



# PETROLEUM WATCH

## California Energy Commission

### October 2016

## Recent Petroleum News and Outside Analyses

### Prices

- **Crude Oil Prices:** Brent and West Texas Intermediate (WTI) crude prices were in trading ranges during September; they closed at \$44.95 and \$44.65, respectively, on September 25. Prices are similar to year-ago levels.
- **California Retail Gasoline Prices:** On September 27, prices had reached \$2.76, an increase of \$0.05 since the end of August. Through September 27, California prices averaged \$0.53 higher than the national average.
- **California Retail Diesel Prices:** On September 27, prices remained at \$2.74, unchanged from the end of August. Through September 27, California prices averaged \$0.36 higher than the national average.

### Refining News

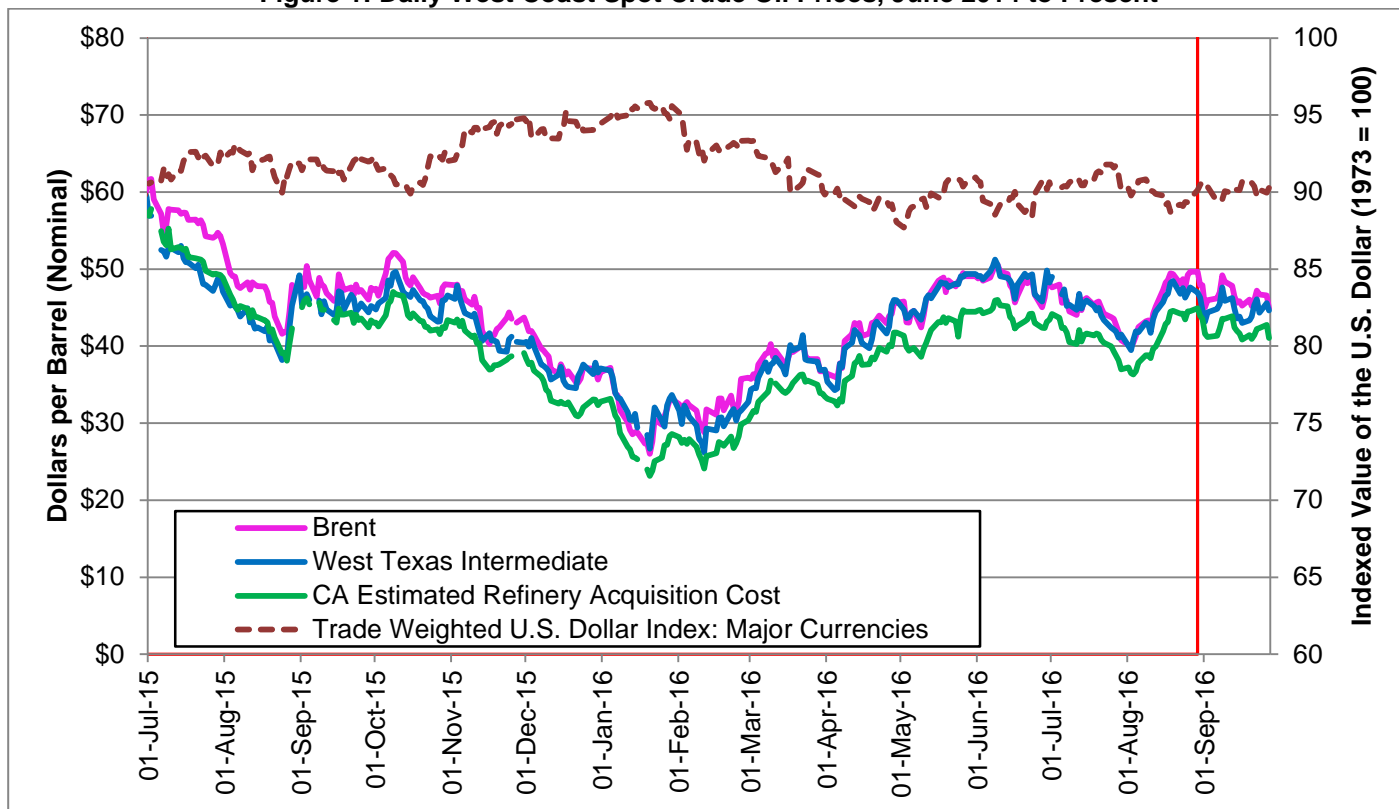
- **PBF Torrance.** A power outage shut the refinery on September 18. The restart was not completed until September 27.

