have all increased since March's *Petroleum Watch* (Figure 2).

- U.S. crude oil production for March averaged 10.42 million barrels per day (bpd), 15,000 bpd higher than February's monthly average of 10.27 million bpd. This is a 1.27 million bpd increase from a year ago, when production levels were 9.14 million bpd.
- Crude oil imports increased by 150,000 bpd to 7.67 million bpd in March. Compared to import levels from March 2017, this is a decrease of 270,000 bpd.
- U.S. crude oil refinery inputs increased by 550,000 bpd since March's *Petroleum Watch*, finishing March at a four-week average of 16.7 million bpd. Refinery inputs are 730,000 bpd higher than year-ago levels.
- Crude oil inventories in the United States increased by 1.8 million barrels during March to 425.3 million barrels. Current inventories are 110.2 million barrels lower than one year ago.

Figure 2: U.S. Crude Oil Inventories, June 2016 to Present



Source: U.S. Energy Information Administration

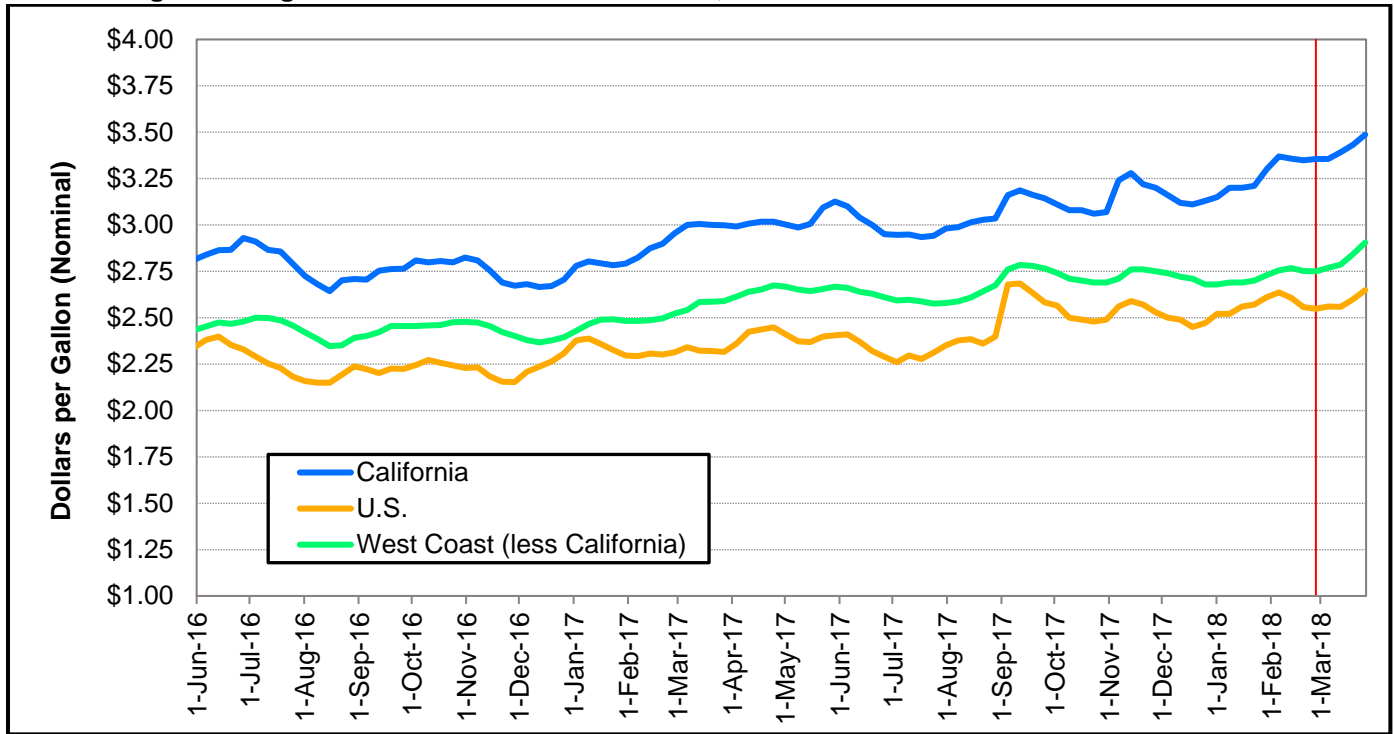
Refineries across the United States have returned from maintenance and increased crude oil input levels. Crude oil inventories increased through March but have also declined two of the past four weeks. The rising level of imports, despite increasing U.S. crude oil production, indicates increasing demand.

