



# PETROLEUM WATCH

## California Energy Commission

### June 2017

## Recent Petroleum News and Outside Analyses

### Prices

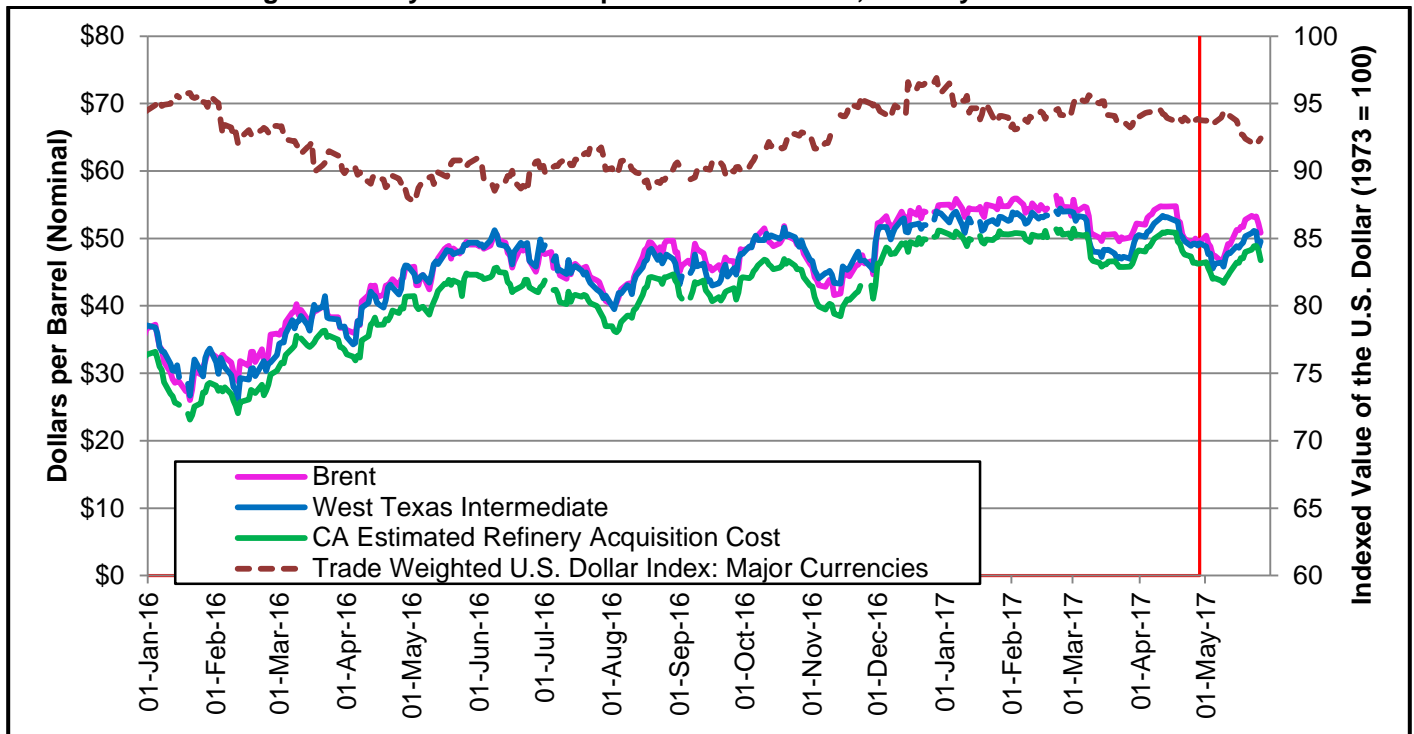
- **Crude Oil Prices:** Brent and West Texas Intermediate (WTI) crude prices closed at \$50.65 and \$49.63, respectively, on May 30 (**Page 2**).
- **California Retail Gasoline Prices:** On the week of May 29, prices increased to \$3.13, an increase of \$0.11 since the end of April. Through May, California prices averaged \$0.65 higher than the national average (**Page 4**).
- **California Retail Diesel Prices:** On the week of May 29, prices reached \$2.93, a decrease of \$0.02 from the end of April. Through May, California prices averaged \$0.36 higher than the national average (**Page 5**).

### Refining News

- **Valero Benicia Refinery:** On May 5, the electricity service was interrupted at Benicia refinery, forcing an emergency shutdown at the facility and flaring. A fluid catalytic-cracking unit was offline until the restart on May 31, 2017. The refinery was reported to be at reduced production rates for the entire month of May but has been reported to be back to normal operations.
- **Phillips 66 Wilmington Refinery:** On May 17, 2017, the 139,000-barrel-per-day refinery in Wilmington (Los Angeles County) was forced to shut down. Two units at the refinery were reported to be affected, a diesel hydrotreater and a delayed coker. Filings with the California Emergency Management Agency (CalEMA) indicate the cause was still under investigation. The refinery was reported to be restarted on May 20, 2017.

# Crude Oil Prices

Figure 1: Daily West Coast Spot Crude Oil Prices, January 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 continued to fluctuate throughout May. Brent crude oil set a monthly low of \$47.09 on May 9 but increased to a monthly high of \$53.35 on May 22 before falling to \$50.65 on May 30 (**Figure 1**). The spot West Texas Intermediate price followed a similar pattern. WTI decreased to a monthly low of \$45.55 on May 4 and reached the monthly peak on May 23 at \$51.12, before falling back to \$49.63 on May 30. The California Estimated Refiner Acquisition Cost (CA-RAC)<sup>1</sup> bottomed out at \$43.41 on May 9 before reaching \$48.89 on May 24, then slid back down to \$46.66 on May 30. Prices set an average monthly low for 2017 despite the seesaw movements seen in May.

The CA-RAC is a synthetic price index that weighs different prices of crude oil using crude receipt data sent by refiners. CA-RAC is normally lower than Brent and WTI prices because California refineries use crude oils that are sourced locally from the San Joaquin Valley. So far, this has given California refineries a very small amount of freedom from the recent Organization of the Petroleum Exporting Countries’ (OPEC) supply cuts. The OPEC cuts have shown mixed effectiveness against crude prices as, despite OPEC cuts, prices have not drifted from 2016 values.