Another power outage occurred at this refinery on October 11, again causing the refinery to shut down completely. It did not return to normal operations until the weekend of October 15-16. Due to substantial flaring and particulate emissions, a shelter-in-place order was issued for several hours.

The power outage was caused by a Southern California Edison project to improve the reliability of electrical services in the area. Work on the project has been halted pending the completion of an investigation.

# Crude Oil Prices

Figure 1: Daily West Coast Spot Crude Oil Prices, June 2014 to Present



Source: U.S. Energy Information Administration (U.S. 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.

During September, Brent crude prices remained in a trading range of \$45 to \$50, with WTI typically trading about \$2 lower (Figure 1).

Crude oil prices are only about 2 percent lower than a year ago, although prices dropped well below \$30 per barrel during the interim. During the past year, oil prices have only briefly exceeded \$50. Throughout this period, the average price paid by California refiners has remained \$1 to \$6 lower than either the Brent or WTI prices.<sup>1</sup>

## Crude Oil Prices

### August 2016 vs 2015 (Percent Change)

Brent	3% lower
WTI	2% lower
CA-RAC <sup>1</sup>	5% lower

### September 2016 Averages

Brent	\$46.42
WTI	\$44.80
CA-RAC	\$42.04

### September 27, 2016

Brent	\$44.95
WTI	\$44.65
CA-RAC	\$41.08

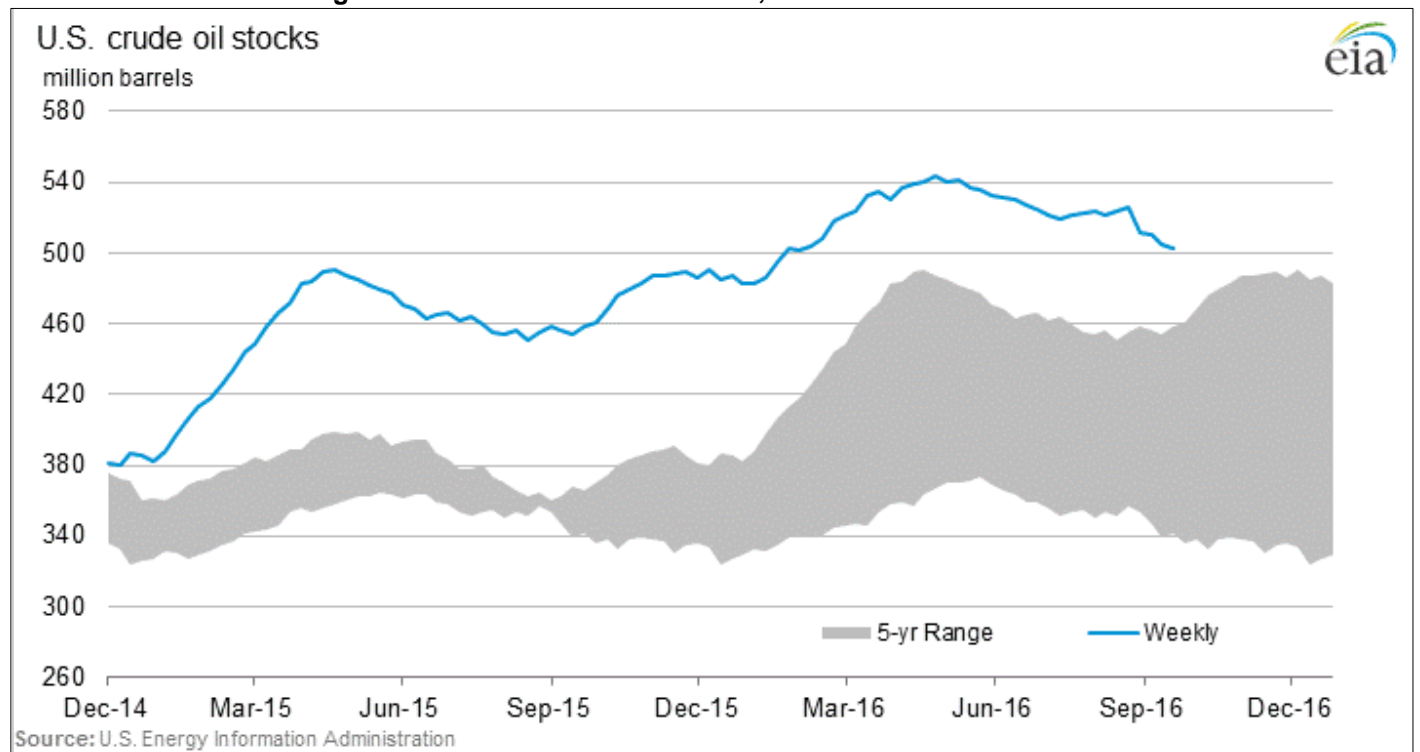
<sup>1</sup> California estimated refiner acquisition cost is an estimate of the average price of crude oil paid by California refineries. California Energy Commission staff estimate a weighted average of the prices of California (San Joaquin Valley) crude, Alaskan crude, and foreign crude.

