



PETROLEUM WATCH

California Energy Commission

May 2018

Recent Petroleum News

Prices

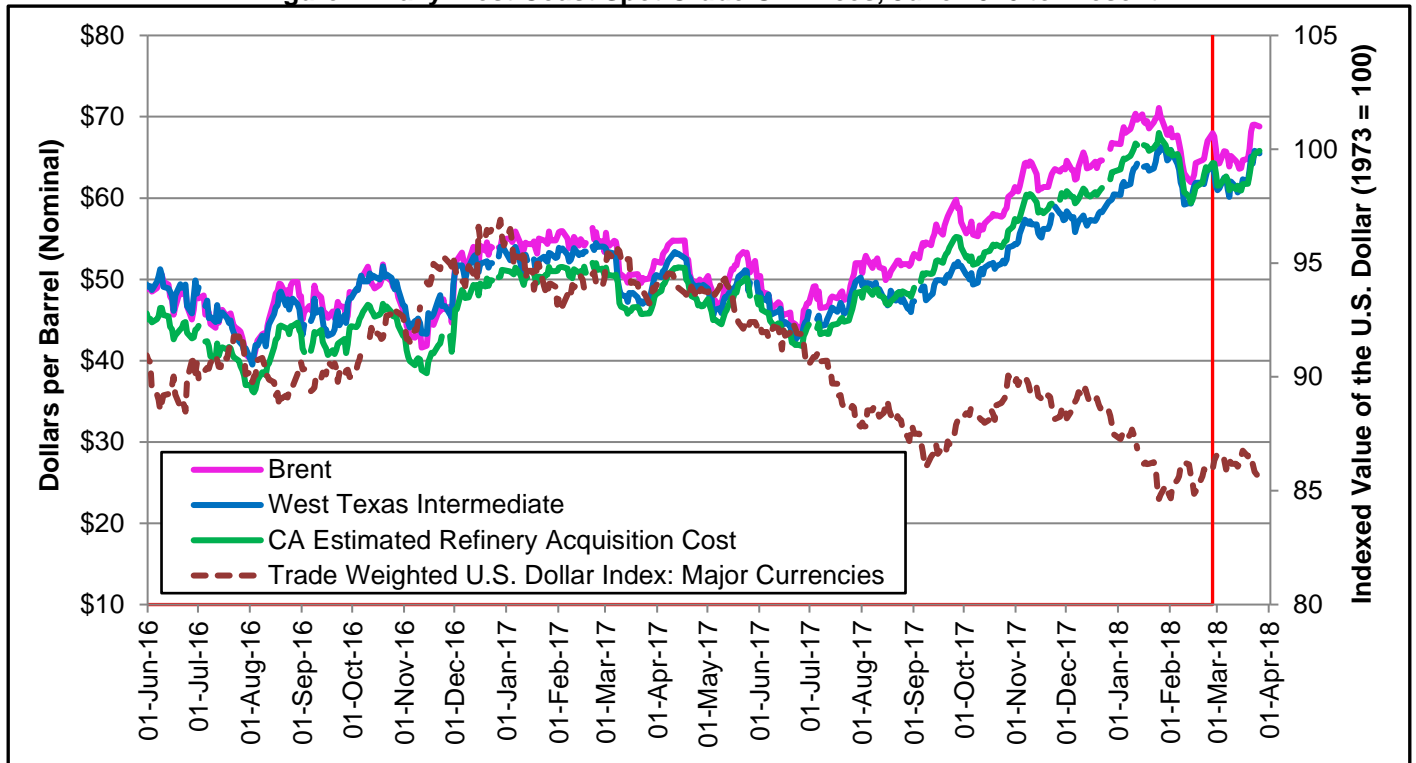
- **Crude Oil Prices:** Brent and West Texas Intermediate (WTI) crude prices closed at \$71.69 and \$66.25, respectively, on April 30 (**page 2**).
- **California Retail Gasoline Prices:** On April 27, prices reached \$3.56, an increase of \$0.17 since the end of March. Through April, California prices averaged \$0.82 higher than the national average (**page 4**).
- **California Retail Diesel Prices:** On April 27, prices reached \$3.77, an increase of \$0.10 from the end of March. Through April, California prices averaged \$0.67 higher than the national average (**page 5**).

Refining News

- **Andeavor Carson Refinery:** On April 16, the refinery underwent unplanned maintenance on a delayed coking unit and forced reduced rates on an atmospheric distillation unit. This work was completed on April 22.
- **Chevron El Segundo Refinery:** On April 3, the refinery underwent planned maintenance on a catalytic hydrotreating unit. This work was completed on April 23.
- **Chevron Richmond Refinery:** On April 15, the refinery underwent unplanned maintenance on a fluid catalytic cracking unit. This work was completed on April 17.
- **Phillips 66 Wilmington Refinery:** On March 11, the refinery underwent planned maintenance on the reformer, fractionator, and fluid catalytic cracking units. This work was completed on April 24.

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 resumed increases in April after a pause in the first quarter of 2018 (Figure 1). From January 2018 through March 2018, monthly averages of Brent and West Texas Intermediate (WTI) crude oil decreased 4.4 and 1.5 percent, respectively, before increasing 9 and 6 percent in April. Similarly, the California Estimated Refiner Acquisition Cost (CA-RAC) decreased 4.6 percent from January to March before increasing 8 percent in April.¹

Global factors, instead of U.S. petroleum market fundamentals, are driving increases in crude oil prices. The demand growth in the United States for petroleum is plateauing, as indicated by concurrent increases in U.S. crude oil stocks and production in April (page 3). Consequently, Energy Information Administration (EIA) data show U.S. producers exporting more, averaging more than 2 million barrels per day (bpd) in crude oil exports. Further, the foreign-based Brent crude prices have outpaced the United States-based WTI, and Brent is now \$7.00 per barrel more than WTI as of April 30. When combined with falling Organization of the Petroleum Exporting Countries (OPEC) crude oil production in March, these items are strong indicators of a supply-and-demand imbalance occurring outside the United States, signaling a tightening in the world crude oil market.