According to the Organization of Petroleum Exporting Countries' (OPEC) March *Monthly Oil Market Report*, total February OPEC production decreased by 77,100 bpd to 32.1 million bpd. OPEC's crude oil demand growth forecast for the rest of 2018 is at 1.60 million bpd, with total oil demand at 98.63 million bpd.³

³ OPEC March Monthly Oil Market Report, page i, page 59: http://www.opec.org/opec_web/en/publications/338.htm.

Gasoline and Diesel Retail Prices

Figure 3: Regular Grade Gasoline Retail Prices, California vs. West Coast vs. United States



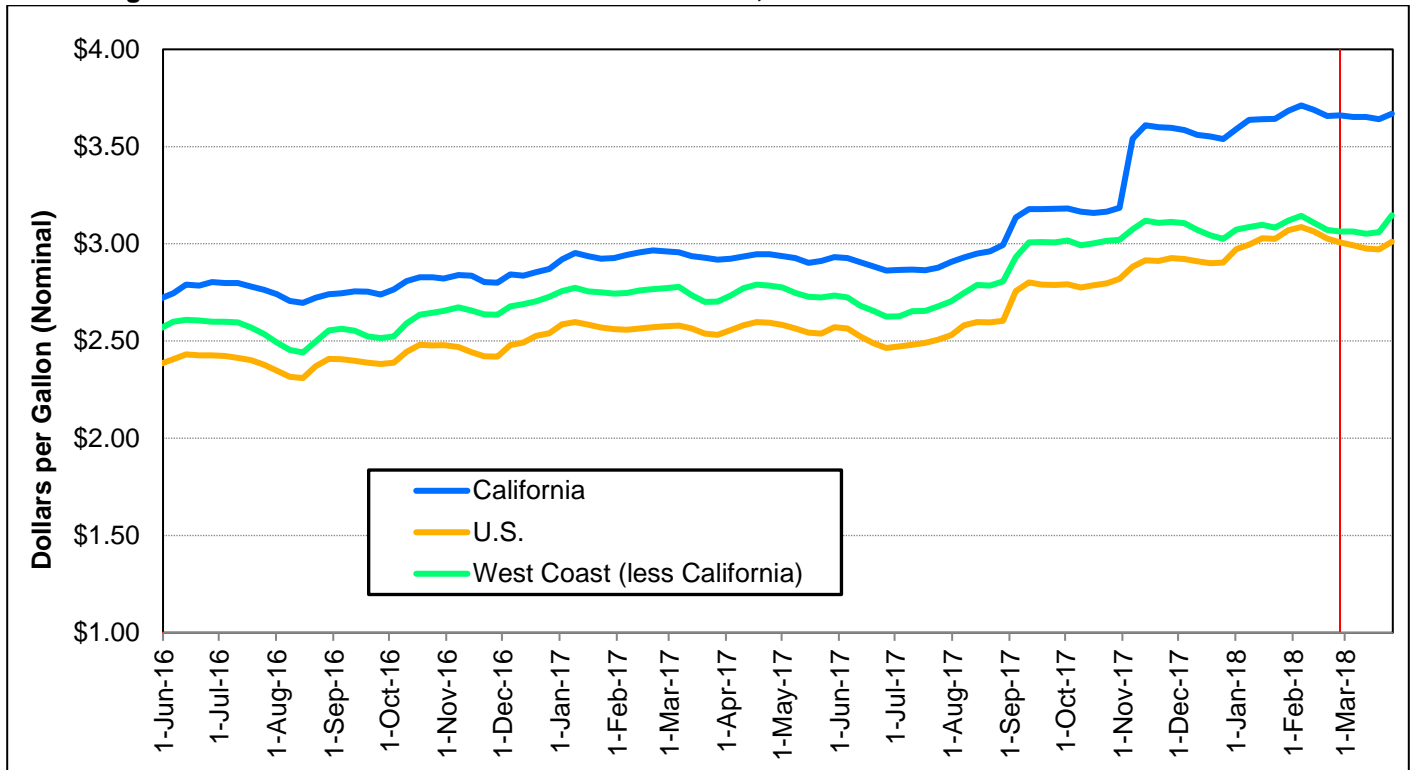
Source: U.S. Energy Information Administration

California gasoline retail price increased \$0.07 from March 5 at \$3.36 to \$3.43 on March 19, and then increased an additional \$0.06 the week after to \$3.49 on March 26 (Figure 3). During March, U.S. and West Coast (less California) gasoline prices also increased \$0.14 and \$0.09, respectively, to \$2.91 for West Coast and \$2.65 for U.S. (Sidebar). Gasoline prices for the West Coast have not been this high in the last two years since August 4, 2015, when prices averaged \$2.94. U.S. prices are at a premium of \$2.65 compared to last year's average price of \$2.41 a gallon.