## Crude Oil Prices

### May 2017 vs 2016

(Percent Change)

|        |            |
|--------|------------|
| Brent  | 8% higher  |
| WTI    | 4% higher  |
| CA-RAC | 10% higher |

### May 2017 Averages

|        |         |
|--------|---------|
| Brent  | \$50.37 |
| WTI    | \$48.49 |
| CA-RAC | \$46.13 |

### May 30, 2017

|        |         |
|--------|---------|
| Brent  | \$50.65 |
| WTI    | \$49.63 |
| CA-RAC | \$46.66 |

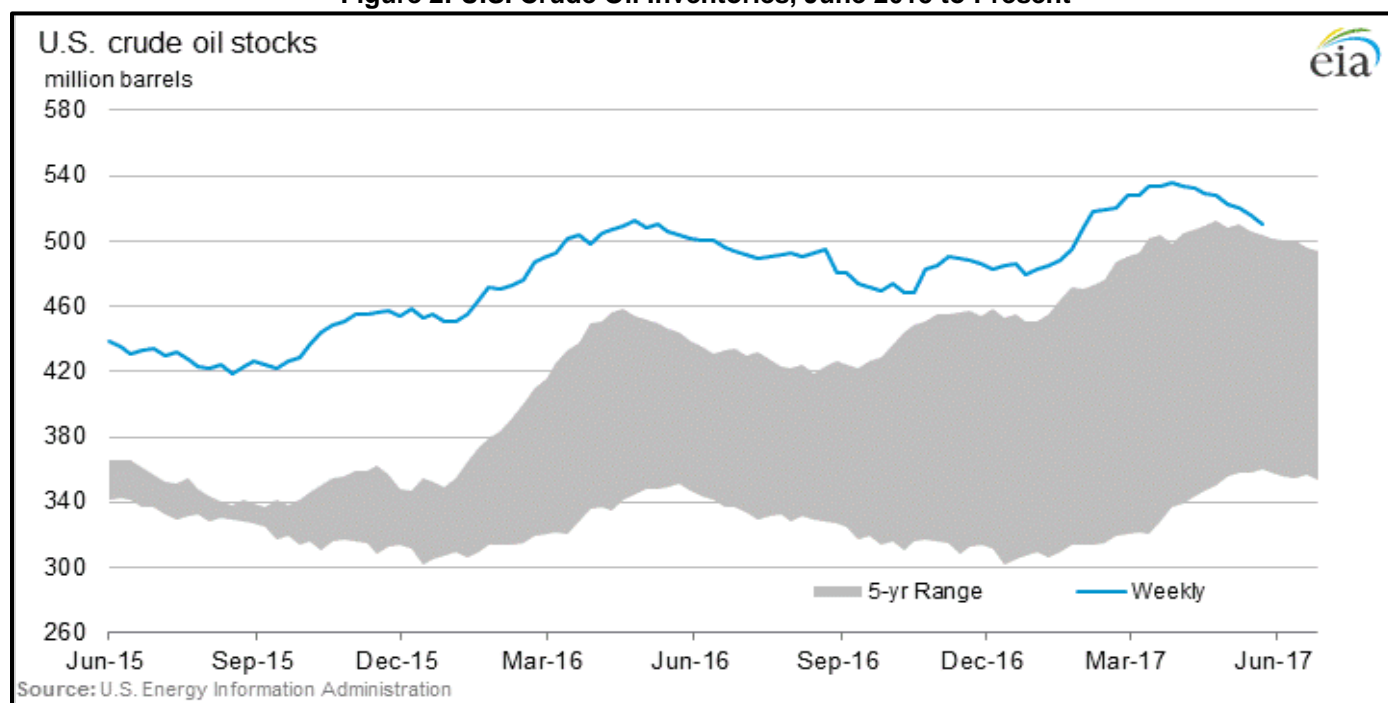
<sup>1</sup> California estimated refiner acquisition cost (CA-RAC) is a weighted average of the prices of California (San Joaquin Valley) crude, Alaskan crude, and foreign crude.

## Crude Oil Production and Storage

U.S. crude oil inventories have fallen since May's *Petroleum Watch* (**Figure 2**) as the United States rebalances rising domestic crude oil production against falling imports and increasing refinery inputs. These trends suggest that United States petroleum demand continues to increase as summer driving season arrives.

- U.S. crude oil production for May is estimated at 9.32 million barrels per day (bpd), a 60,000 bpd increase over April levels. This is a 550,000 bpd increase from a year-ago when production levels were 8.77 million bpd. Imports fell 90,000 bpd to an estimated 8.12 million bpd, down from 8.21 million bpd in April. When compared to import levels from May 2016, this is an increase of 500,000 bpd.
- U.S. crude oil refinery inputs increased by 170,000 bpd above April input levels, finishing May at 17.17 million bpd. Refinery inputs are 910,000 bpd higher than year-ago levels.
- Crude oil inventories in the United States decreased by 17.9 million barrels during May to 509.9 million barrels. Current inventories are now only 5.7 million barrels higher than one year ago. Crude oil inventories will normally be drawn down from May through August, due to increased demand for the summer driving season. This year is on track for the largest summer drawdown since 2014, assuming refinery inputs continue to rise while oil imports continue to fall.