<u>Crude Oil Prices</u>	
<u>April 2018 vs 2017</u>	
<u>(Percent Change)</u>	
Brent	38% higher
WTI	30% higher
CA-RAC	39% higher
<u>April 2018 Averages</u>	
Brent	\$71.96
WTI	\$66.25
CA-RAC	\$68.21
<u>April 30, 2018</u>	
Brent	\$75.92
WTI	\$68.56
CA-RAC	\$71.59

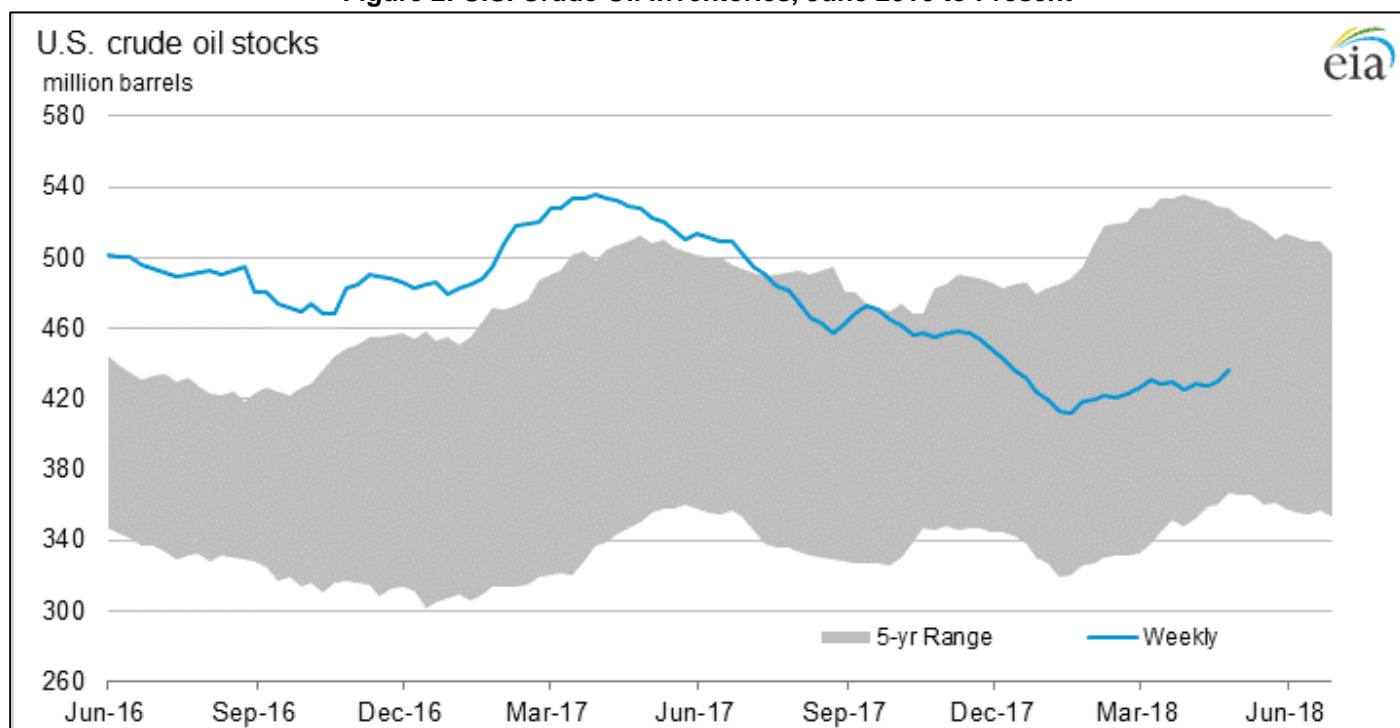
¹ CA-RAC is a weighted average of the prices of California (San Joaquin Valley) crude, Alaskan crude, and foreign crude.

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 April averaged 10.56 million bpd, 140,000 bpd higher than March's monthly average of 10.42 million bpd. This is a 1.3 million bpd increase from a year ago, when production levels were 9.26 million bpd.
- Crude oil imports increased by 730,000 bpd to 8.4 million bpd in April. Compared to import levels from April 2017, this is an increase of 190,000 bpd.
- U.S. crude oil refinery inputs increased by 80,000 bpd since March's *Petroleum Watch*, finishing April at a four-week average of 16.78 million bpd. Refinery inputs are 236,000 bpd lower than year-ago levels.
- Crude oil inventories in the United States increased by 10.7 million barrels during April to 436 million barrels. Current inventories are 91.8 million barrels lower than one year ago.