Historically, gasoline prices have increased from the first quarter to the second quarter of each year since 2001, with increases ranging from 1 to 26 percent. California prices through the first quarter this year averaged \$3.32, the highest first quarter average since 2014 at \$3.42, when a gallon of gasoline reached \$4.25 per gallon. It is unlikely that gasoline prices will reach that 2014 high, but California retail prices have consistently increased nearly 1 percent per week so far this year.

Gasoline Prices	
March 2018 vs 2017 (Percent Change)	
California	14% higher
U.S.	11% higher
West Coast	10% higher
March 2018 Averages	
California	\$3.42
U.S.	\$2.59
West Coast	\$2.83
Week of March 26, 2018	
California	\$3.49
U.S.	\$2.65
West Coast	\$2.91

Figure 4: No. 2 Diesel Ultra-Low-Sulfur Retail Prices, California vs. West Coast vs. United States



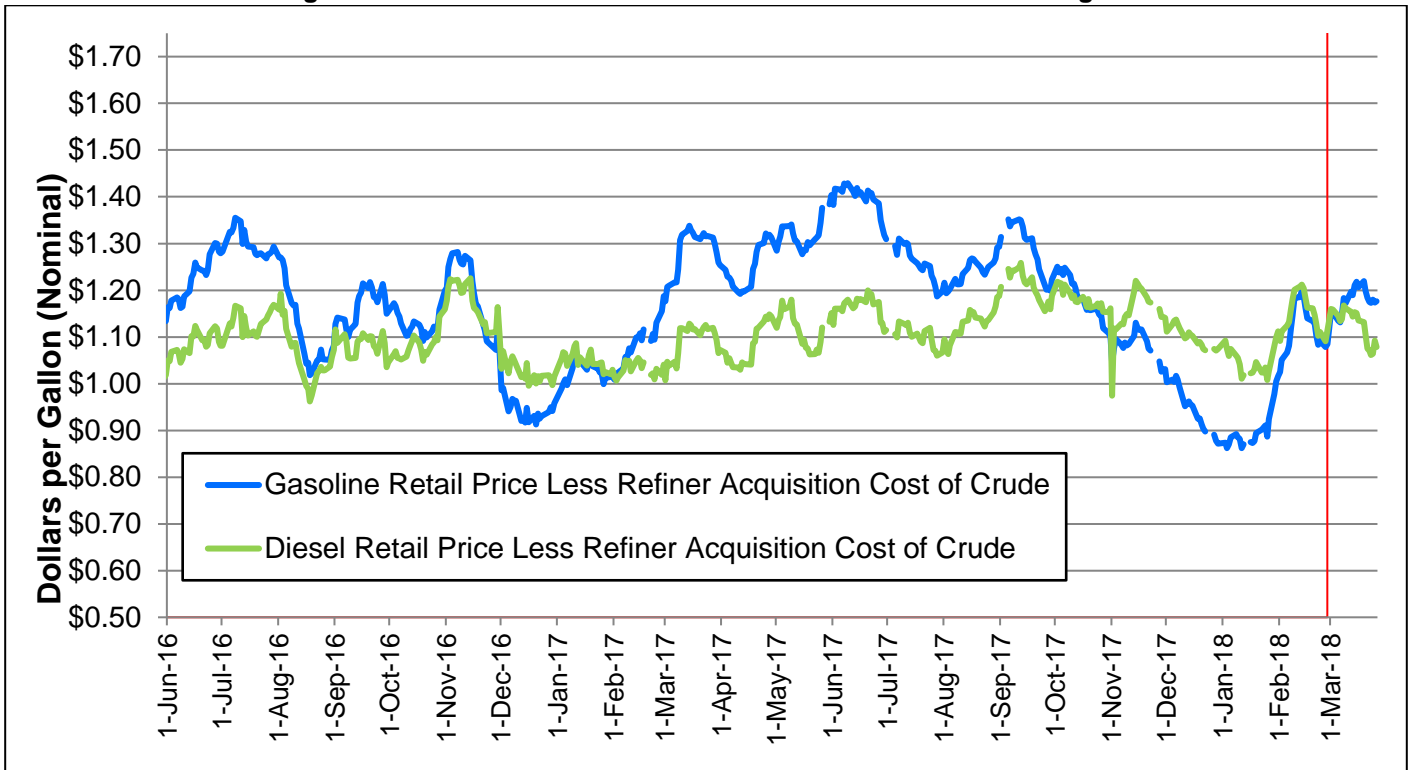
Source: U.S. Energy Information Administration

