



PETROLEUM WATCH

California Energy Commission

April 2017

Recent Petroleum News and Outside Analyses

Prices

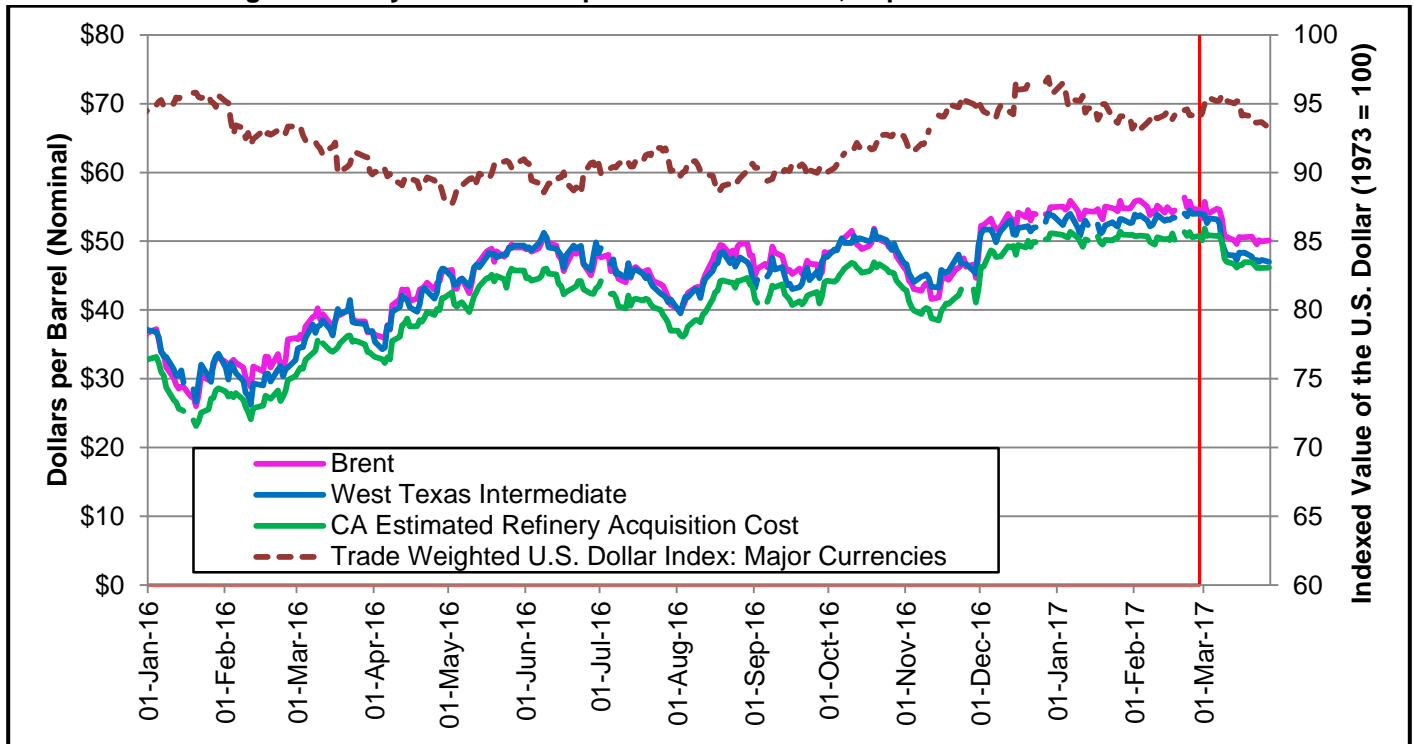
- **Crude Oil Prices:** Brent and West Texas Intermediate (WTI) crude prices closed at \$50.12 and \$47.02, respectively, on March 27 (**Page 2**).
- **California Retail Gasoline Prices:** On March 27, prices increased to \$3.00, an increase of \$0.05 since the end of February. Through March, California prices averaged \$0.67 higher than the national average (**Page 4**).
- **California Retail Diesel Prices:** On March 27, prices reached \$2.92, a decrease of \$0.04 from the end of February. Through March, California prices averaged \$0.39 higher than the national average (**Page 5**).

Refining News

- **Tesoro Golden Eagle Refinery:** On March 16, the refinery restarted its 73,000-barrel-per-day fluid catalytic cracking unit after being forced to shut down on March 10.
- **Chevron El Segundo Refinery:** On March 12, the El Segundo refinery restarted its crude unit after being shut down on March 7 due to a leak.
- **Shell Martinez Refinery:** On March 12, the refinery completed maintenance that began February 17 on the distillate hydrotreater.
- **Valero Benicia Refinery:** On March 5, the refinery completed plantwide maintenance that began January 13.

Crude Oil Prices

Figure 1: Daily West Coast Spot Crude Oil Prices, September 2015 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 per barrel prices decreased in March and remain at the lowest levels since the start of 2017 (Figure 1). Prices for all grades of crude oil fell sharply from March 7 to March 9, with Brent falling \$3.96 to \$50.65, WTI falling \$3.93 to \$48.75, and the California Estimated Refiner Acquisition Cost (CA-RAC)¹ falling \$3.24 to \$47.41. This marks the first time in 2017 that crude oil sold for below \$50. Financial analysts blamed the sharp price drop on data indicating weak demand, which the U.S. Energy Information Administration (EIA) released on March 8, showing large crude inventory buildups and rising production rates in the United States.²

Prices for all grades of crude oil still remain higher than most prices seen in 2016. Throughout March, CA-RAC remained roughly \$1.50 lower than WTI and \$3 lower than Brent prices. These CA-RAC differentials are roughly half of February’s levels, which were \$3 lower than WTI and \$5 lower than Brent. The narrowing crude price differentials imply that weak demand is a global trend rather than a regional one.