## Crude Oil Production and Storage

U.S. crude oil inventories fell substantially over the past month (**Figure 2**). Although domestic production was unchanged and refinery inputs changed little, crude imports were off sharply during September, leading to the fall in inventories.

- U.S. crude oil production for September is estimated by the U.S. Energy Information Administration (U.S. EIA) at 8.5 million barrels per day (bpd), unchanged from August levels. This is a 600,000 bpd decline from year-ago production levels of 9.1 bpd. Imports, on the other hand, have fallen sharply: in September they are estimated at 7.8 million bpd, down from 8.5 million bpd in August, a decline of 700,000 bpd. Compared to year-ago imports, this is an increase of 500,000 bpd, which nearly offsets the decline in U.S. production.
- U.S. crude oil refinery inputs are down slightly from last month at 16.6 million bpd. Inputs are higher than in September 2015, when they were 16.2 million bpd. This is in part due to the low level of unplanned refinery outages throughout the nation during September 2016.
- Crude oil inventories in the United States fell by 23 million barrels during September to 503 million barrels. Nevertheless, the gap between year-ago and current inventories remains high, at 44 million barrels. Most of the September decline is accounted for by the decline in imports mentioned above.

**Figure 2: U.S. Crude Oil Inventories, December 2014 to Present**

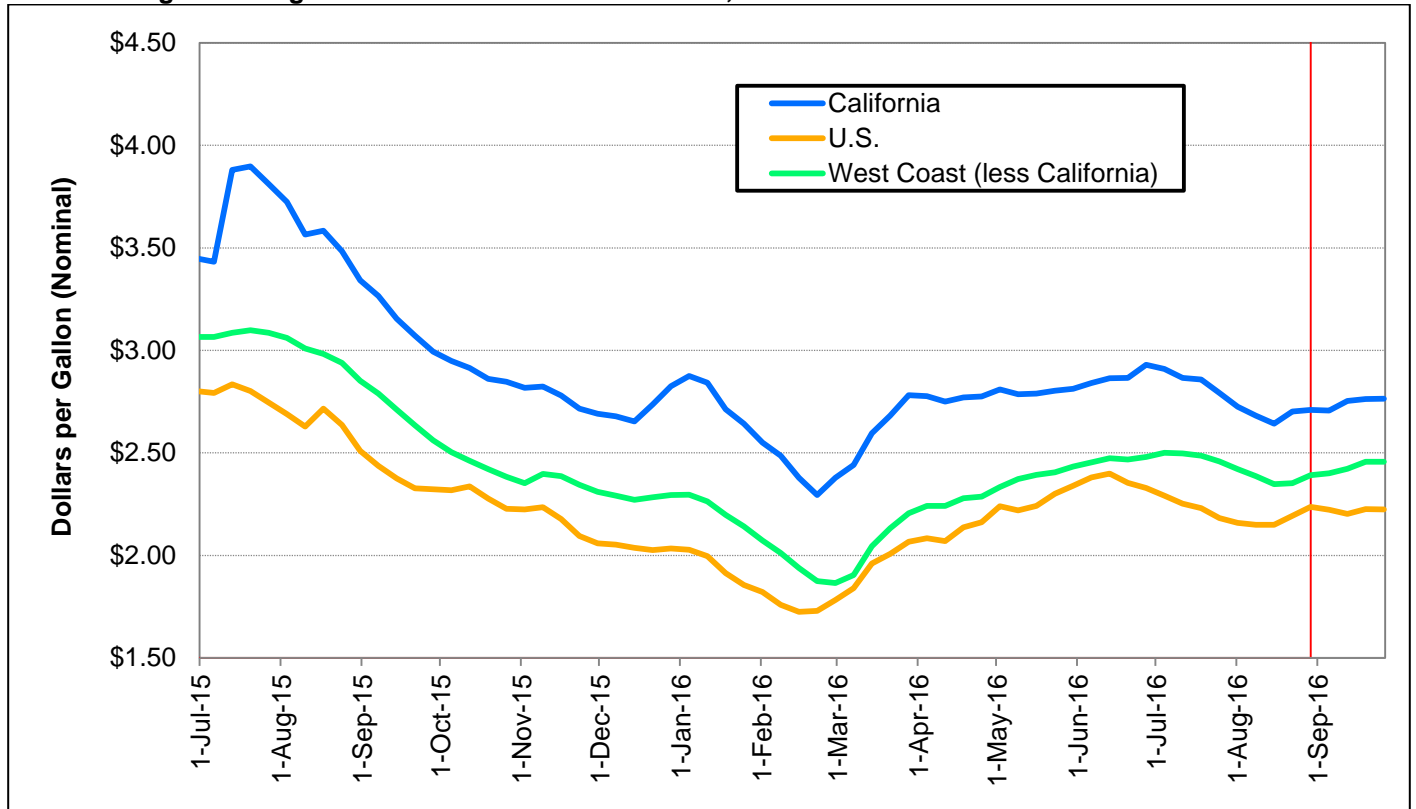


Source: U.S. EIA

- According to revised OPEC data, Saudi Arabian crude output increased from the first quarter average of 10.1 million bpd to 10.6 million bpd in August. Similarly, total August OPEC production increased to 33.2 million bpd from the first quarter average of 32.5 million bpd. OPEC and Saudi production are little changed from last month.