California retail diesel prices decreased slightly in the three-week span after the last *Petroleum Watch* from \$3.66 on February 26 to \$3.64 on March 19 (Figure 4). Then, prices increased \$0.03 to \$3.67 on March 26. U.S. and West Coast (less California) followed a similar trend throughout March, with West Coast prices having the highest increase of \$0.09 from \$3.06 on March 19 to \$3.15 on March 26. On a nationwide scale, U.S. prices fell below the year-to-date average of \$3.02 to \$2.97 on March 19 but quickly increased the following week to \$3.01 on March 26 (Sidebar).

In March, California diesel retail prices are 22 percent higher, or \$0.67 more at \$3.65 per gallon compared to \$2.99 for the rest of the United States. A large part of the high spread has to do with the California diesel tax hike last November, with prices increasing \$0.36 between October 30 and November 6. California prices are likely to increase due to low levels of California diesel production. Production has fallen below the five-year band four of the past five weeks (Figure 9).

Diesel Prices	
March 2018 vs 2017	
(Percent Change)	
California	24% higher
U.S.	17% higher
West Coast	13% higher
March 2018 Averages	
California	\$3.65
U.S.	\$2.99
West Coast	\$3.08
Week of March 26, 2018	
California	\$3.67
U.S.	\$3.01
West Coast	\$3.15

Figure 5: CA-RAC to Ex-Tax California Gasoline and Diesel Margins



Source: U.S. Energy Information Administration and OPIS

CA-RAC-to-ex-tax retail gasoline and diesel margins peaked in mid-March and seem to be stabilizing by the end of March 2018 (Figure 5). The short margin spike appears due to the retail market anticipating the rising crude oil price increases a few days before the higher-priced finished fuels arrived at retail stations. Gasoline margins flattened out at \$1.18 per gallon by late March. On March 6, diesel margins dropped below gasoline margins and remain at \$1.08 per gallon. California retail gasoline prices increased \$0.13 by the end of March 2018, and retail diesel prices increased \$0.02. Over the same time, crude oil prices (CA-RAC) increased \$4.31 dollars per barrel, translating to an increase of \$0.10 per gallon. Crude oil increases were equal to gasoline retail margin increases, but diesel retail prices rose by only 20 percent of the crude oil price increases.

The growth rate of California gasoline sales is weakening. Gasoline sales for 2017 grew by only 23 percent of the past two-year's growth. Volume growth in 2017 was 84 million gallons vs. the prior 385 million gallons two-year average growth.⁴ Meanwhile, 2017 diesel demand was 117 percent higher than the prior three-year average sales, but diesel margins are lower around \$1.10 dollars per gallon.

Crude to Retail Margins

March 2018 vs 2017

(Percent Change)