<u>Crude Oil Prices</u>	
March 2017 vs 2016	
(Percent Change)	
Brent	35% higher
WTI	31% higher
CA-RAC	40% higher
March 2017 Averages	
Brent	\$51.58
WTI	\$49.26
CA-RAC	\$47.91
March 27, 2017	
Brent	\$50.12
WTI	\$47.02
CA-RAC	\$46.18

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

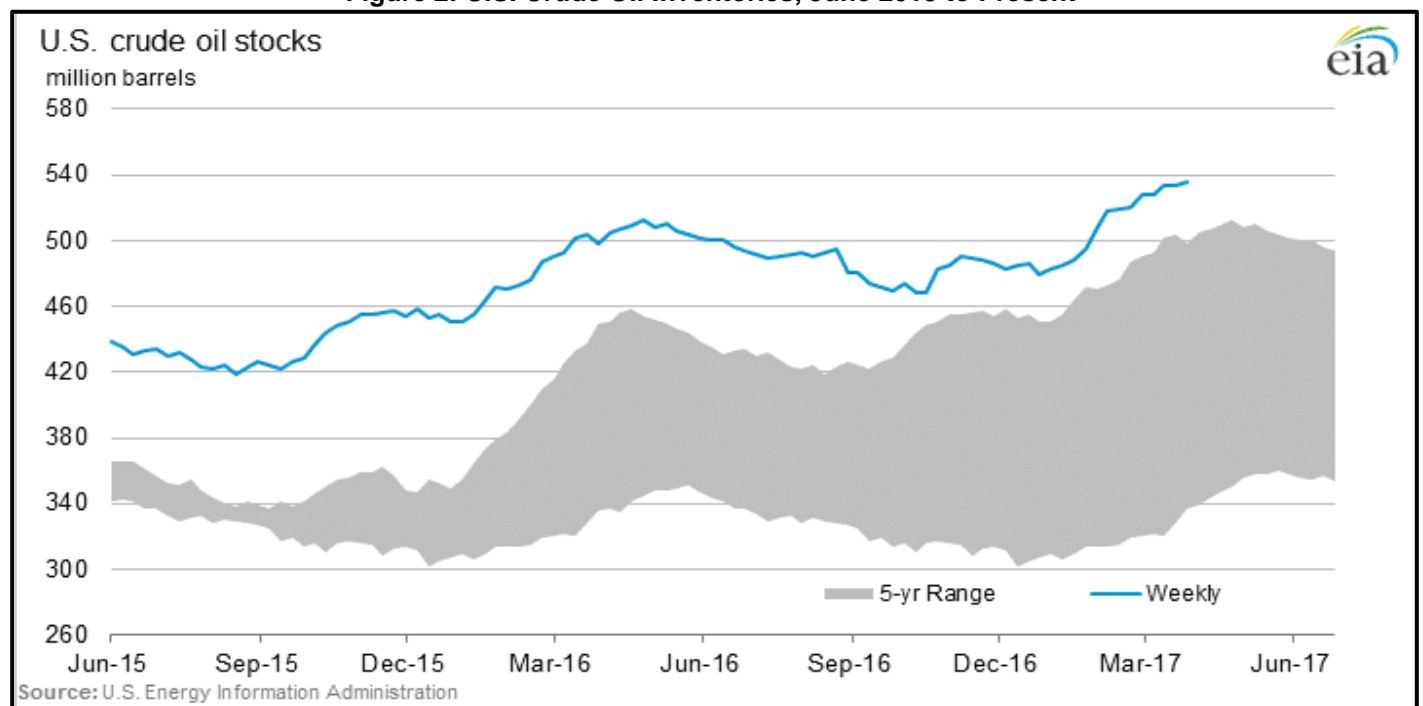
² “Is It the Beginning of Massive Selling for Crude Oil Futures?” Page 1: <http://marketrealist.com/2017/03/crude-oil-prices-hit-3-month-low/>.

Crude Oil Production and Storage

U.S. crude oil inventories have risen since March's *Petroleum Watch* (Figure 2). Domestic crude oil production and refinery inputs are on the rise, while imports have decreased across the United States.

- U.S. crude oil production for March is estimated by the EIA at 9.15 million barrels per day, an increase of 150,000 barrels per day (bpd) over February levels. This is a 120,000 bpd increase from a year ago when production levels of 9.03 million bpd. Imports declined in March to an estimated 7.95 million bpd, down from 8.19 million bpd in February. When compared to import levels from March 2016, this is an increase of 180,000 bpd.
- U.S. crude oil refinery inputs increased by 780,000 bpd from February input levels, finishing March at 16.4 million bpd. Refinery inputs are 150,000 bpd lower than year-ago levels.
- Crude oil inventories in the United States increased by 15.3 million barrels during March to 535.5 million barrels. The gap between year-ago (a previous five-year high) and current inventory rose to 36.9 million barrels. Despite rising refinery inputs and decreasing imports over February levels, demand is too weak to absorb the increase in crude oil production.