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



Source: U.S. EIA

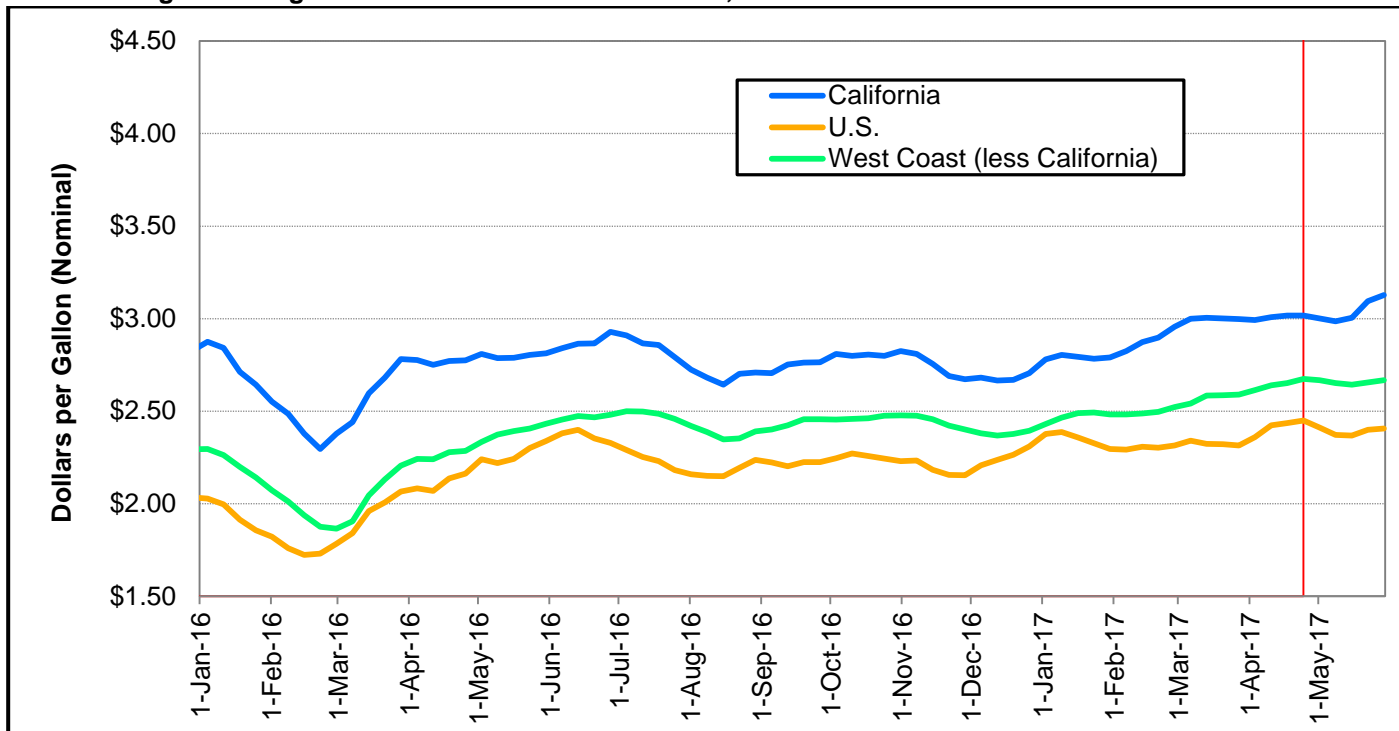
- According to OPEC's May *Monthly Oil Market Report*, total OPEC production decreased by 18,200 bpd to 31.73 million bpd. OPEC's target number for cutbacks set in November 2016 was 32.5 million bpd. OPEC has revised its forecast for supply and demand balance downward to 0.2 million bpd from 0.6 million bpd reported by the previous *Petroleum Watch*.<sup>2</sup>

<sup>2</sup> OPEC April Monthly Report, page i:

[http://www.opec.org/opec\\_web/static\\_files\\_project/media/downloads/publications/OPEC%20MOMR%20May%202017.pdf](http://www.opec.org/opec_web/static_files_project/media/downloads/publications/OPEC%20MOMR%20May%202017.pdf)