# Gasoline and Diesel Retail Prices

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



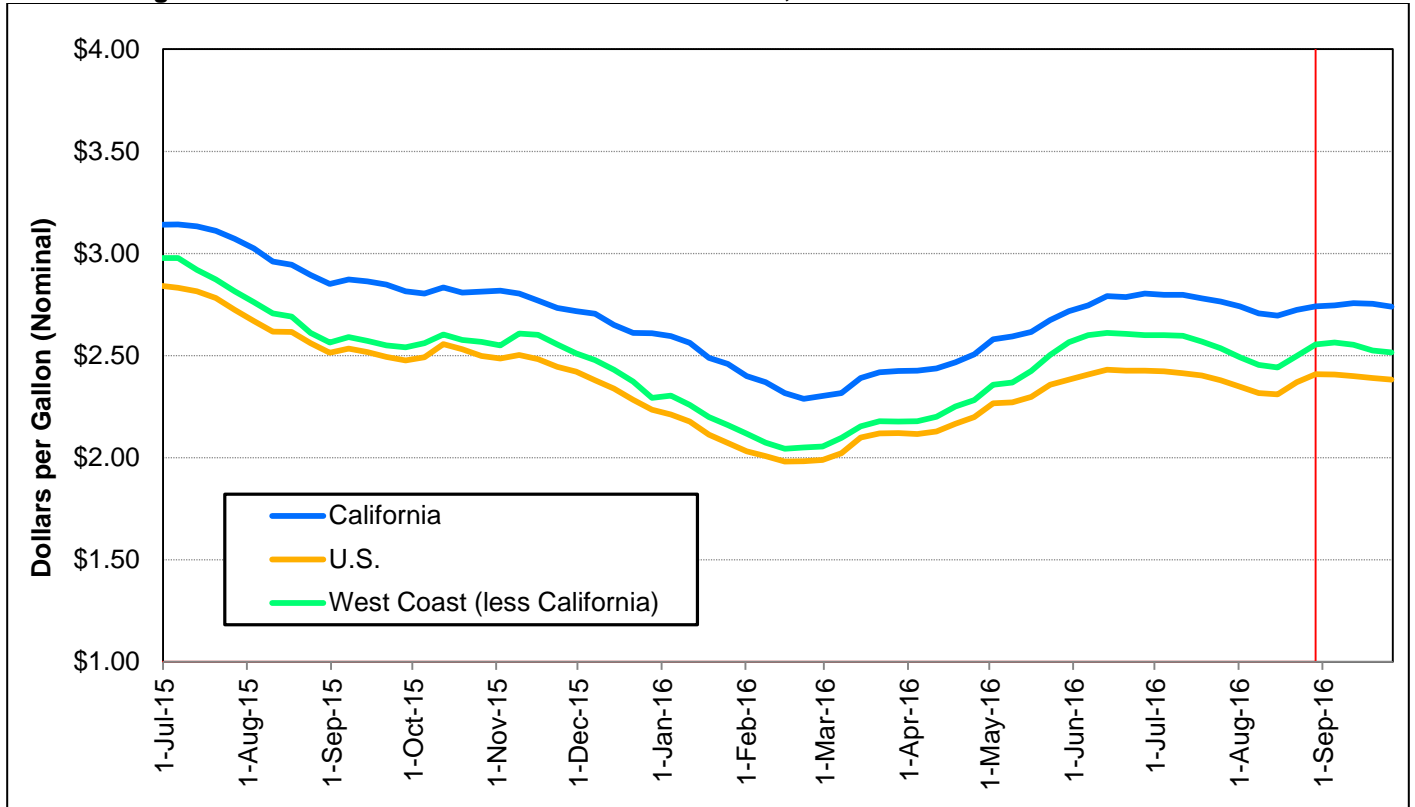
Source: U.S. EIA

California gasoline prices increased \$0.05, to \$2.76, since August 29. The bulk of this move was accomplished during the week of September 12, when prices moved up to \$2.75 (Figure 3). Through September 26, the monthly average retail price rose \$0.06 to \$2.75. The outage at the PBF Torrance refinery seemed to have no impact on the retail gasoline price.

U.S. prices were flat throughout the same period, and the price during the week of September 26 was identical to the monthly average. During this period, California prices averaged \$0.53 higher than the average U.S. price, up slightly from last month's \$0.51.

<b>Gasoline Prices</b>	
<b>September 2016 vs 2015</b>	
<b>(Percent Change)</b>	
<b>California</b>	<b>12% lower</b>
<b>U.S.</b>	<b>6% lower</b>
<b>West Coast</b>	<b>9% lower</b>
<b>September 2016 Averages</b>	
<b>California</b>	<b>\$2.75</b>
<b>U.S.</b>	<b>\$2.22</b>
<b>West Coast</b>	<b>\$2.43</b>
<b>Week of September 26,</b>	
<b>2016</b>	
<b>California</b>	<b>\$2.76</b>
<b>U.S.</b>	<b>\$2.22</b>
<b>West Coast</b>	<b>\$2.46</b>