Figure 2: U.S. Crude Oil Inventories, June 2015 to Present



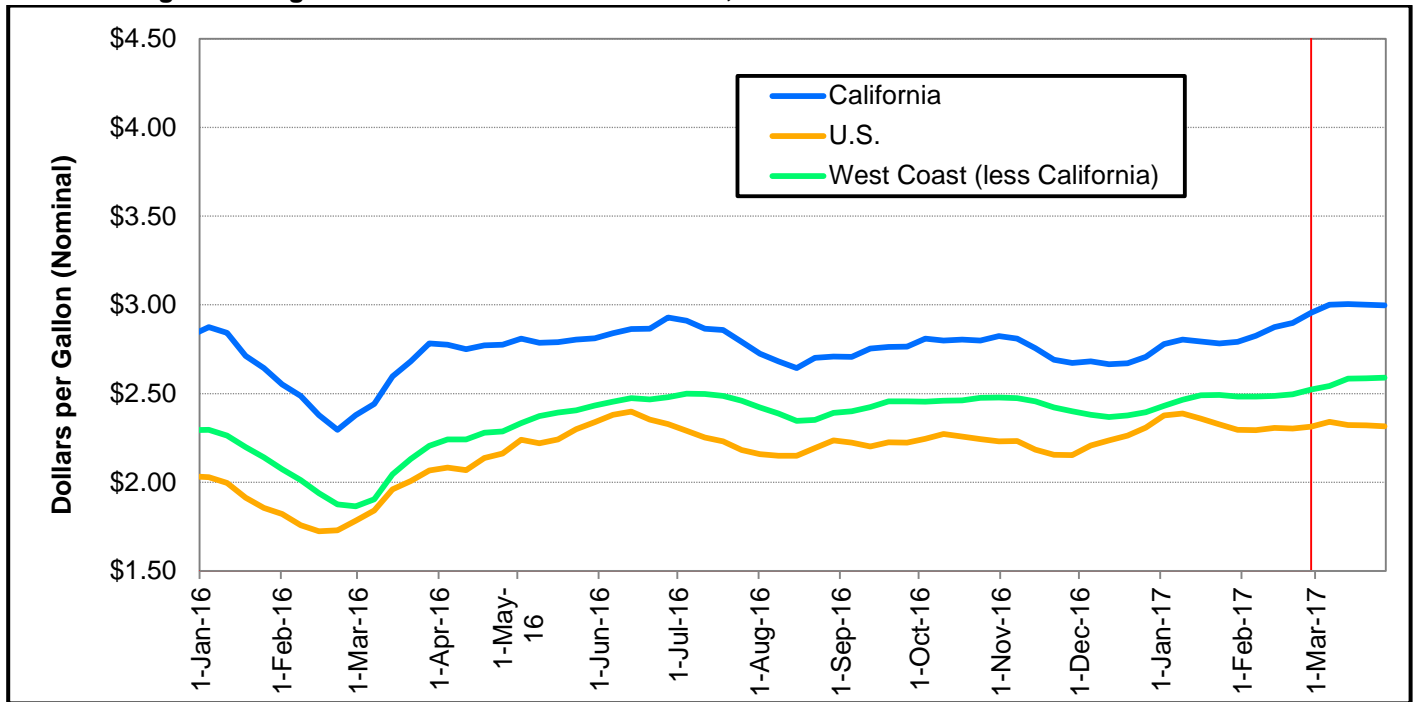
Source: U.S. EIA

- According to Organization of the Petroleum Exporting Countries' (OPEC) March Monthly Oil Report, total OPEC production decreased by 139,500 bpd to 31.96 million bpd. OPEC's original target number for cutbacks set in November 2016 was 32.5 million bpd. The decrease in prices was unexpected as a response to the supply cutbacks; nevertheless, OPEC still forecasts a "0.7 million bpd" increase in demand for OPEC crude this year.³

³ OPEC March Monthly Report, page 1:
www.opec.org/opec_web/static_files_project/media/downloads/publications/MOMR%20March%202017.pdf.

Gasoline and Diesel Retail Prices

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



Source: U.S. EIA

Since the beginning of this year, California gasoline retail prices have increased each week at an average of a little less than \$0.02 per week (Figure 3) from January 2 (\$2.80) to March 27 (\$3.00). As a result, the California retail price difference to U.S. prices⁴ increased to \$0.68 on March 27, from \$0.40 on January 2. On March 13, California set a new 2017 high at \$3.01 a gallon for gasoline and roughly held that position until the end of March, finishing the month at \$3.00.

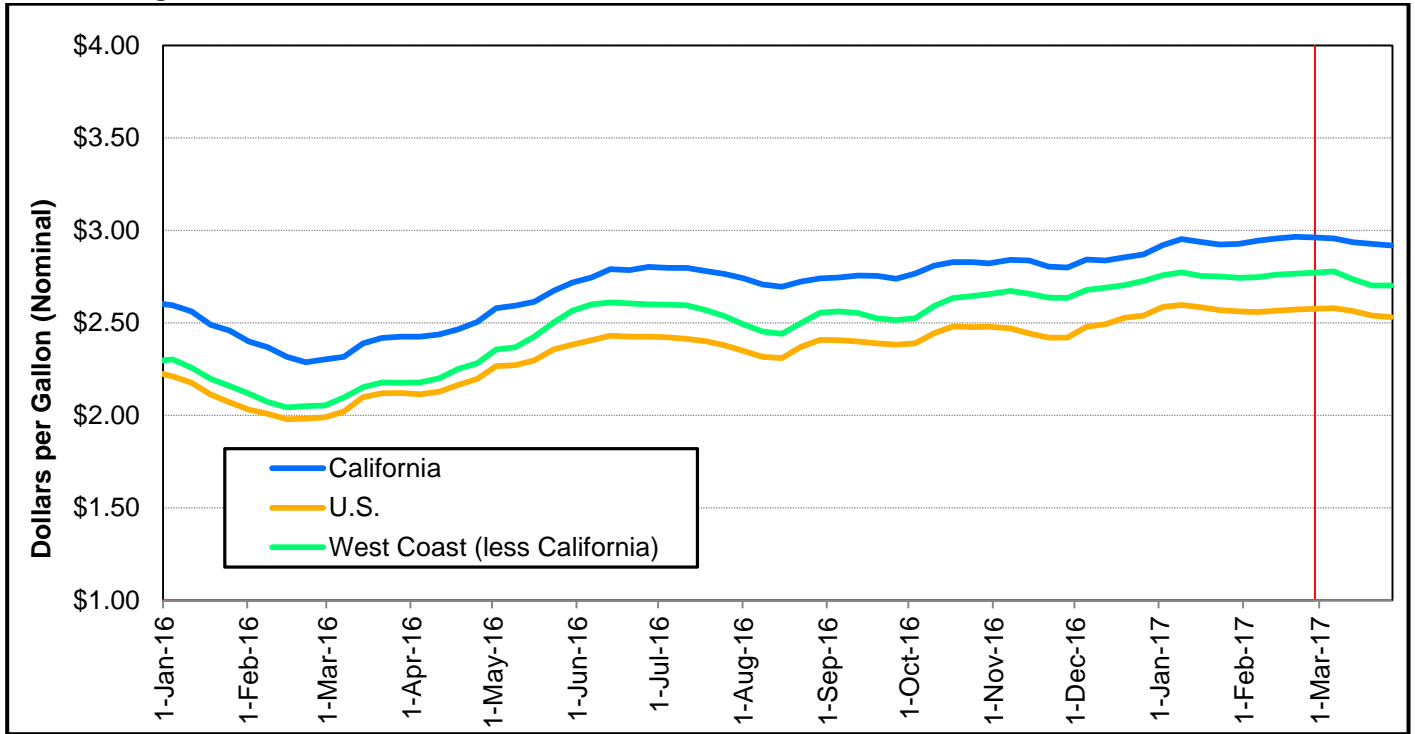
West Coast retail gasoline prices (minus California) increased \$0.07 since the week of February 27 from \$2.52 to \$2.59 on March 27. The West Coast price is now 24 percent higher in March 2017 than the same time last year. The West Coast retail gasoline price, like the California price, is pulling away from U.S. prices to a \$0.25 difference in March, compared to \$0.19 in February. This is likely due to a tightening in the West Coast market caused by refinery issues in Washington and California, such as ones listed on page 1 and maintenance occurring at Phillips 66’s refinery in Ferndale, Washington.