# Gasoline and Diesel Retail Prices

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



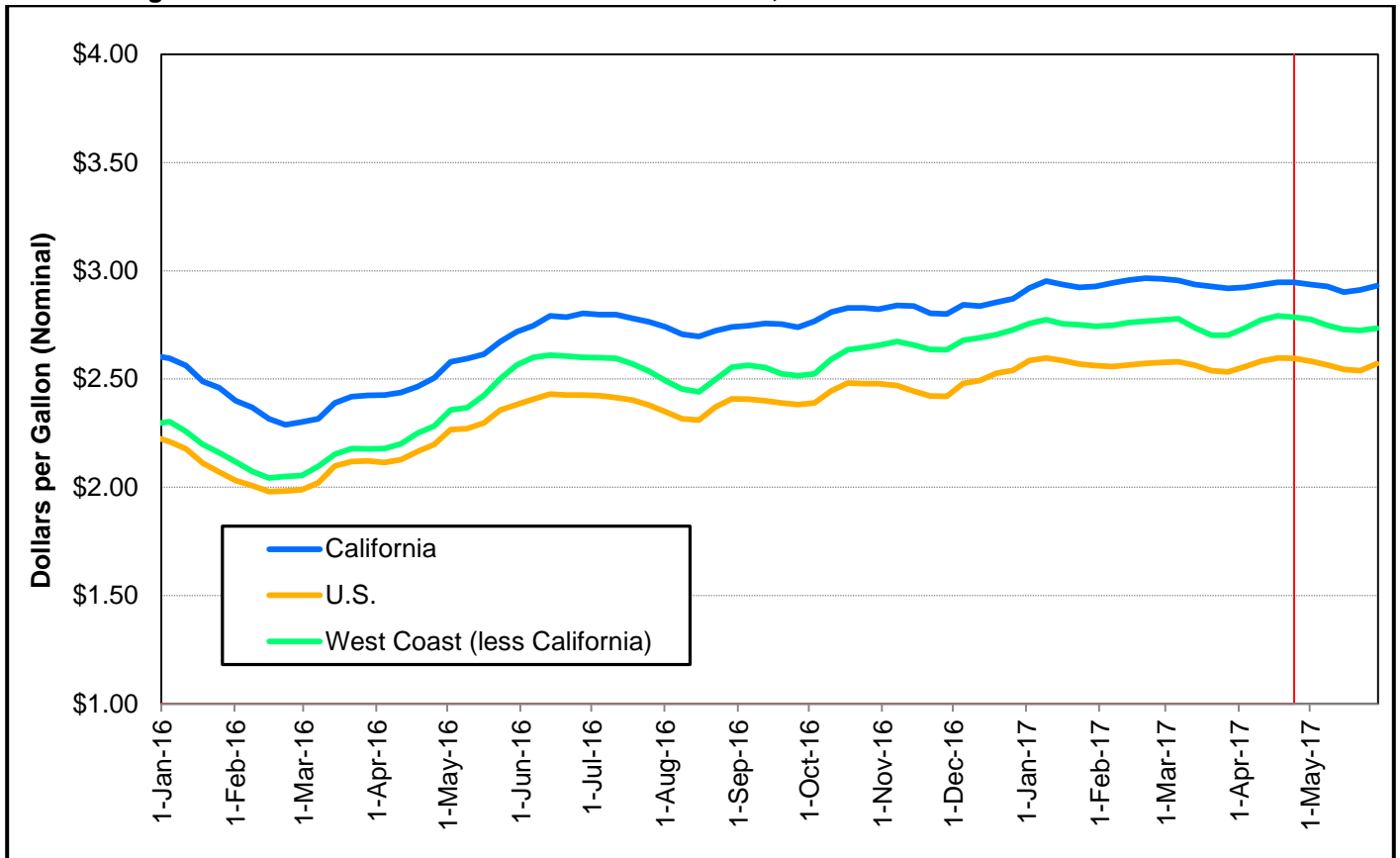
Source: U.S. EIA

The California gasoline retail price remained relatively stable during the first half of May before it rose by \$0.13 to \$3.13 by the end of May. United States and West Coast less California gasoline retail prices, on the other hand, reduced slightly by \$0.04 and \$0.03, respectively, before recovering to \$2.41 and \$2.67 in the same period. The differentials between California to U.S. and to West Coast retail prices went back up to \$0.65 and \$0.39, respectively, in May. The average monthly California retail price of \$3.04 is the highest since the summer of 2015, when a major outage at the Torrance California refinery in February 2015 sent retail prices above \$4.00.

Planned maintenance and unplanned outages occurred at various refineries in California throughout May (**Page 1**). In Southern California, Chevron El Segundo, PBF Torrance, and Tesoro Carson were reported to be on planned maintenance, while Phillips 66 Wilmington refineries faced an unplanned event. However, it was the long-term interruption from a power outage at Valero's Benicia refinery in Northern California that severely affected gasoline supplies in California in the second half of May.

| <u>Gasoline Prices</u>      |            |
|-----------------------------|------------|
| <u>May 2017 vs 2016</u>     |            |
| <u>(Percent Change)</u>     |            |
| California                  | 9% higher  |
| U.S.                        | 5% higher  |
| West Coast                  | 11% higher |
| <u>May 2017 Averages</u>    |            |
| California                  | \$3.04     |
| U.S.                        | \$2.39     |
| West Coast                  | \$2.66     |
| <u>Week of May 29, 2017</u> |            |
| California                  | \$3.13     |
| U.S.                        | \$2.41     |
| West Coast                  | \$2.67     |