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



Source: U.S. EIA

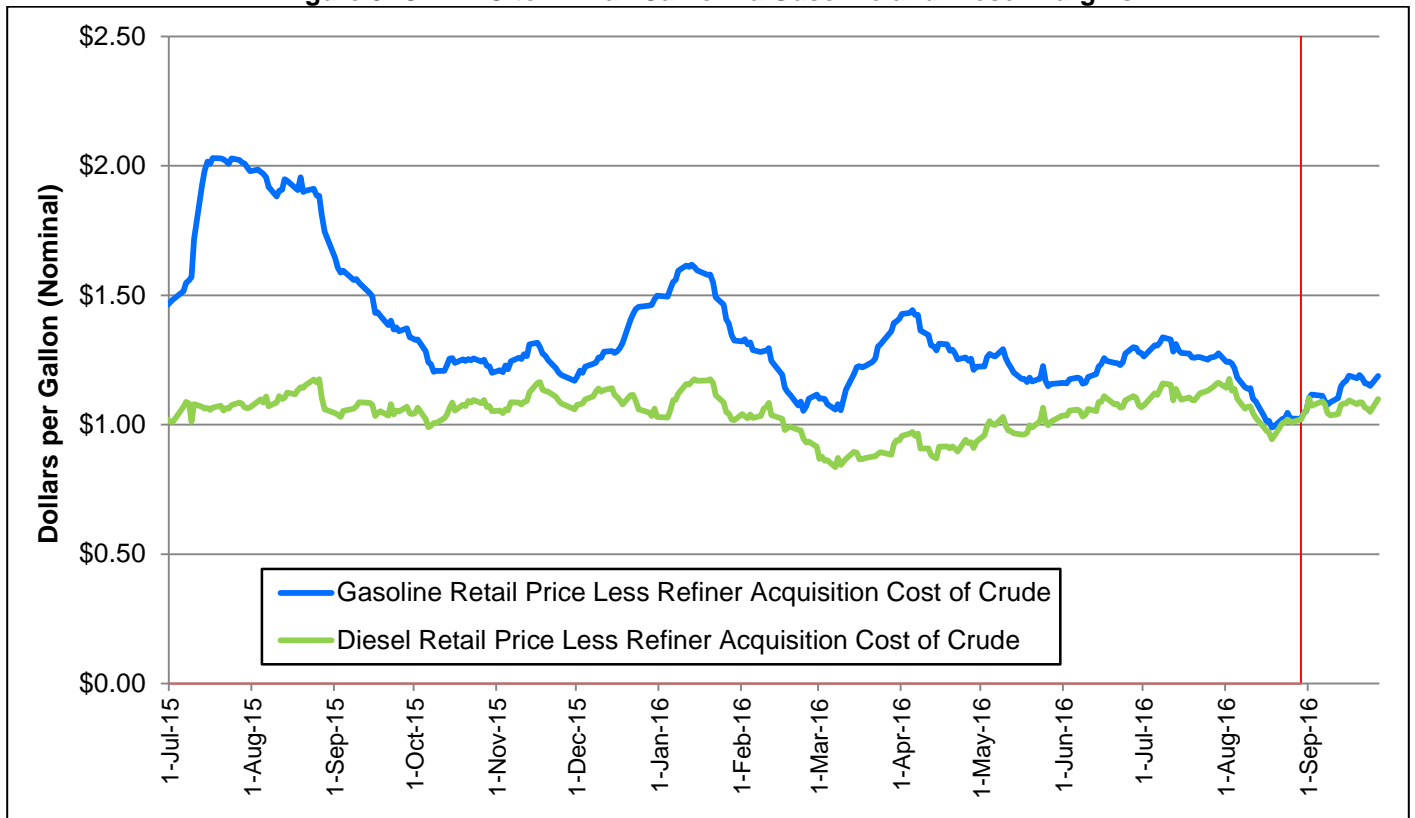
California diesel prices were nearly flat during September, ending both August and September at \$2.74 (Figure 4). Nevertheless, the monthly average price increased \$0.03 to \$2.75.

U.S. prices showed a bit more movement, starting at \$2.41 and falling \$0.03 to end the month at \$2.38. Through September 26, California prices averaged just \$0.36 higher than U.S. prices, almost unchanged from the \$0.37 difference of August.

As discussed in the September *Petroleum Watch*, the average price of diesel in August was higher than the average price of gasoline, which is normal. As September progressed, however, the price of gasoline increased, while the price of diesel remained flat. Consequently, California prices departed from the normal pattern seen in August, and by the end of the month, gasoline prices were \$0.02 higher than diesel prices.

<b><u>Diesel Prices</u></b>	
<b><u>September 2016 vs 2015</u></b>	
<b>(Percent Change)</b>	
<b>California</b>	<b>4% lower</b>
<b>U.S.</b>	<b>4% lower</b>
<b>West Coast</b>	<b>1% lower</b>
<b><u>September 2016 Averages</u></b>	
<b>California</b>	<b>\$2.75</b>
<b>U.S.</b>	<b>\$2.39</b>
<b>West Coast</b>	<b>\$2.54</b>
<b><u>Week of September 26,</u></b>	
<b><u>2016</u></b>	
<b>California</b>	<b>\$2.74</b>
<b>U.S.</b>	<b>\$2.38</b>
<b>West Coast</b>	<b>\$2.52</b>