The U.S. gasoline retail price has been stable since the beginning of this year, with prices tracking those seen at the beginning of the year (\$2.39 week of January 9). Since January, U.S. prices have average \$2.32 and have fluctuated between \$2.34 and \$2.29.

<u>Gasoline Prices</u>	
March 2017 vs 2016	
(Percent Change)	
California	14% higher
U.S.	18% higher
West Coast	24% higher
March 2017 Averages	
California	\$3.00
U.S.	\$2.33
West Coast	\$2.58
Week of March 27, 2017	
California	\$3.00
U.S.	\$2.32
West Coast	\$2.59

⁴ U.S. prices are an average of all gasoline prices in all 50 states.

Figure 4: No. 2 Diesel Ultra-Low-Sulfur Retail Prices, California vs. PADD5 vs. United States



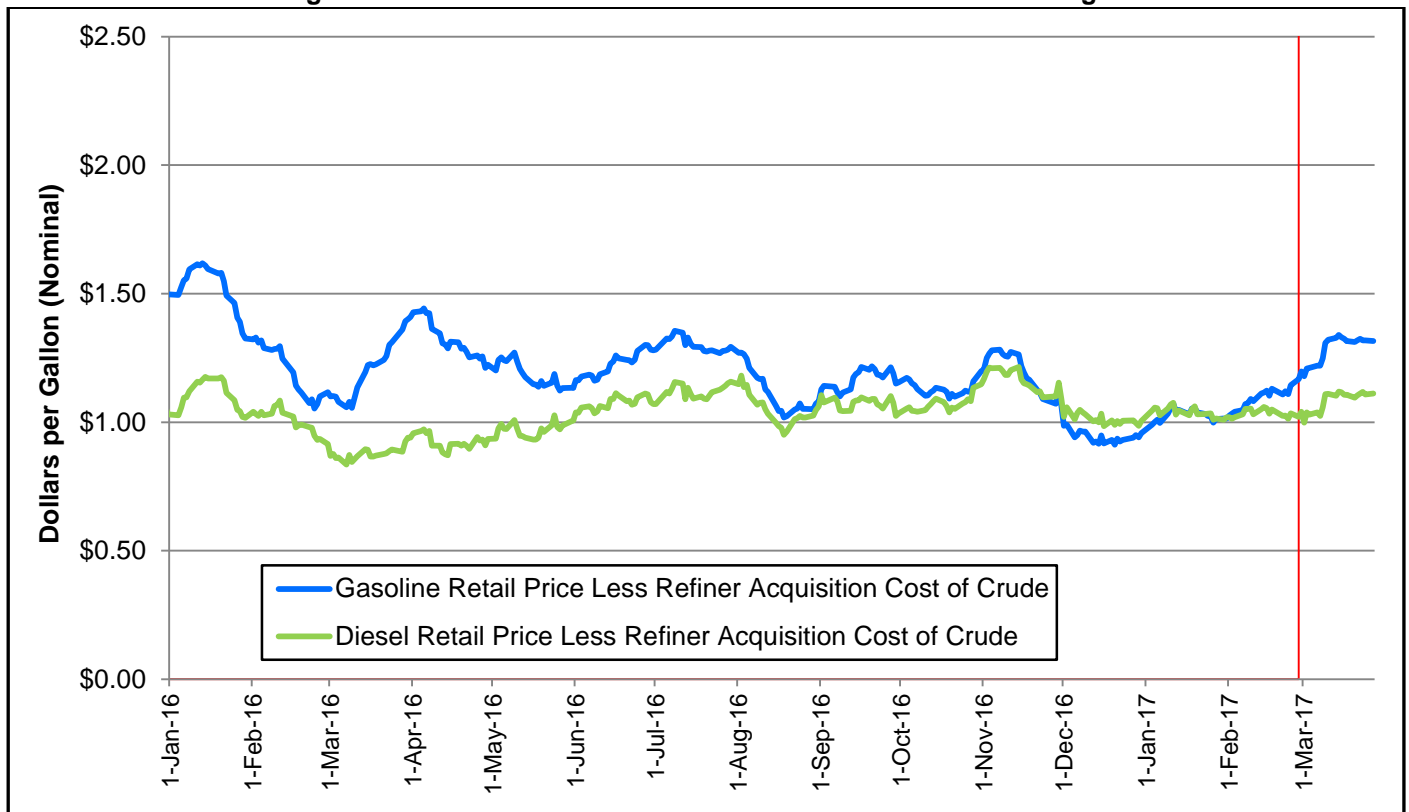
Source: U.S. EIA

The average California diesel price remained \$0.39 higher (\$2.92) than the U.S. average at \$2.53 for the week of March 27 (**Figure 4**). Even with this difference, California diesel prices fell \$0.04 since the beginning of the month. This fall in prices is in contrast to the increases in margins and spot differentials, seen in **Figures 5 and 7**, respectively. Like California prices, the West Coast retail diesel price slightly decreased to the point of virtually splitting the difference between California and U.S. prices at \$0.20 lower and \$0.18 higher, respectively. This slight decrease in prices is more surprising when compared to drops in inventory seen in **Figure 9** at the beginning of the month. It appears higher demand and Tesoro's Golden Eagle refinery maintenance issue did not substantially affect retail prices. California's diesel price had been higher than the gasoline price since October 2016. On March 6, the diesel price dropped below the gasoline price by \$0.04 and ended the month at \$0.08 on March 27.

U.S., West Coast (less California), and California diesel prices all decreased an average of \$0.02 from February to March. Even with this decrease, March 2017 retail diesel prices for all three regions were from 22 percent to 27 percent higher when compared to same time last year. (See table at right.)

<u>Diesel Prices</u>	
<u>March 2017 vs 2016</u>	
(Percent Change)	
California	23% higher
U.S.	22% higher
West Coast	27% higher
<u>March 2017 Averages</u>	
California	\$2.93
U.S.	\$2.55
West Coast	\$2.73
<u>Week of March 27, 2017</u>	
California	\$2.92
U.S.	\$2.53
West Coast	\$2.70

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



Source: U.S. EIA and OPIS

Both gasoline and diesel CA-RAC-to-retail margins rose in March with the diesel margin well above and the gasoline margin slightly higher than 2016 levels (Figure 5). The gasoline CA-RAC-to-retail margin spent most of March in the \$1.30 range, finishing the month at an average of \$1.29 (highest level since July 2016). This increased margin level appears to be a reaction to a spike in both the Los Angeles and San Francisco spot gasoline differentials in late February and early March (Figure 6). While the spike did not appear to immediately filter through to the retail prices, those prices did not fall with the reduction in crude oil prices in March (Figure 3), leading to an increase in the margin.

The diesel margin, while showing a greater increase relative to 2016 values, was in absolute terms less dramatic in the increase. Unlike gasoline, diesel retail prices (Figure 4) did better in keeping pace with the decreases in crude oil prices leading to only a \$0.04 increase in the diesel margin in March over the previous month. Since the beginning of January 2016, the diesel margin has been much less volatile than the gasoline counterpart, with the diesel margin fluctuating between a high of \$1.21 to a low of \$0.84 (\$0.37 difference). The gasoline margin over that same period experienced a high of \$1.62 and a low of \$0.91 (\$0.71 difference).

Crude-to-Retail Margins

March 2017 vs 2016
(Percent Change)