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



Source: U.S. Energy Information Administration

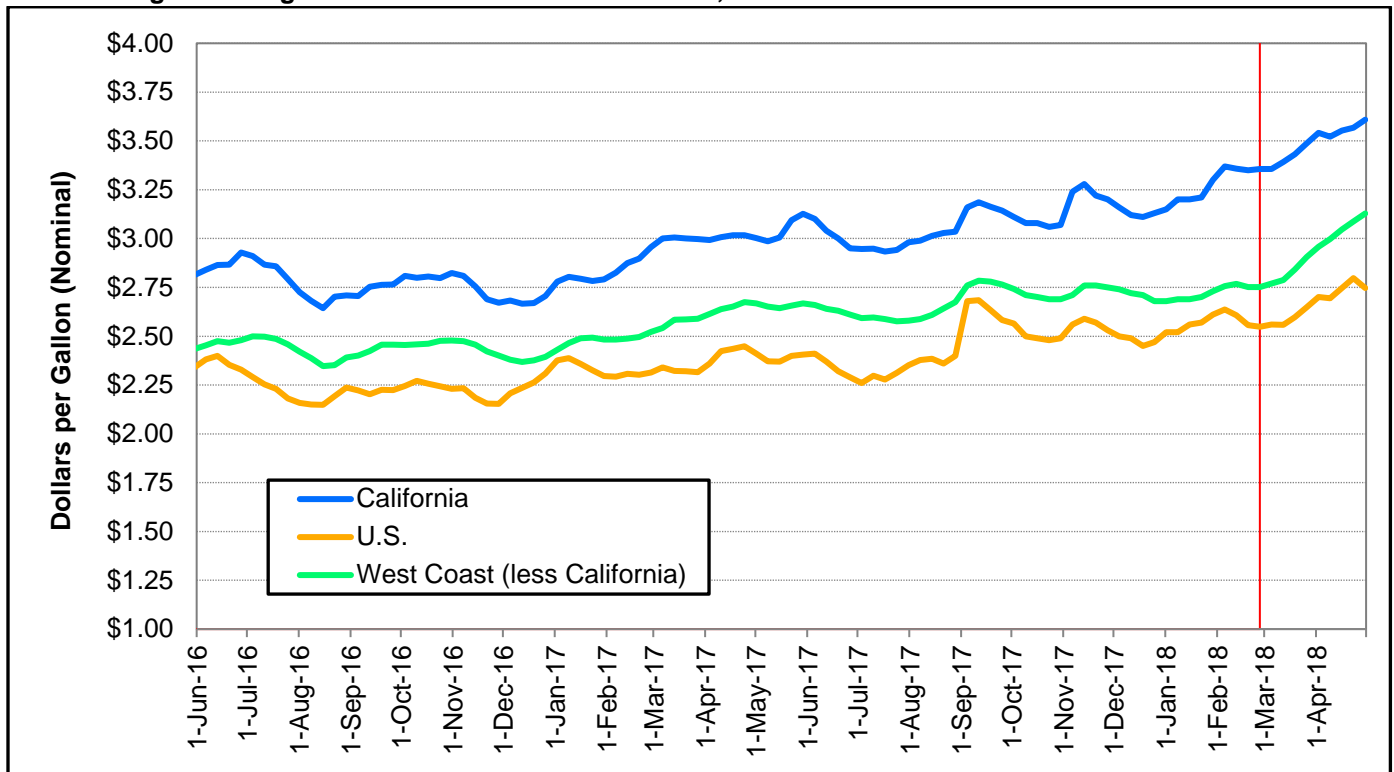
U.S. crude oil production and imports continue to increase to higher levels, indicating that demand is still strong. Conversely, refinery inputs show a slight gain, while crude oil inventories reached the highest level seen as of 2018. These indicators show domestic demand, while still positive, might soon slow down. This will be especially true if crude oil prices continue to rise (page 2).

According to the OPEC March *Monthly Oil Market Report*, total March OPEC production decreased by 201,400 bpd to 32 million bpd. OPEC's crude oil demand forecast reports demand growth increasing to 1.65 million bpd for the rest of 2018, with total crude oil demand increasing to 98.7 million bpd.²

² OPEC April Monthly Oil Monthly Report, page i, page 51: 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

The California gasoline retail price was 4 percent higher in April than March, at \$3.56 per gallon. This was an increase of \$0.12 from March 26 (\$3.49) to \$3.61 on April 30 (Figure 3). The West Coast (less California) price increased \$0.22 from March 26 to April 30, going from \$2.91 to \$3.13. April was the highest monthly average price for West Coast gasoline (\$3.04) since July 2015, when prices averaged \$3.08. National retail gasoline prices also reached the highest price point of 2018, at \$2.80 on April 23, with April setting the highest monthly average price since July 2015 at \$2.74 (sidebar).

California retail gasoline prices in 2018 have trended consistently upward for four months (Figure 3). They are now 22 percent higher since the \$3.00-a-gallon monthly average of August 2017, going from \$3.01 on August 14, 2017, to \$3.61 on April 30, 2018. Moreover, they have increased \$0.46 since the beginning of the year. Overall, California prices have been increasing at a pace of \$0.03 a week since January 2018, compared to \$0.01 a week from August to December 2017. If this pattern holds, California retail prices will reach \$4.00 a gallon by late July.

Much of this increase appears fueled by increasing crude oil prices. Retail gasoline prices on average increase \$0.02 per gallon for every dollar increase in a barrel of crude oil. During April, Brent and WTI crude prices increased \$6.90 and \$5.51, respectively, thus adding roughly \$0.14 and \$0.11 to the price of gasoline.

Gasoline Prices

April 2018 vs 2017 (Percent Change)