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



Source: U.S. EIA and OPIS

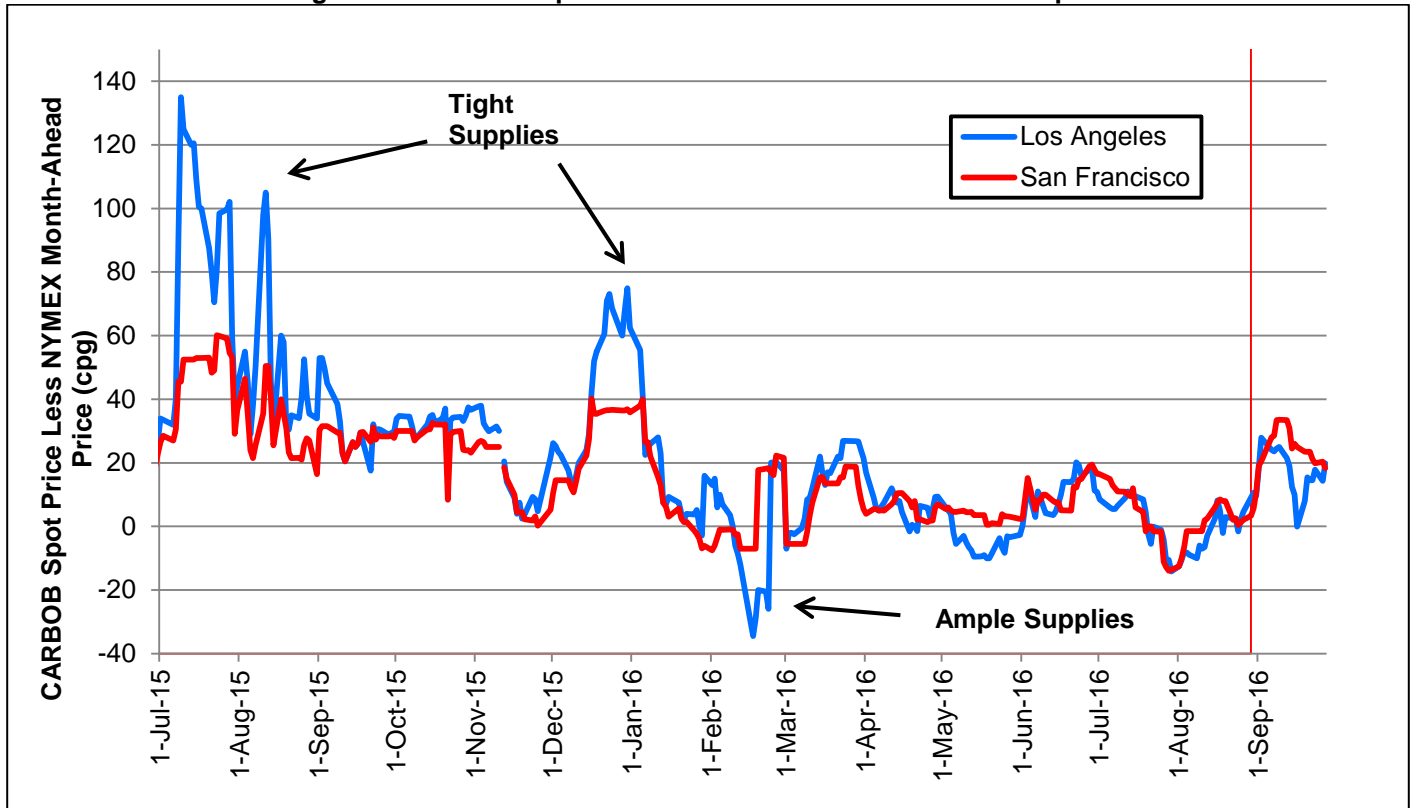
The difference between the ex-tax California retail gasoline price and the California refiner acquisition cost of crude—which includes the cost of refining, wholesaling, and retailing—rose for most of the past month. On August 29, it sat at \$1.02 and rose intermittently to \$1.19, which was reached on September 27 (Figure 5).

The difference between the ex-tax California retail diesel price and the California refiner acquisition cost of crude also rose from \$1.02 on August 29. It reached \$1.10 on September 1 but failed to rise any further, returning to \$1.10 on September 27.

As discussed in the September *Petroleum Watch*, the two margins are quite close to each other.