Gasoline	6% higher
Diesel	23% higher

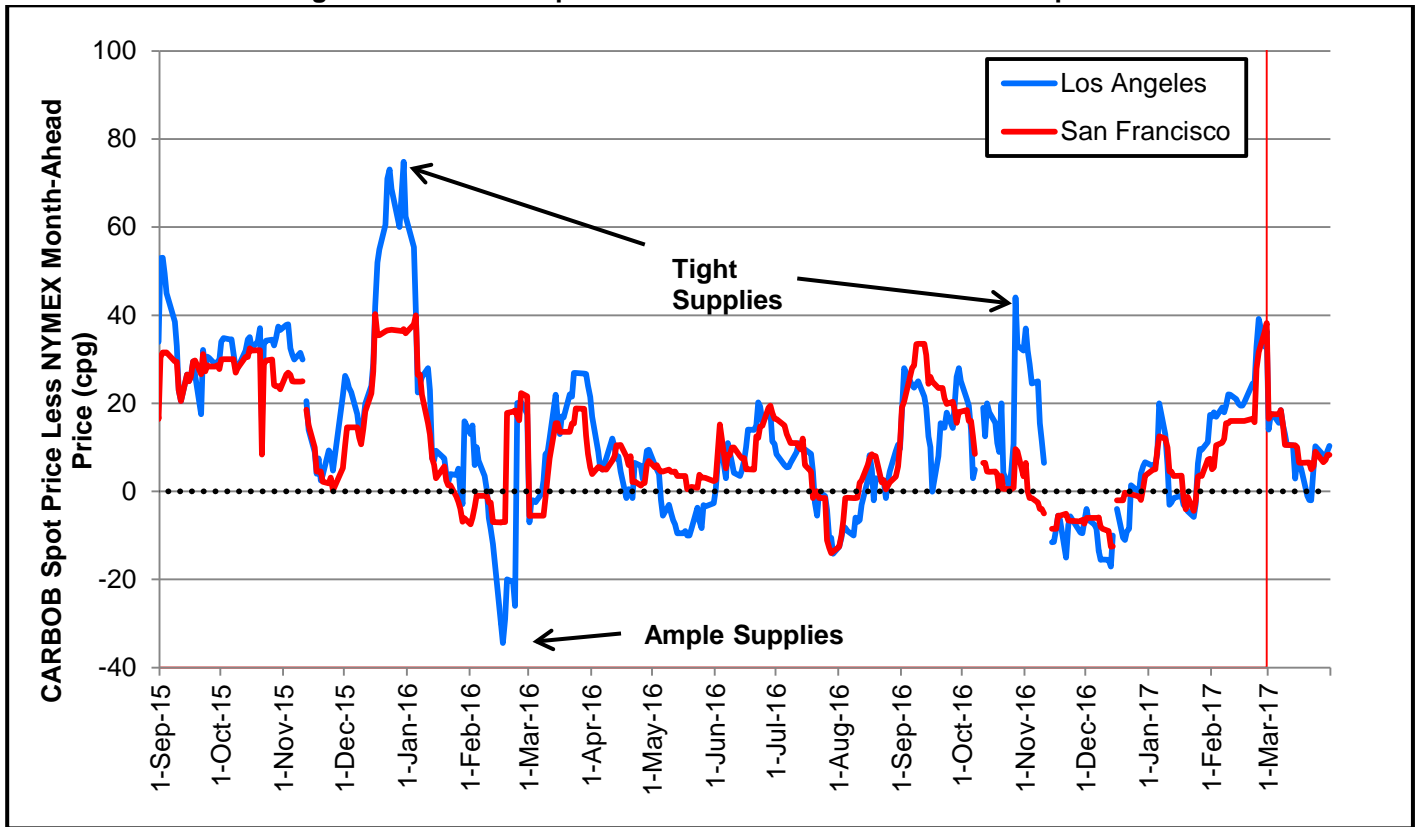
March 2017 Averages

Gasoline	\$1.29
Diesel	\$1.08

March 27, 2017

Gasoline	\$1.32
Diesel	\$1.11

Figure 6: California Spot Gasoline to NYMEX Futures Price Spread



Source: U.S. EIA and OPIS

The Los Angeles (LA) and San Francisco (SF) gasoline spot markets were rather quiet for most of March 2017 (**Figure 6**). Both LA and SF-less-New York Mercantile Exchange (NYMEX) spot gasoline price differentials dropped by \$0.20 to \$0.17, respectively, within the first week of the month. Both differentials further fell to \$0.10 by March 13, with improved California-specified gasoline production throughout California (**Figure 8**). Even with gasoline inventory levels being at the bottom of the five-year high-low band (**Figure 8**), the LA spot price fell to \$0.02 below NYMEX on March 22, with gasoline production figures now above the five-year high-low band. In fact, LA spot prices in March were at times lower than those of the Pacific Northwest, where refinery issues in Washington seem to be tightening the Pacific Northwest market. The LA spot differential returned to \$0.10 on March 31, leaving the March average at \$0.09, 61 percent lower than a month ago.

The SF spot prices were briefly higher in mid-March due to tight supplies, with maintenance at the Tesoro Golden Eagle, Shell Martinez, and Valero Benicia refineries likely providing a slight upward pressure on prices. The SF spot price differential was \$0.08 on March 31 with an average of \$0.10 for March, 42 percent lower than February.