California	18% higher
U.S.	13% higher
West Coast	15% higher

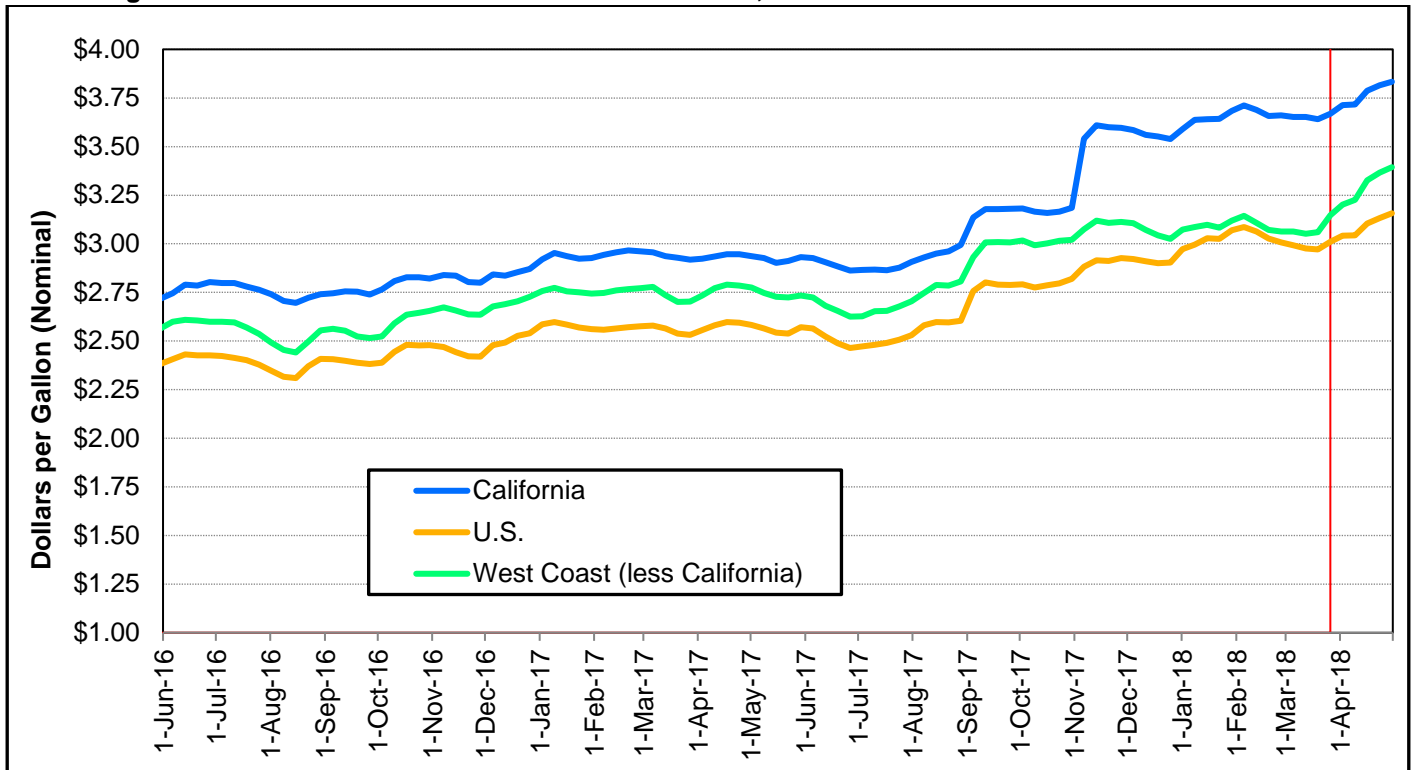
April 2018 Averages

California	\$3.56
U.S.	\$2.74
West Coast	\$3.04

Week of April 30, 2018

California	\$3.61
U.S.	\$2.75
West Coast	\$3.13

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



Source: U.S. Energy Information Administration

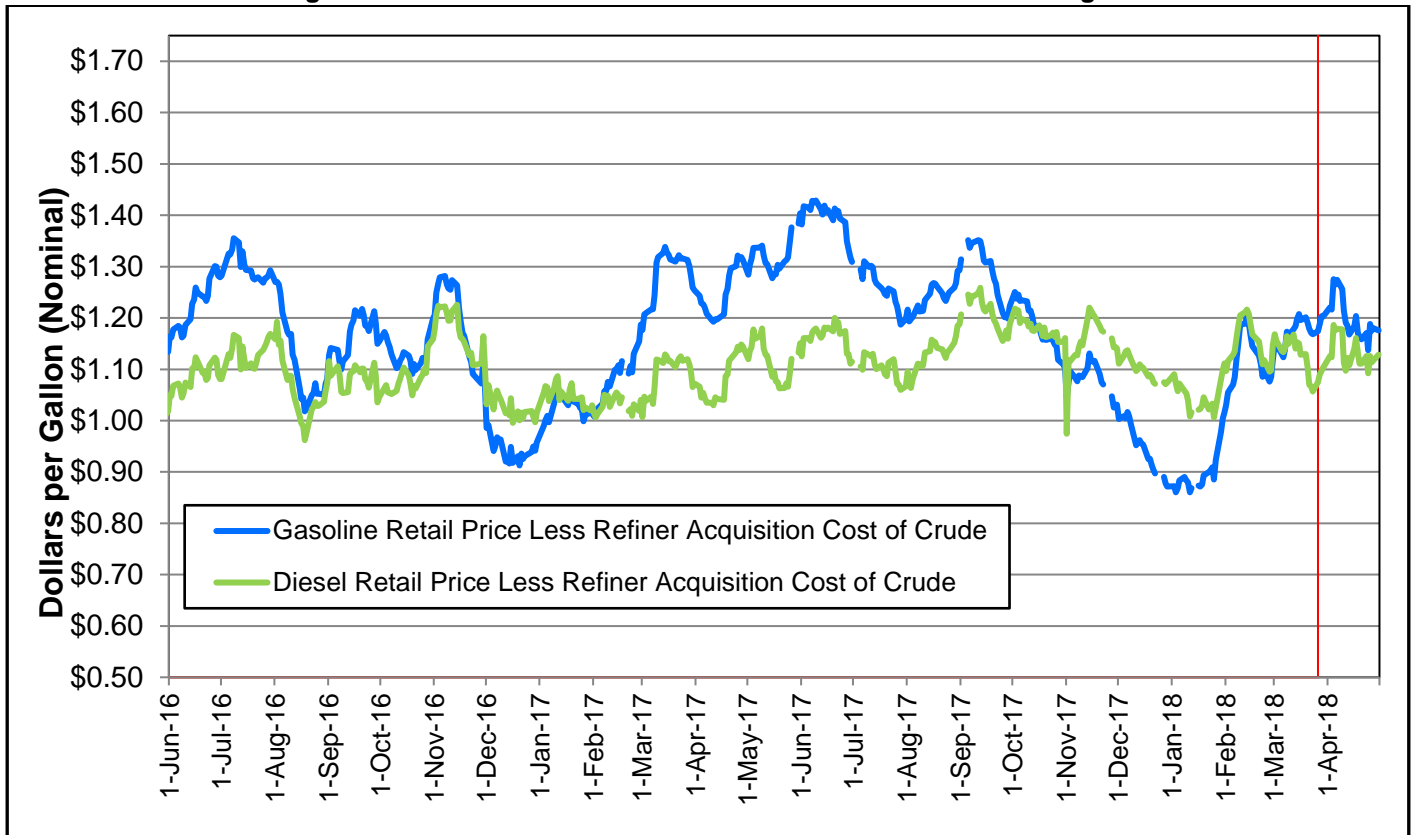
California retail diesel prices increased \$0.12 per gallon, going from \$3.71 on April 2 to \$3.83 on April 30. Retail prices in April averaged \$3.77, 28 percent higher than April 2017 (Figure 4). U.S. retail prices in April averaged \$3.10, reaching the highest monthly average since December 2014, when retail prices averaged \$3.41. West Coast (less CA) had the largest increase over the month of April, going from \$3.20 on April 2 to \$3.39 on April 30. Yet, this was the lowest regional year-to-year percentage change, 19 percent, when compared to the changes of other regions (sidebar).