**Figure 4: No. 2 Diesel Ultra-Low-Sulfur Retail Prices, California vs. PADD 5 vs. United States**



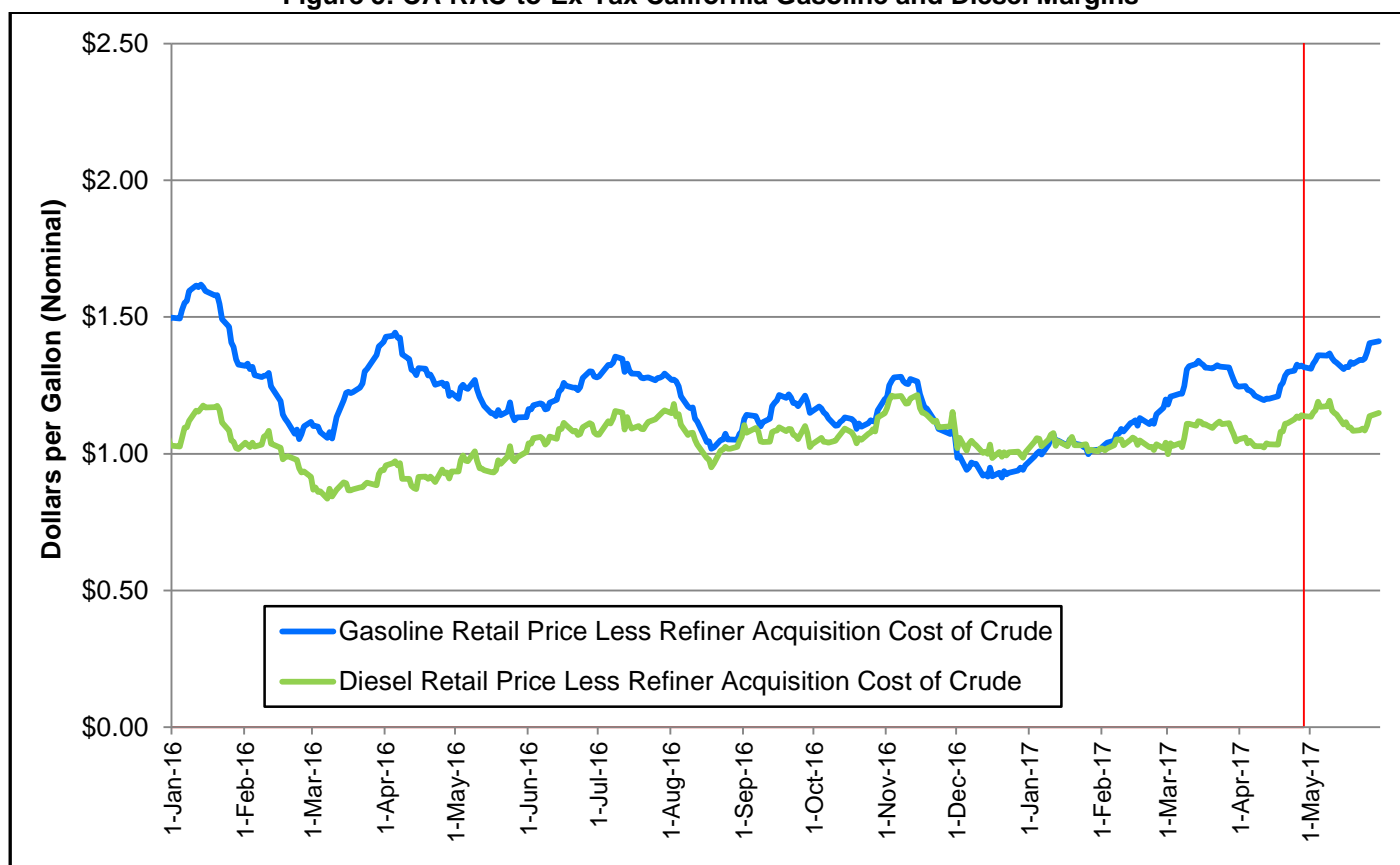
Source: U.S. EIA

Since the beginning of the year, the average California diesel retail price has increased as high as \$2.97 (February 20) and decreased as low as \$2.90 (May 15). May diesel prices averaged \$2.92 a gallon, which was the lowest average since the January average at \$2.93 (Figure 4). The diesel retail price was \$2.94 on May 1 and ended the month \$0.01 lower on May 29 at \$2.93. Nevertheless, the May diesel price was 11 percent higher when compared to the same month last year.

During the Memorial Day weekend, diesel retail prices increased \$0.03 for U.S. and \$0.01 for West Coast (less California), to \$2.57 and \$2.74, respectively. On May 29, the West Coast price ended the month \$0.18 higher than United States. The California-to-U.S. differential finished the month at double that value at \$0.36.

| <b><u>Diesel Prices</u></b>        |                   |
|------------------------------------|-------------------|
| <b><u>May 2017 vs 2016</u></b>     |                   |
| <b>(Percent Change)</b>            |                   |
| <b>California</b>                  | <b>11% higher</b> |
| <b>U.S.</b>                        | <b>11% higher</b> |
| <b>West Coast</b>                  | <b>12% higher</b> |
| <b><u>May 2017 Averages</u></b>    |                   |
| <b>California</b>                  | <b>\$2.92</b>     |
| <b>U.S.</b>                        | <b>\$2.56</b>     |
| <b>West Coast</b>                  | <b>\$2.74</b>     |
| <b><u>Week of May 29, 2017</u></b> |                   |
| <b>California</b>                  | <b>\$2.93</b>     |
| <b>U.S.</b>                        | <b>\$2.57</b>     |
| <b>West Coast</b>                  | <b>\$2.74</b>     |

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



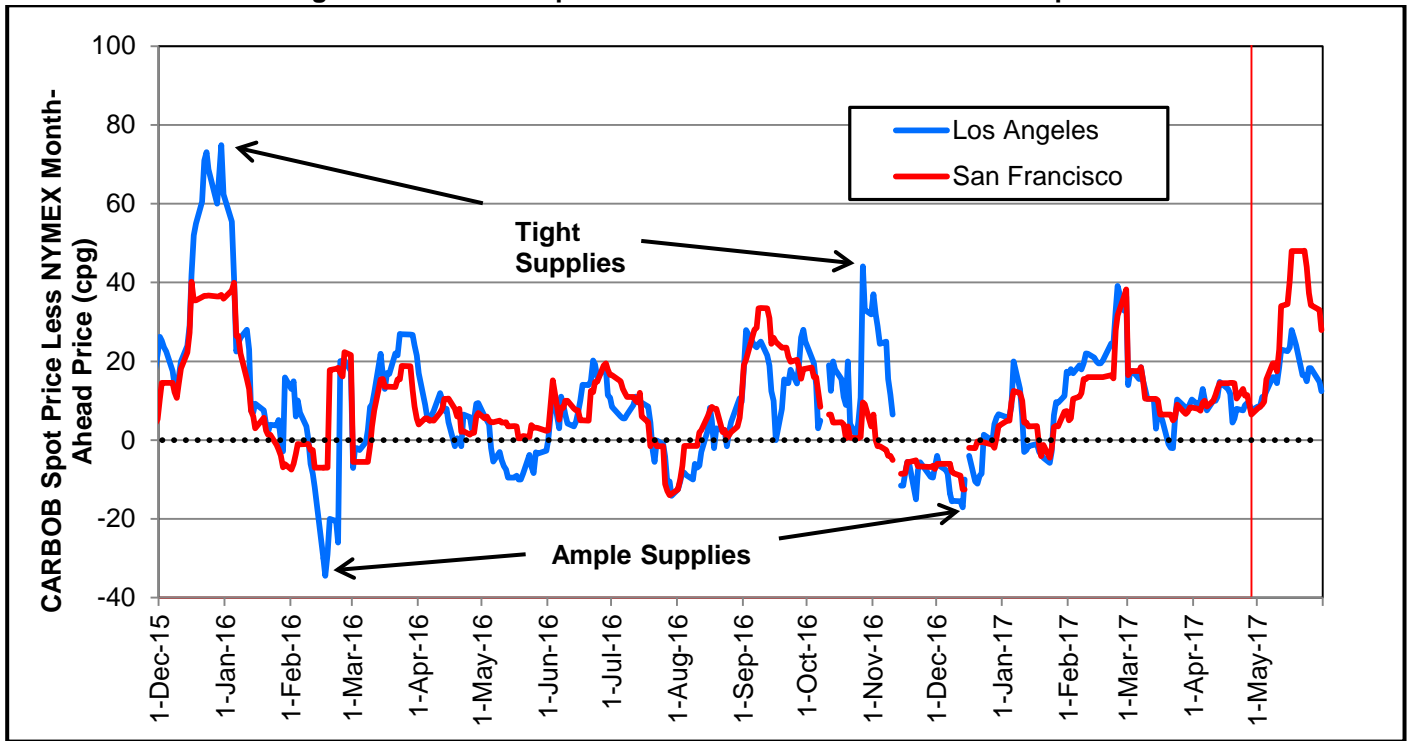
Source: U.S. EIA and OPIS

In May, the monthly average CA-RAC-to-retail margins for gasoline increased \$0.10 to \$1.35, and the diesel margin increased \$0.06 to \$1.13, versus the April average (Figure 5). The May increase for the diesel CA-RAC-to-retail margin was caused by a decline in the CA-RAC in early May that was not transferred immediately over to the retail diesel price. The mid-May decline in the margin occurred from CA-RAC increasing while diesel retail prices fell from roughly \$2.90 to \$2.84. By the end of May, both prices returned to similar values as they were in the start of the month.