Gasoline Spot-Futures Spread

March 2017 vs 2016

Los Angeles	5¢ lower
San Francisco	3¢ higher

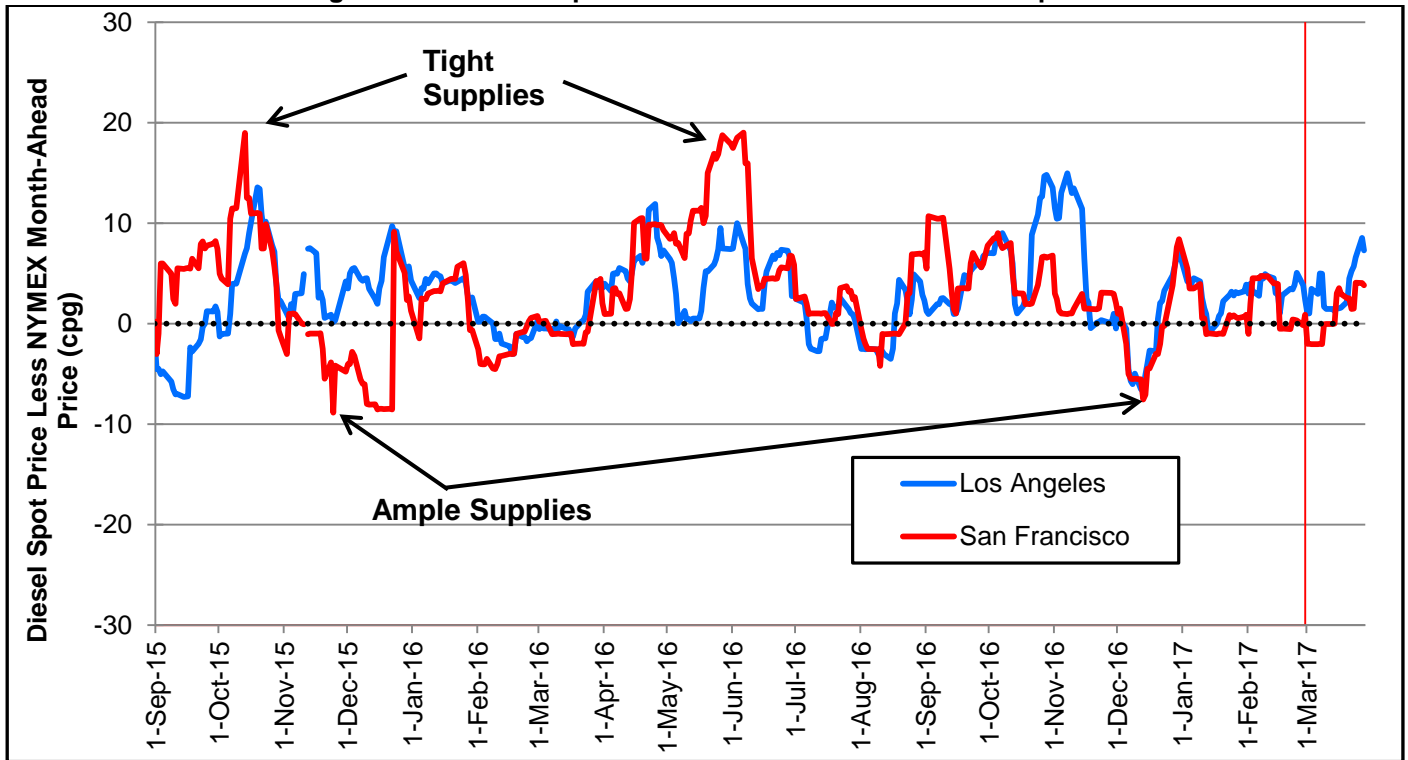
March 2017 Averages

Los Angeles	9¢
San Francisco	10¢

March 31, 2017

Los Angeles	10¢
San Francisco	8¢

Figure 7: California Spot Diesel to NYMEX Futures Price Spread



Source: U.S. EIA and OPIIS

After falling in late February and remaining in the \$0.01 to \$0.05 range for most of March, the LA-less-NYMEX diesel differential spiked at the end of March, reaching \$0.09 on March 27 (Figure 7). This end-of-month spike was likely a reaction to the change in California diesel inventory numbers seen in Figure 9. California diesel inventories start March near the top end of the five-year high-low band, but in the following two weeks fell roughly 800,000 barrels to the bottom of five-year high-low band. While the final week of March reversed this decreasing trend, inventory did not keep pace with production increases that ended the month on the high end of the five-year high-low band, likely leading to a perception of demand outpacing supply.

The SF-less-NYMEX diesel differential increased as well but started from a lower point of -\$0.02 on March 1 before beginning to climb on March 8 to a monthly high of \$0.04 on March 24, where it ended the month. The SF-less-NYMEX diesel differential likely did not reach LA levels. Even though inventories fell in Northern California, they remained in the middle of the five-year high-low band for the entire month. Southern California diesel inventories fell out of the five-year high-low band the week of March 10 and stayed outside the following week. Charts of weekly Northern and Southern California production and inventories figures can be found via the *Weekly Fuels Watch* on the Energy Commission website at

http://www.energy.ca.gov/almanac/petroleum_data/fuels_watch/.