On April 30, the California retail diesel price was 21 percent higher than the U.S. price and 13 percent higher than the rest of the West Coast. California and U.S. prices had similar growth in April, both increasing \$0.12 each. Therefore, the California-to-U.S. differential price remained constant at \$0.67 for April. On the other hand, the West Coast-to-U.S. differential increased, going from \$0.16 on April 2 to \$0.24 on April 30, which was the highest differential seen since April 2012.

While some refinery issues occurred in California (page 1), facilities were back to full production by the second half of the month. This increased diesel production levels, returning them to the five-year band on the week of April 27. This quick turnaround time calmed the market, with the diesel retail price increasing only \$0.01 from April 23 to April 30. Furthermore, large stock levels should help address any large price increases, as diesel stock is above the five-year high-low band (Figure 9).

<u>Diesel Prices</u>	
<u>April 2018 vs 2017</u>	
(Percent Change)	
California	28% higher
U.S.	20% higher
West Coast	19% higher
<u>April 2018 Averages</u>	
California	\$3.77
U.S.	\$3.10
West Coast	\$3.30
<u>Week of April 30, 2018</u>	
California	\$3.83
U.S.	\$3.16
West Coast	\$3.39

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



Source: U.S. Energy Information Administration and OPIS

Overall, gasoline and diesel margins were stable in April (Figure 5). CA-RAC-to-ex-tax retail gasoline and diesel margins peaked April 5 shortly after a large refinery began 30 days of planned maintenance April 3 (page 1). This caused a margin spike as retail markets anticipated reduced supply. However, within days, reports of strong production in both gasoline and diesel improved inventories, leading to the margin decreases.

Both margin indices are at roughly similar levels to this same time last year. Unlike last year, in April 2018, there was a spike in margins in the early part of the month with both margins lowering by the end of the month. In the case of gasoline, it finished less than April 2017, leading to the 2018 monthly average being less than 2017. For diesel, the fall was less pronounced, and 2018 was left 5 percent higher than 2017 (sidebar).

Combined margins and crude oil prices represent 78 percent of the final diesel retail prices. (Taxes make up the rest.) Margins and crude oil prices combined are slowly recovering the position held prior to November 1, 2017, when the 20-cent-per-diesel-gallon state tax increase occurred.

Crude to Retail Margins

April 2018 vs 2017 (Percent Change)