The CA-RAC-to-retail gasoline margin noticeably increased throughout May. As mentioned earlier, CA-RAC had a slight dip in May before returning to beginning-of-the-month values, but retail gasoline prices throughout the month continued to increase. The \$0.10 increase in May's monthly average versus April's was due to the increase in retail gasoline prices that occurred in May. Some of this increase in retail prices was due to the beginning of the summer travel season, increasing gasoline demand. In addition, two refineries in California had unplanned outages (Valero Benicia and Philips 66 Wilmington), which tightened the California market. Benicia in particular had a noticeable influence on the rise in retail gasoline prices as the San Francisco (SF) gasoline spot-futures differential increased to nearly \$0.50 in the middle of May (Figure 6).

| <u>Crude to Retail Margins</u> |            |
|--------------------------------|------------|
| <u>May 2017 vs 2016</u>        |            |
| (Percent Change)               |            |
| Gasoline                       | 14% higher |
| Diesel                         | 17% higher |
| <u>May 2017 Averages</u>       |            |
| Gasoline                       | \$1.35     |
| Diesel                         | \$1.13     |
| <u>May 30, 2017</u>            |            |
| Gasoline                       | \$1.32     |
| Diesel                         | \$1.14     |

Figure 6: California Spot Gasoline to NYMEX Futures Price Spread



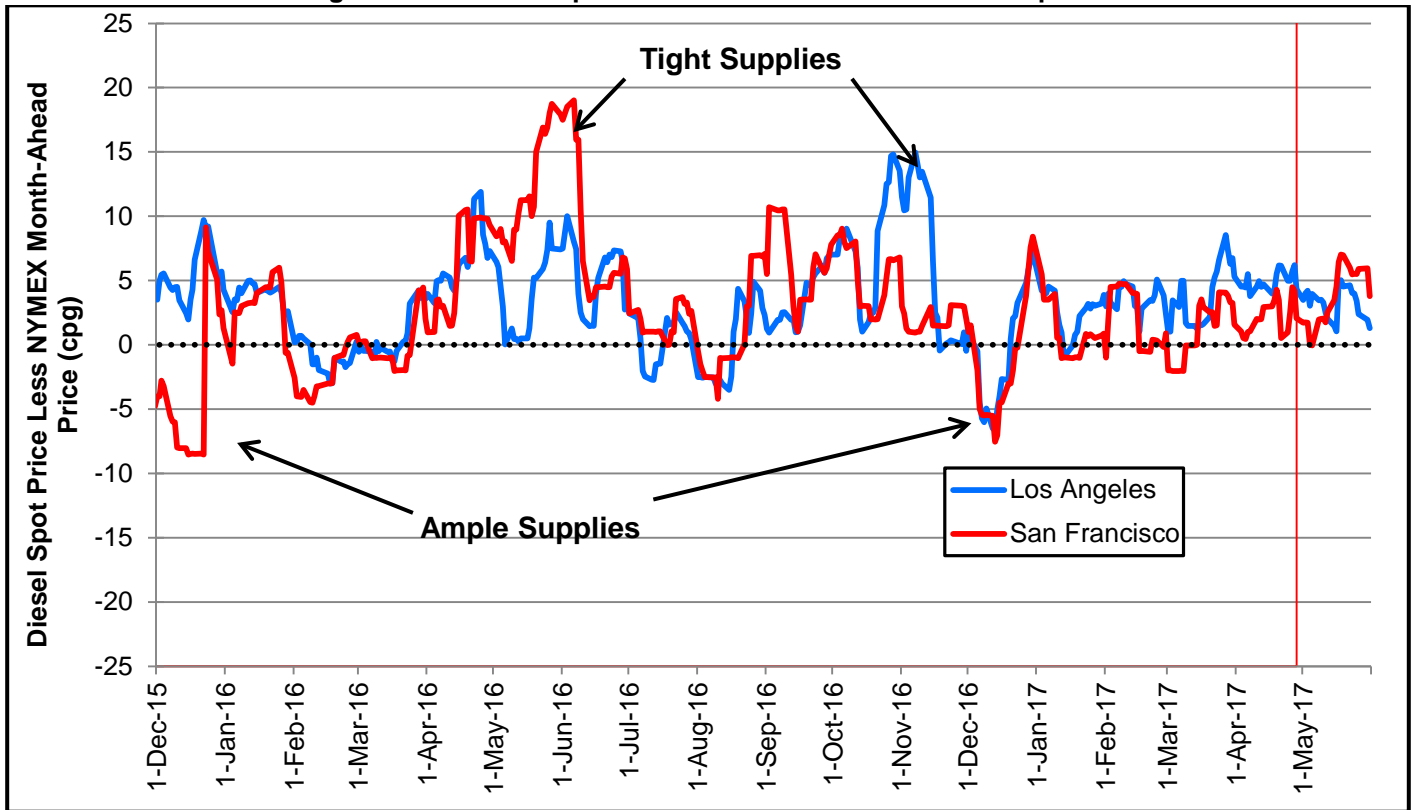
Source: U.S. EIA and OPIS

The average Los Angeles (LA) and SF-less-New York Mercantile Exchange (NYMEX) spot gasoline price differentials in May were \$0.17 and \$0.30, respectively (**Figure 6**), 80 percent and 167 percent higher than in April and a huge 462 percent and 759 percent above a year-ago prices. The SF spot gasoline premium rose from \$0.07 on April 28 to \$0.34 on May 12 and again to \$0.48 on May 17, where it remained for a week before gradually decreasing to \$0.28 on May 31. The LA gasoline spot premium followed a similar trend but at a much lower level, reaching \$0.28 on May 17 before decreasing to \$0.12 on May 31.