Gasoline	10% lower
Diesel	3% higher

March 2018 Averages

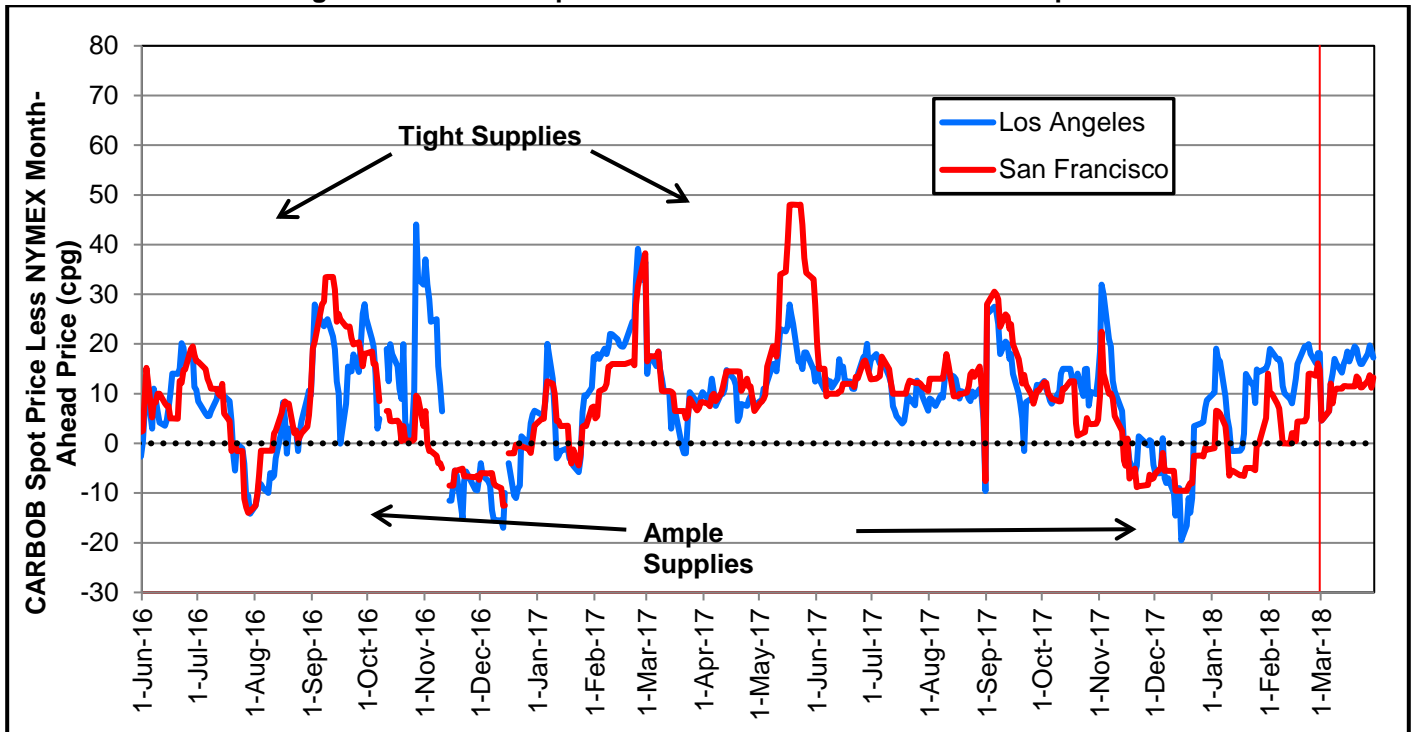
Gasoline	\$1.18
Diesel	\$1.12

March 26, 2018

Gasoline	\$1.18
Diesel	\$1.08

⁴ California Department of Tax and Fee Administration, Motor Vehicle Fuel Distribution Reports, <http://www.cdtfa.ca.gov/taxes-and-fees/MVF-10-Year-Report.pdf>.

Figure 6: California Spot Gasoline to NYMEX Futures Price Spread



Source: U.S. Energy Information Administration and OPIIS

The Los Angeles (LA) and San Francisco (SF) gasoline spot market differentials to the New York Mercantile Exchange (NYMEX) futures price continued to trend upward for much of March. On March 1, both LA and SF converged at \$0.05 and would mirror each other until March 7, where LA would gain \$0.02, while SF would lose \$0.04 ending the day at \$0.14 and \$0.08. Prices at this point would fluctuate, but they continued to experience upward pressures, with LA peaking on March 19 at \$0.19 and SF on March 20 at \$0.13. LA and SF would end the month at \$0.17 and \$0.13, with LA \$0.06 higher than last year.

The March differential averaged \$0.15 and \$0.11 for LA and SF. Compared to February, this is \$0.00 and \$0.05 higher, which bucks a historical trend that sees the differential drop in March. Over the past five years, LA and SF differentials averaged premiums of \$0.18 and \$0.13, respectively, in February. By March, these premiums shrank to \$0.11 and \$0.09.

Historically, the losses in the California premiums are due to NYMEX price gains over California prices. This year, the NYMEX increased by \$0.17, while LA and SF prices grew by \$0.17 and \$0.20. With California prices keeping pace with the increases in the NYMEX price, the expected shrinking of the price differential has not been seen this year.