Gasoline	5% lower
Diesel	5% higher

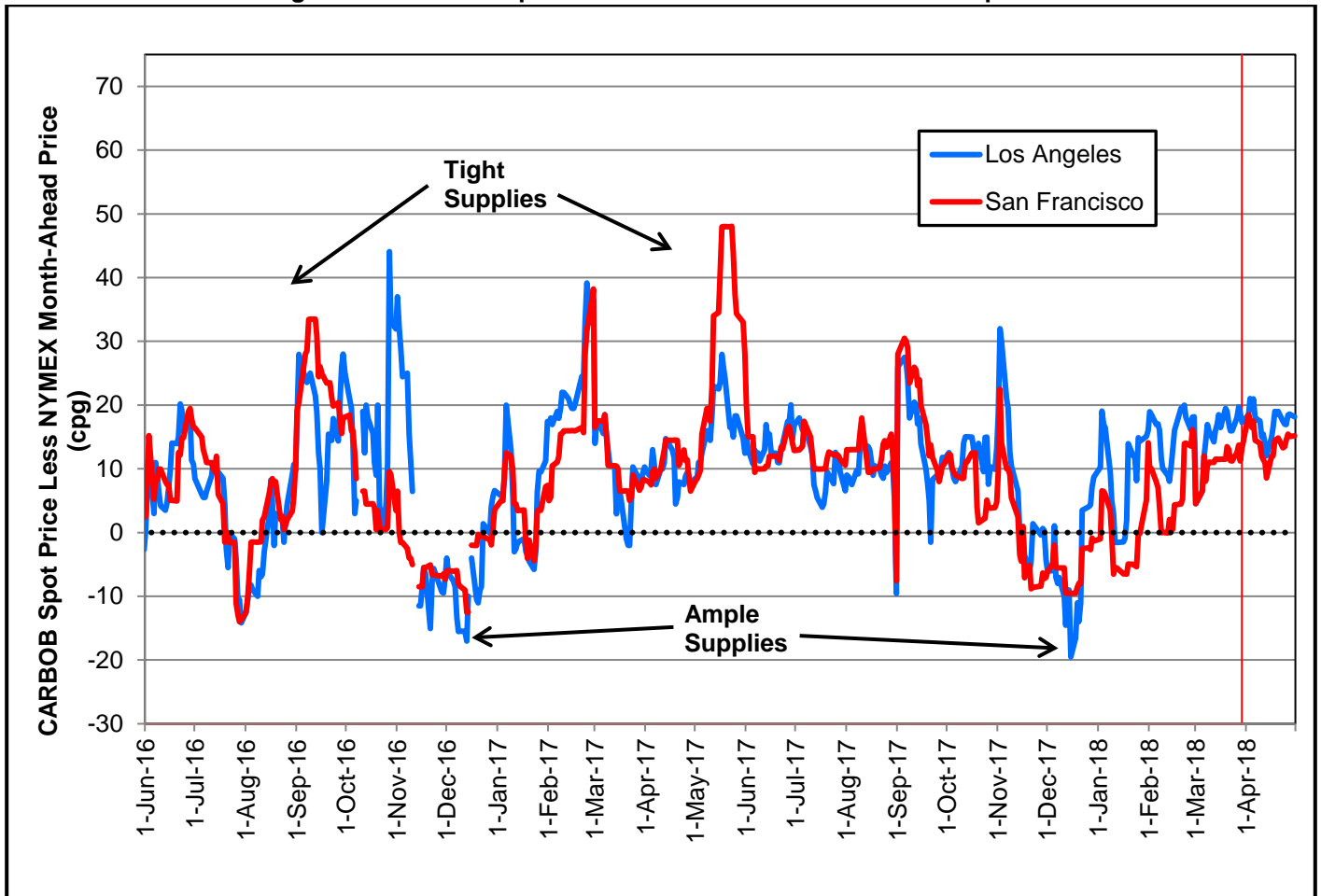
April 2018 Averages

Gasoline	\$1.20
Diesel	\$1.13

April 30, 2018

Gasoline	\$1.18
Diesel	\$1.13

Figure 6: California Spot Gasoline to NYMEX Futures Price Spread



Source: U.S. Energy Information Administration and OPIS

The Los Angeles (LA) and San Francisco (SF) gasoline spot market differentials to the New York Mercantile Exchange (NYMEX) futures price stabilized in April. The SF differential peaked at \$0.19 on April 2, while LA peaked on April 3 at \$0.21. Both LA and SF prices then declined to a monthly low on April 13 at \$0.12 and \$0.09 before rebounding on April 18, with LA reaching \$0.19 and SF reaching \$0.15. April ended with prices at \$0.18 for LA and \$0.15 for SF, with the April differentials averaging \$0.17 and \$0.14, respectively.

The difference between LA and SF differentials shrunk and remained narrow for much of April, which historically tends to be a quiet month as demand remains flat and refiners finish early year maintenance. Barring any major refinery event, this creates a stable pricing environment where refiners are primed to meet early summer demand. Over the past two years, SF commanded a premium over LA in April, but this did not happen in 2018. The LA differential has remained high due to the majority of ongoing refinery maintenance occurring in Southern California (page 1, Refinery News). This kept the LA above the SF differential, at levels between \$0.02 and \$0.05.