California refinery outages significantly affected the gasoline production and inventory levels in May, causing the sharp increase in both LA and SF gasoline spot prices. For Northern California in particular, gasoline production decreased by 25 percent during the second week of May according to the *Weekly Fuels Watch*, published by the California Energy Commission, leading to a huge inventory draw during the following weeks. The tight supply-balance situation, coupled with the Memorial Day weekend travel anticipation, drove the SF gasoline price to be the highest in the nation.

| <u>Gasoline Spot-Futures Spread</u> |            |
|-------------------------------------|------------|
| <u>May 2017 vs 2016</u>             |            |
| Los Angeles                         | 22¢ higher |
| San Francisco                       | 26¢ higher |
| <u>May 2017 Averages</u>            |            |
| Los Angeles                         | 17¢        |
| San Francisco                       | 30¢        |
| <u>May 31, 2017</u>                 |            |
| Los Angeles                         | 12¢        |
| San Francisco                       | 28¢        |

Figure 7: California Spot Diesel to NYMEX Futures Price Spread



Source: U.S. EIA and OPIS

On May 5, the SF-less-NYMEX diesel differential broke-even while the LA-less-NYMEX diesel differential was \$0.04 (Figure 7). Four weeks later on May 31, SF diesel increased \$0.04, while the LA diesel decreased to \$0.01. During the last two weeks of May, San Francisco spot diesel price averaged \$1.63 to surpass the Los Angeles spot price at \$1.60 a gallon of diesel for the first time since the middle of March.

On May 20, Phillips 66's Wilmington refinery restarted the diesel hydrotreater and delayed-coker units that were shut down in the middle of March in an unplanned outage. During that same time, the LA and SF less-NYMEX were below \$0.01 before the upset but rose to as high as \$0.06 soon after. Despite the refinery upset, the diesel spot market appeared relatively unaffected as both differentials remain lower than last year.

**Diesel Spot-Futures Spread**

**May 2017 vs 2016**

|               |          |
|---------------|----------|
| Los Angeles   | 1¢ lower |
| San Francisco | 8¢ lower |

**May 2017 Averages**

|               |    |
|---------------|----|
| Los Angeles   | 5¢ |
| San Francisco | 2¢ |

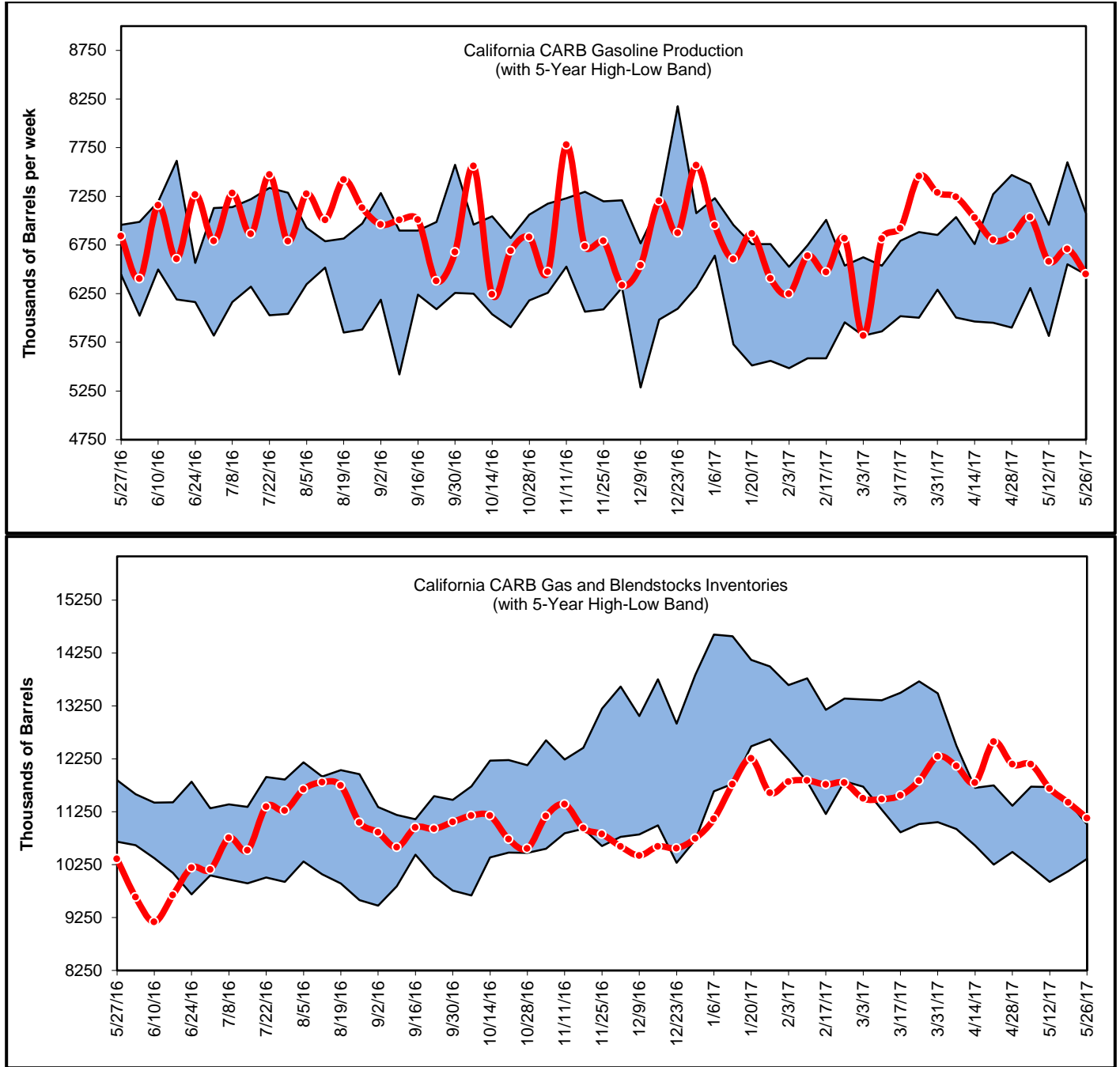
**May 31, 2017**

|               |    |
|---------------|----|
| Los Angeles   | 4¢ |
| San Francisco | 2¢ |