Diesel Spot-Futures Spread

March 2017 vs 2016

Los Angeles 3¢ higher
San Francisco 1¢ higher

March 2017 Averages

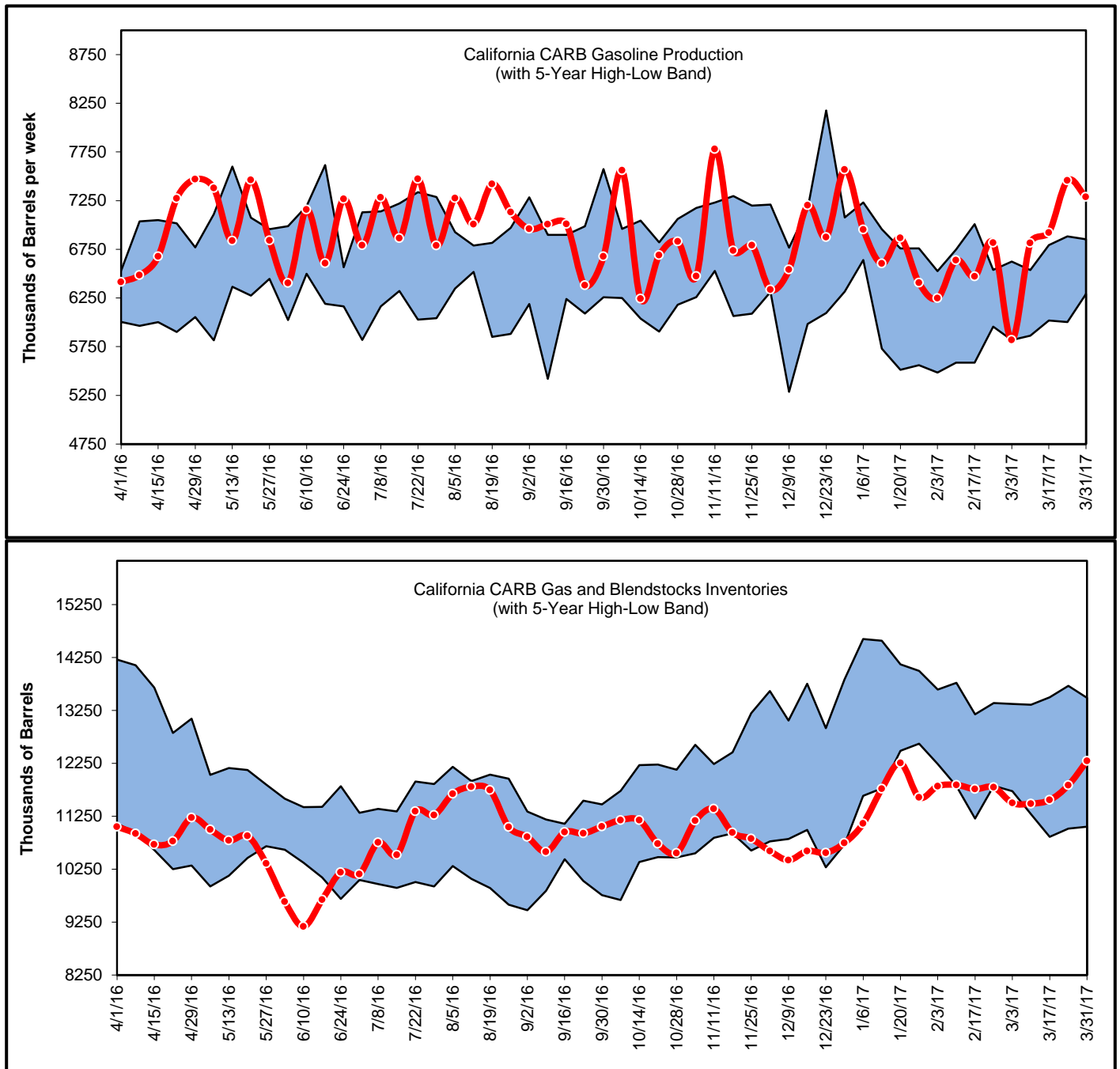
Los Angeles 3¢
San Francisco 1¢

March 28, 2017

Los Angeles 7¢
San Francisco 4¢

California Gasoline and Diesel Production and Inventories

Figure 8: Gasoline Production and Inventories



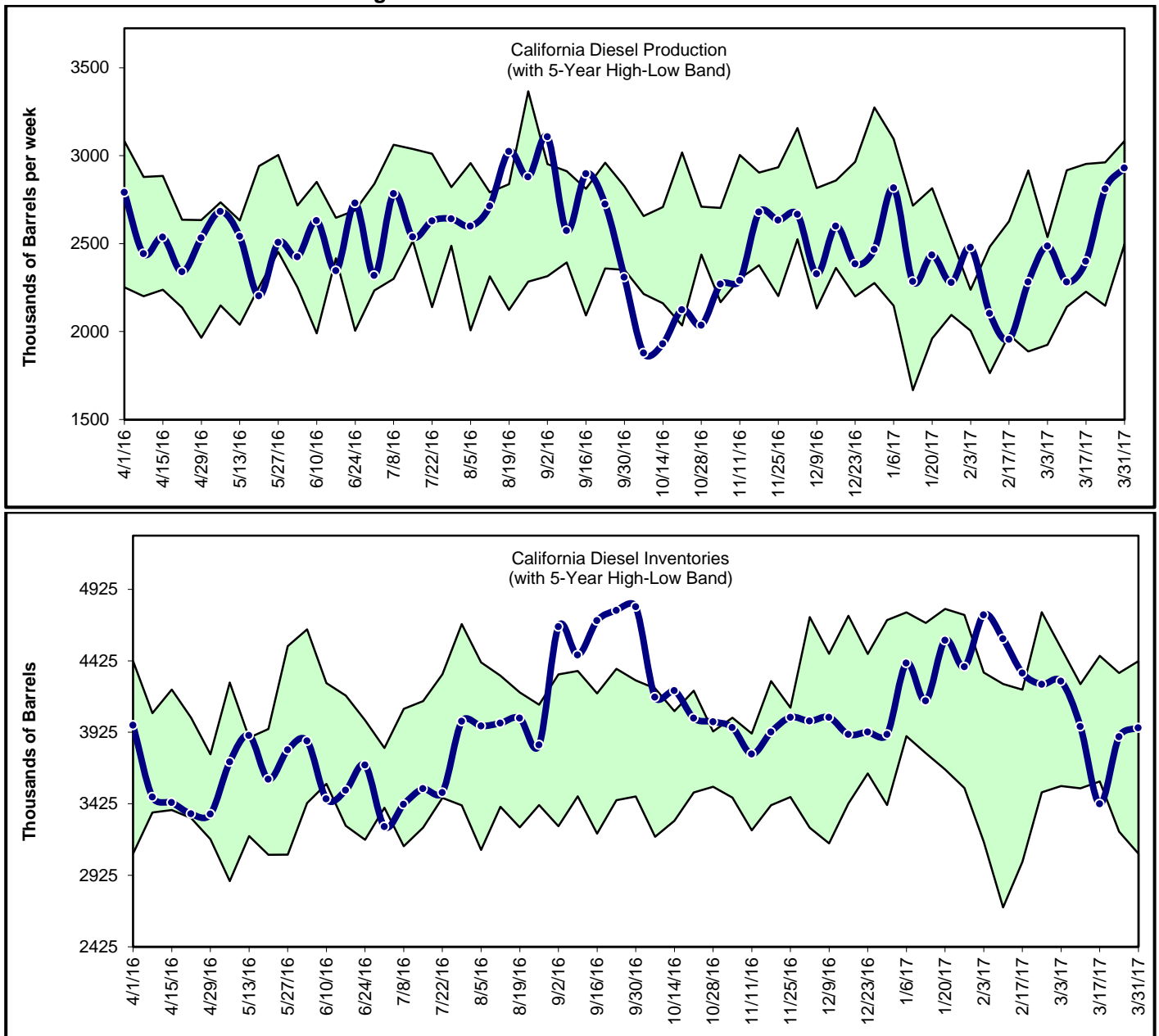
Source: PIIRA data

California gasoline production began below the five-year band at 5.8 million barrels per week (bpw) on March 3 before peaking at a high of 7.5 million bpw on March 24 (**Figure 8**). March finished the month at an average production level of 6.9 million bpw, which was 0.7 million bpw more than last year’s 6.2 million bpw. Production finished the month at 7.3 million bpw.

Throughout March, gasoline inventories slowly increased, beginning below the five-year band at 11.5 million barrels before finishing in the middle at 12.3 million barrels. Gasoline stocks typically lower around

the end of February due to refinery maintenance and the switch to summer blend gasoline before picking back up.

Figure 9: Diesel Production and Inventories



Source: PIIRA data

March diesel production began at 2.5 million bpw before ending at a high of 2.9 million bpw (**Figure 9**). This is likely due to refineries, such as Tesoro’s Golden Eagle, coming out of planned maintenance. The EIA further confirms that during the month of March, refinery utilization rates have nearly returned to normal during March of 2017.⁵ Diesel production in March averaged 2.6 million bpw compared to 2.5 million bpw for the same month in 2015.

California inventory levels on the week of March 3 were at 4.3 million barrels before dropping below the 5-year band at 3.4 million barrels on the week of March 17. The increase in demand for diesel, likely due to improved weather conditions for spring agricultural work, drove diesel inventory levels down before refinery production began to ramp up to help meet demand. Inventory levels averaged at 3.9 million barrels this month which is 0.6 million barrels lower than the same month last year.

⁵ PADDV Utilization Data: http://www.eia.gov/opendata/qb.php?sdid=PET.W_NA_YUP_R50_PER.W