Gasoline Spot– Futures Spread

April 2018 vs 2017

Los Angeles	8¢ higher
San Francisco	3¢ higher

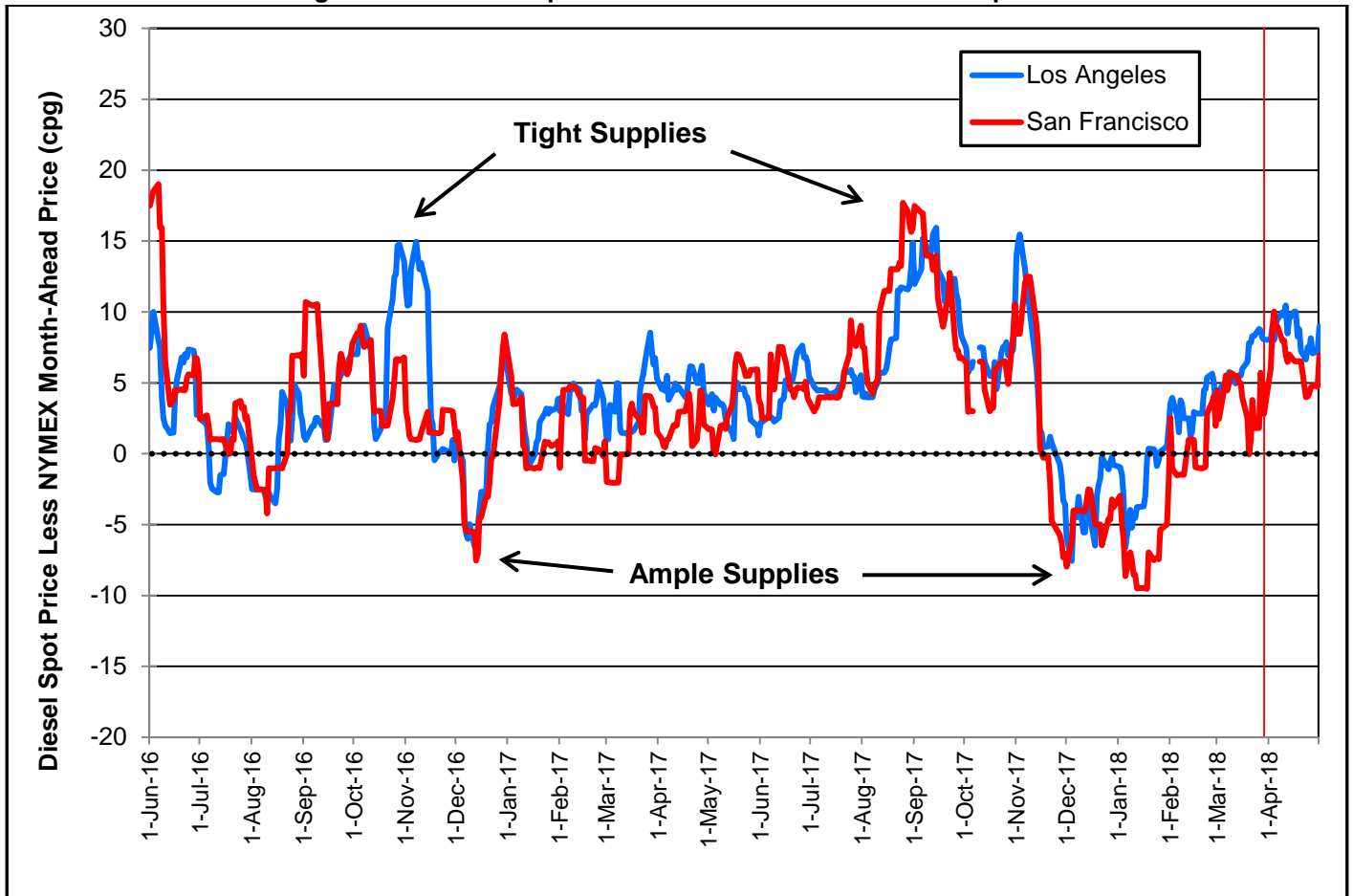
April 2018 Averages

Los Angeles	17¢
San Francisco	14¢

April 30, 2018

Los Angeles	18¢
San Francisco	15¢

Figure 7: California Spot Diesel to NYMEX Futures Price Spread



Source: U.S. Energy Information Administration and OPIIS

SF diesel spot differential grew quickly at the start of April on falling production levels (page 10) and refinery issues, peaking April 4 at \$0.10 (Figure 7). As April progressed, the SF differential steadily declined to the lowest point on April 23, at \$0.04, and ended the month at \$0.05. After the fall in production, Northern California had strong production and inventory numbers for the rest of April, keeping the differential below LA, but apparently high demand kept it above \$0.05.

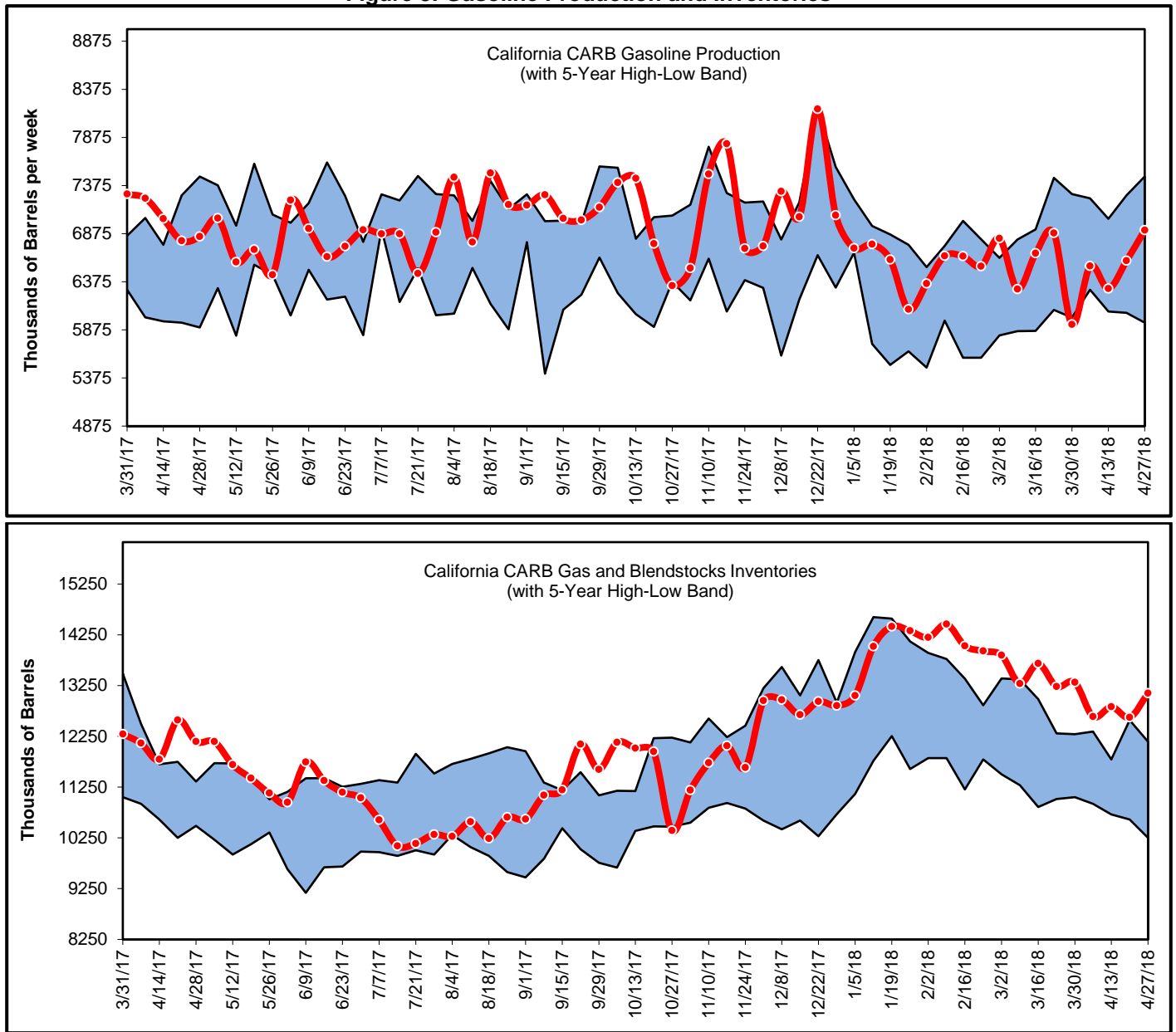
The LA diesel spot differential increased steadily throughout the month, leading up to the April peak at \$0.11 (April 11). The LA differential then fluctuated between \$0.08 and \$0.10 in the following days before steadily decreasing on April 18 (\$0.08). By the end the month, it reached the lowest point at \$0.07 on April 30. Overall, the LA diesel spot differential averaged \$0.09 in April, which is the highest average in six years. Southern California refinery maintenance lead to regional low production and inventories (see *Weekly-Fuels-Watch* regional break-outs³), contributing to the associated premium relative to SF.