Gasoline Spot-Futures Spread

March 2018 vs 2017

Los Angeles 6¢ higher
San Francisco 0¢ even

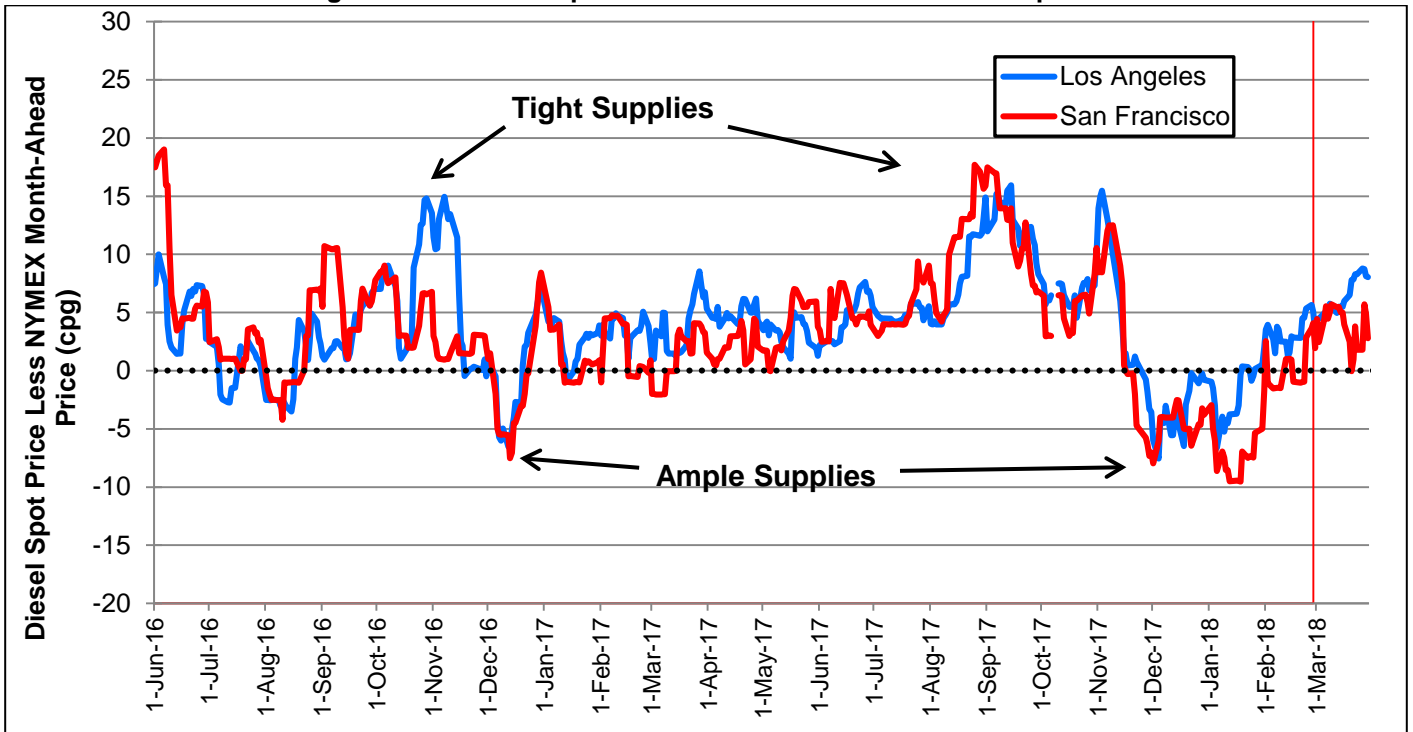
March 2018 Averages

Los Angeles 15¢
San Francisco 6¢

March 29, 2018

Los Angeles 18¢
San Francisco 16¢

Figure 7: California Spot Diesel to NYMEX Futures Price Spread



Source: U.S. Energy Information Administration and OPIS

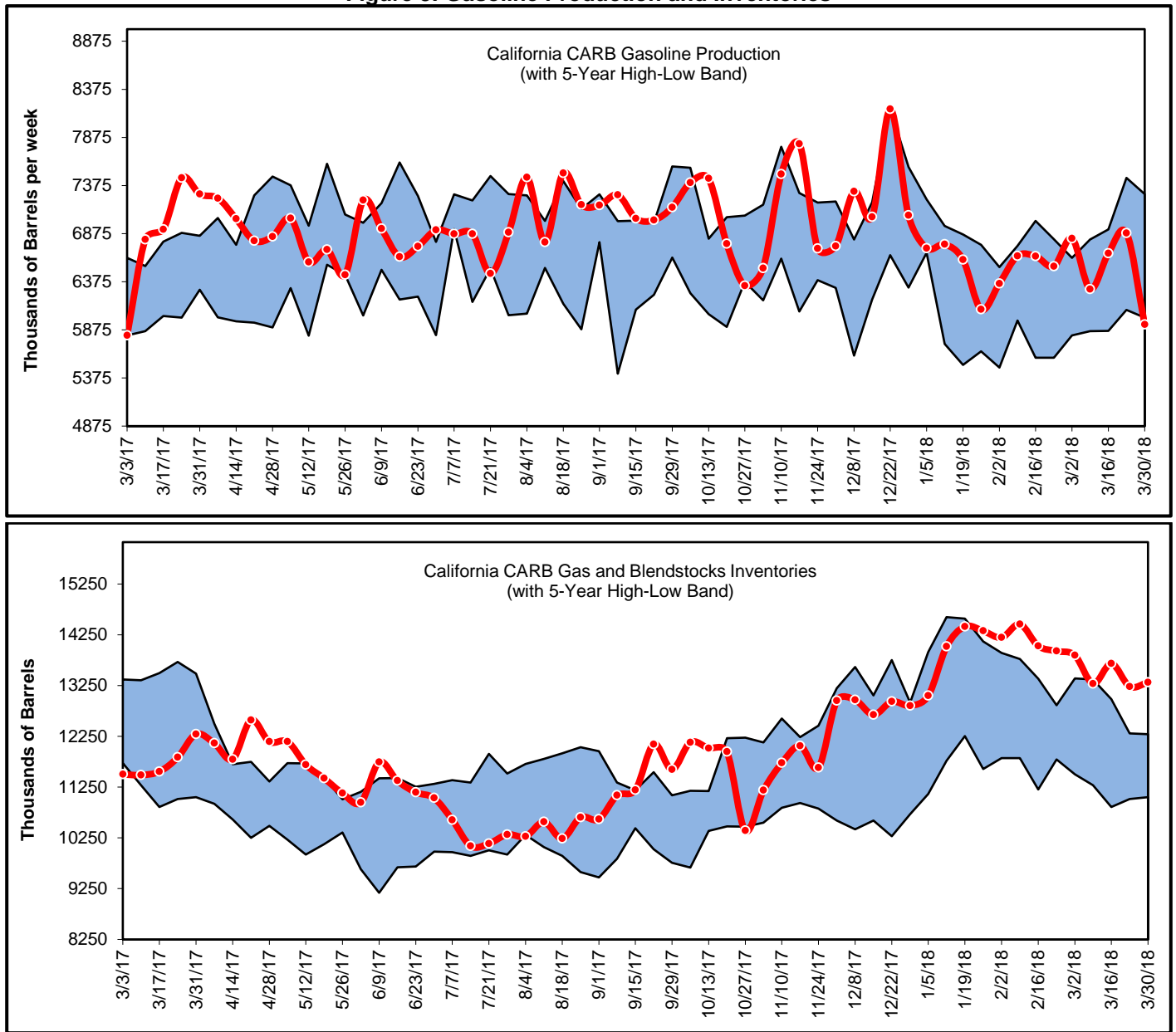
LA diesel spot differential continued to have steady gains throughout the month before seeing only two consecutive days of downward pressure at the end of March. On March 1, the LA price was \$0.04 and continued an upward trend, reaching a peak of \$0.09 on March 27 before ending the month March 29 at \$0.08. SF diesel prices experienced greater volatility compared to LA in March prices. On March 1, SF price spreads were \$0.04 then dropped to \$0.02 the following day. Prices would fluctuate between \$0.04 and \$0.06 until March 13, when prices begin to have a downward trend and hit a monthly low of \$0.00 on March 20. The SF differential would continue to experience swings in prices, but has trended upward as on March 29 with prices at \$0.03.

Spot diesel prices in March experienced upward pressure in California, as March is the beginning of planting season for California farmers, with 2018 expected to have high activity due to healthy California water levels. Furthermore, diesel production in California was lower than expected, with two weeks falling below the five-year band before recovering. The lack of production induced draws in inventory levels but managed to stay within the five-year band. Normally, the spot differential would be higher, but colder weather coupled with winter storms has kept the demand for heating oil high in the East Coast, where prices traditionally would have fallen.

<u>Diesel Spot-Futures Spread</u>	
<u>March 2018 vs 2017</u>	
Los Angeles	3¢ higher
San Francisco	3¢ higher
<u>March 2018 Averages</u>	
Los Angeles	6¢
San Francisco	4¢
<u>March 29, 2018</u>	
Los Angeles	8¢
San Francisco	3¢