# California Gasoline and Diesel Production and Inventories

Figure 8: Gasoline Production and Inventories

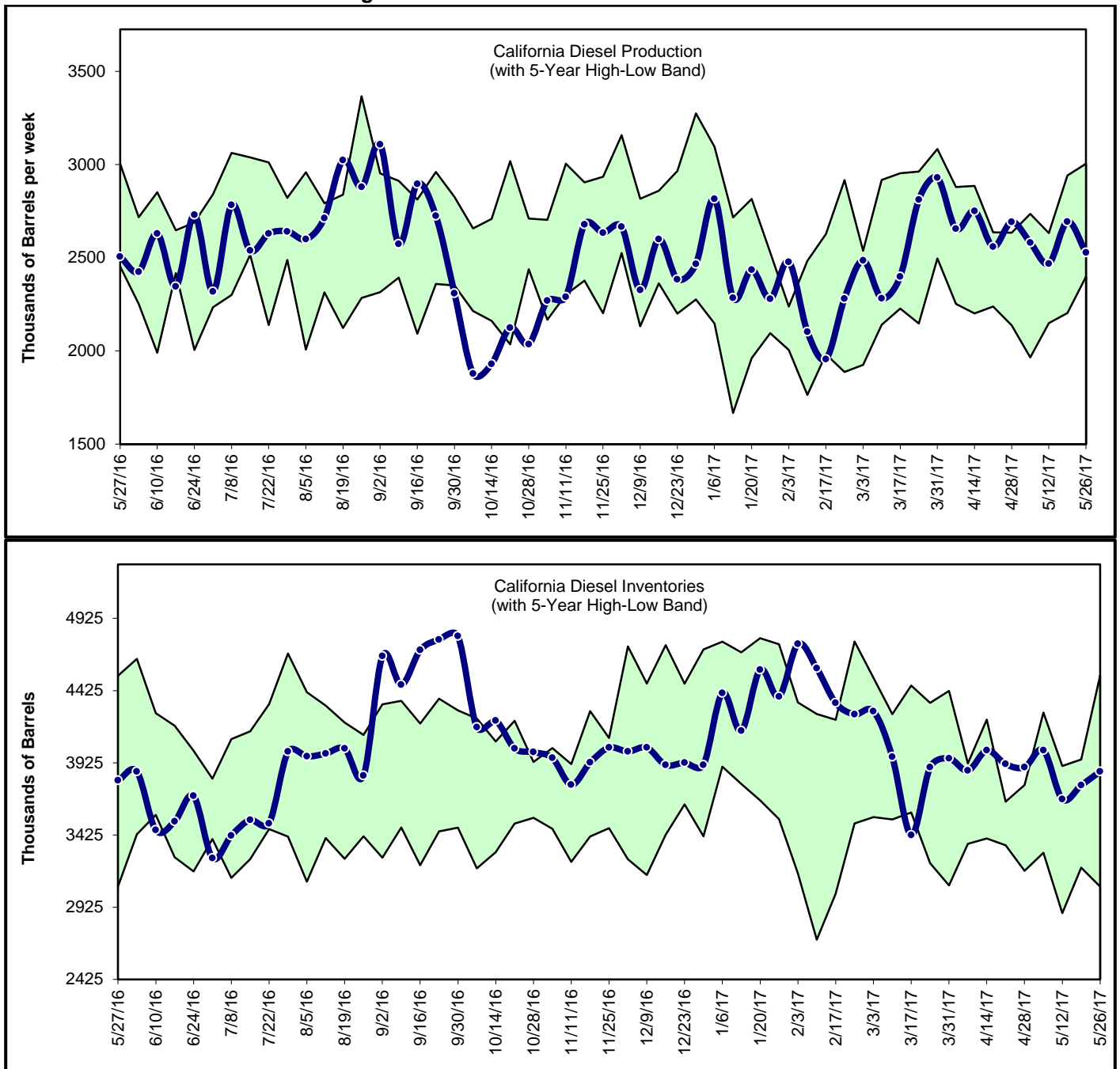


Source: PIIRA data

California gasoline production in May began at 7.0 million barrels per week (bpw) on May 5, dropping 0.6 million bpw to 6.4 million bpw on May 26 (**Figure 8**). May’s average production (four-week average) 6.7 million bpw compared to 7.1 million bpw in May 2016. Planned refinery maintenance at Tesoro’s Golden Eagle refinery and an outage at Valero’s Benicia refinery accounted for most of the year-over-year shortfall.

California gasoline inventories remained above the five-year band at a four-week average of 13.0 million barrels May 26. Overall, May inventory levels averaged 1.1 million barrels higher compared to the same time last year.

**Figure 9: Diesel Production and Inventories**



Source: PIIRA data

California diesel production has remained at similar levels to last month's *Petroleum Watch* (Figure 9). Diesel production peaked on the week of May 19 at 2.7 million bpw before falling the subsequent week. During the week of April 28, it jumped above the five-year band to 2.7 million bpw. This is slightly higher than the year-to-date 2017 average of 2.5 million bpw.

Diesel inventory levels totaled 4.0 million barrels on the week of April 28 before falling to 3.7 million barrels on the week of May 12. After the early May decrease, inventory levels slightly rose to just under 3.9 million barrels on the week of May 26. May inventory levels averaged 3.8 million barrels for the month, similar to the same time last year.