<u>Diesel Spot-Futures Spread</u>	
<u>April 2018 vs 2017</u>	
Los Angeles	4¢ higher
San Francisco	4¢ higher
<u>April 2018 Averages</u>	
Los Angeles	9¢
San Francisco	7¢
<u>April 30, 2018</u>	
Los Angeles	7¢
San Francisco	5¢

3 Weekly-Fuels-Watch: http://www.energy.ca.gov/almanac/petroleum_data/fuels_watch/.

California Gasoline and Diesel Production and Inventories

Figure 8: Gasoline Production and Inventories

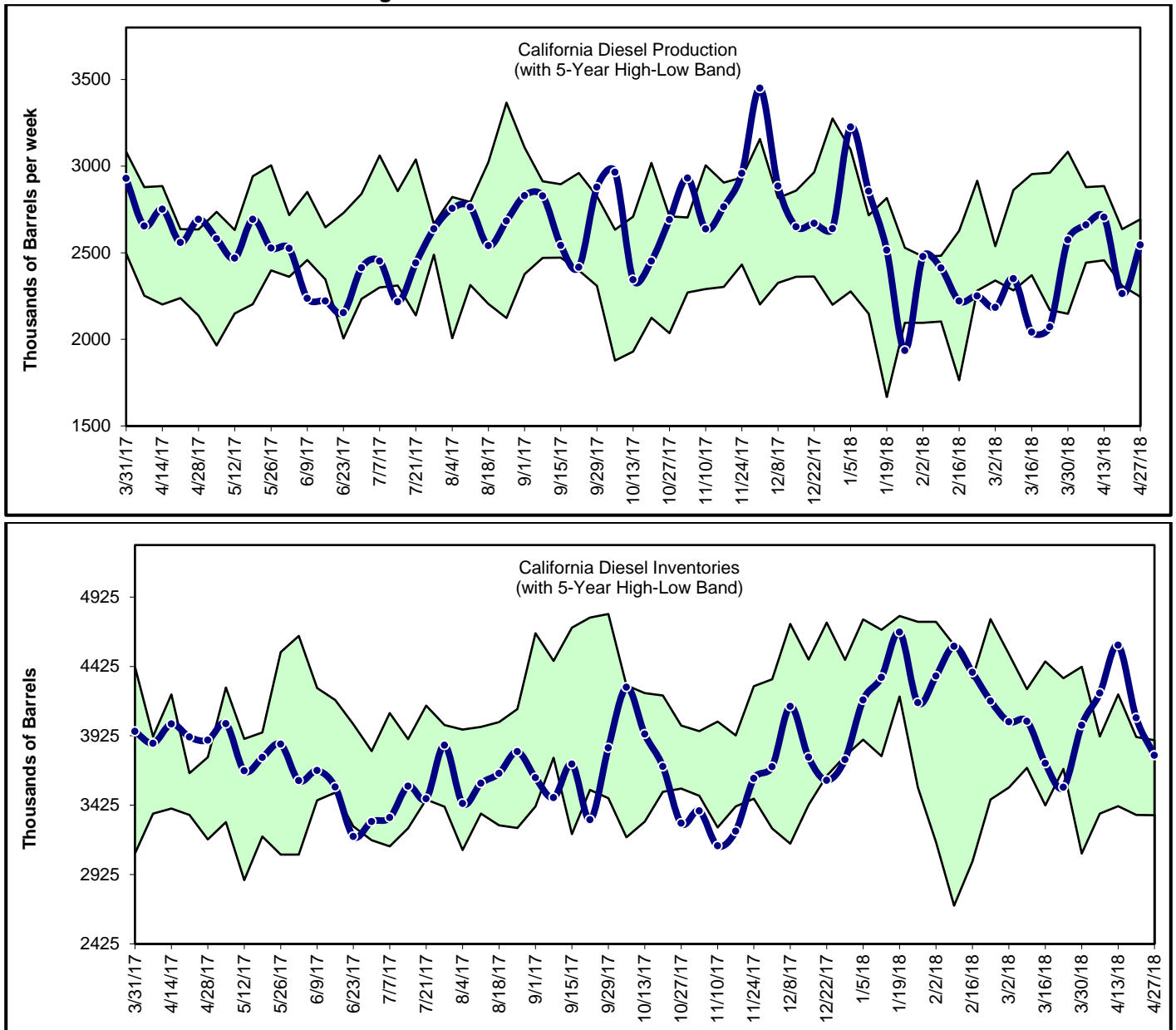


Source: PIIRA data

California gasoline production increased in April. Oil refineries across California produced a monthly average of 6.6 million barrels per week (bpw), 0.1 million bpw more than March 2018. Refinery production registered a low of 6.3 million bpw on April 13 then climbed to 6.9 million bpw on April 27. California production remains weaker than in April 2017, when production averaged 6.9 million bpw.

Gasoline inventories remained above the five-year band in April, never going below 12.6 million barrels. The lowest inventory level of April occurred April 20 at 12.6 million barrels. The following week inventories increased by 500,000 barrels, totaling 13.1 million barrels on April 27.

Figure 9: Diesel Production and Inventories



Source: PIIRA data

California diesel production averaged 2.7 million bpw in April, with a brief downturn on April 20. Diesel production fell to a monthly low of 2.2 million bpw on April 20, due to refinery maintenance. Production increased back to 2.5 million bpw on April 27. April’s diesel production is 0.1 million bpw stronger than April 2017, when production had a monthly average of 2.6 million bpw.

Diesel inventory levels remained healthy in April, with only a brief move to outside the five-year band on April 27. Inventory levels peaked at 4.5 million barrels on April 13 and fell to 3.7 million barrels by April 27. California diesel inventories averaged 4.2 million barrels, about 0.3 million barrels more than April 2017’s average of 3.9 million barrels.