California Gasoline and Diesel Production and Inventories

Figure 8: Gasoline Production and Inventories

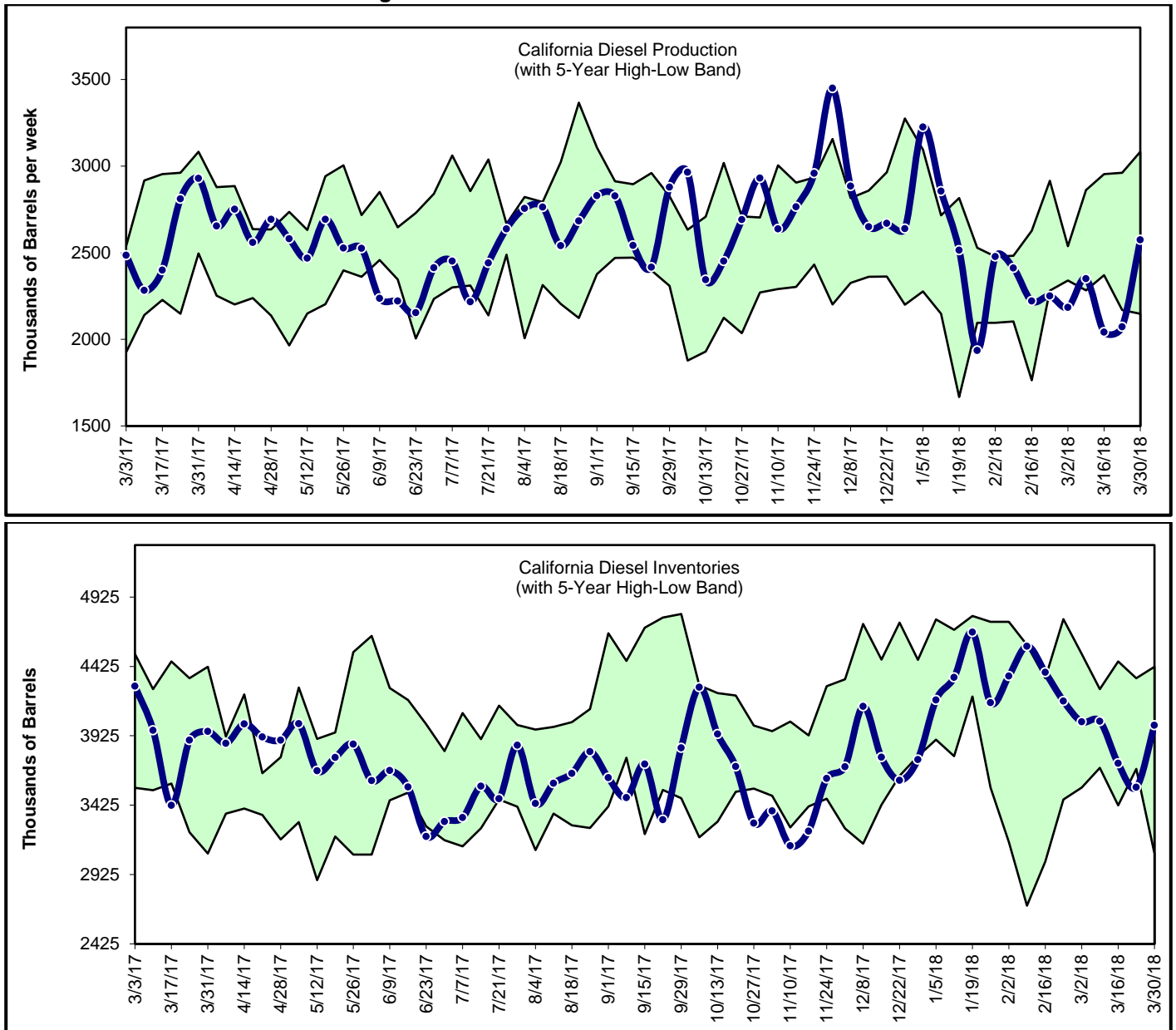


Source: PIIRA data

California gasoline production decreased throughout March (**Figure 8**). Weekly gasoline production through March 30 maintained a monthly average of 6.5 million barrels per week (bpw), 0.1 million bpw less than February 2018. Refinery production was at a low of 5.9 million bpw on March 30, after reaching a high of 6.8 million bpw on March 23. California production is weaker than in March 2017, when production maintained 6.8 million bpw as a monthly average.

Gasoline inventories remain strong and have been consistently greater than the five-year range for nine consecutive weeks beginning January 19 (**Figure 8**). Peak inventory levels reached 13.6 million barrels on March 16. Since then, inventory levels have decreased 300,000 barrels to 13.3 million barrels on March 30, still 1 million barrels greater than March 2017.

Figure 9: Diesel Production and Inventories



Source: PIIRA data

California diesel production spent March below the five-year band, before a large increase on March 30 (Figure 9). Diesel production averaged 2.1 million bpw until March 30, when production increased to 2.5 million bpw. March's diesel production is 0.5 million bpw weaker than March 2017, when production had a monthly average of 2.6 million bpw.

Diesel inventory levels remained mostly healthy in March, with only a brief move below the five-year band on March 23. Inventory levels peaked at 3.7 million barrels on March 9 and fell to 3.6 million barrels by March 30. California diesel inventories averaged 3.5 million barrels, putting March 2018 about 0.1 million barrels healthier than the March 2017 average of 3.4 million barrels.