<u>Crude to Retail Margins</u>	
<b>August 2016 vs 2015</b>	
<b>(Percent Change)</b>	
<b>Gasoline</b>	<b>22% lower</b>
<b>Diesel</b>	<b>2% higher</b>
<b>September 2016 Averages</b>	
<b>Gasoline</b>	<b>\$1.14</b>
<b>Diesel</b>	<b>\$1.07</b>
<b>September 27, 2016</b>	
<b>Gasoline</b>	<b>\$1.19</b>
<b>Diesel</b>	<b>\$1.10</b>

**Figure 6: California Spot Gasoline to NYMEX Futures Price Spread**



Note: NYMEX is the New York Mercantile Exchange  
 Source: U.S. EIA and OPIS

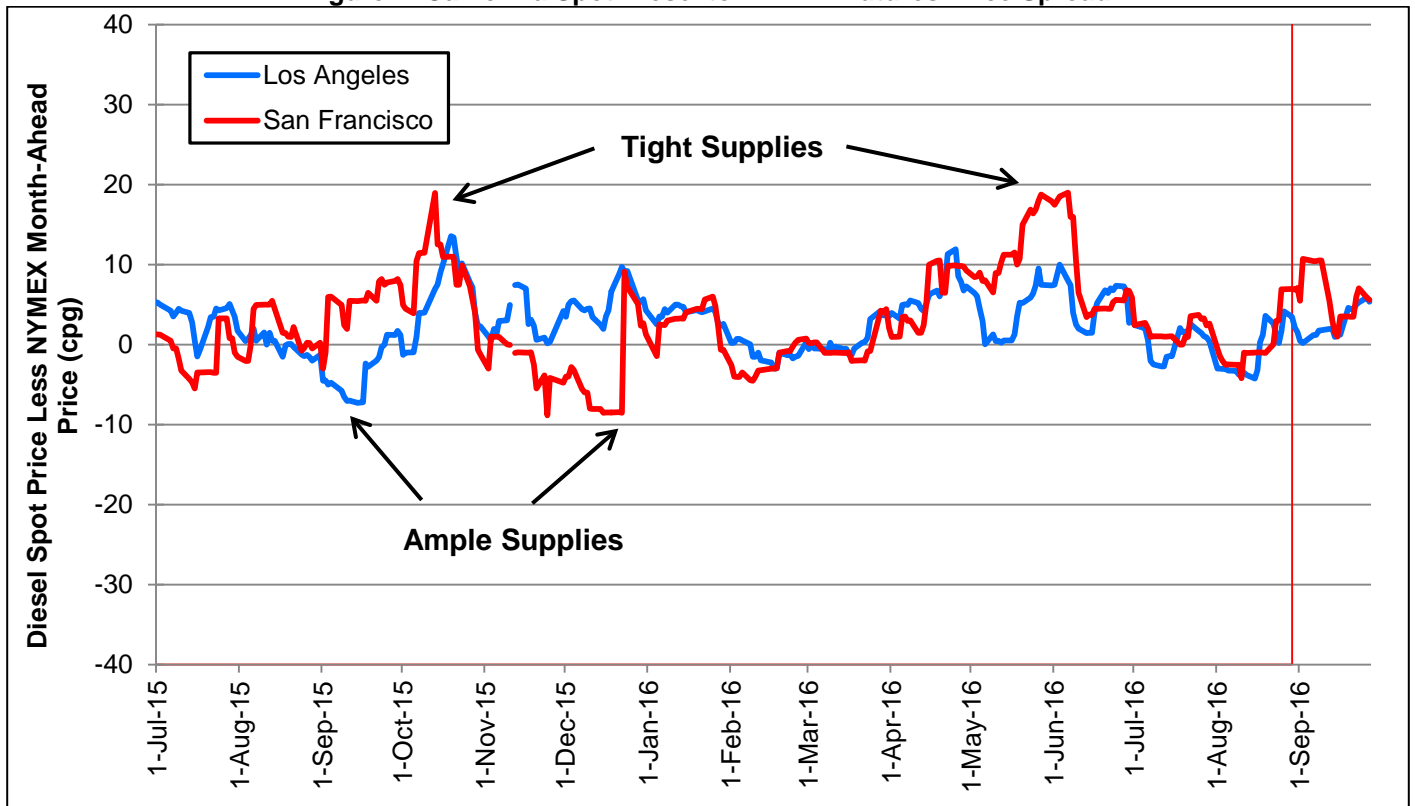
During September, the Los Angeles (LA) spot less New York Mercantile Exchange (NYMEX) futures spread increased on average, although it was volatile. The peak for September was \$0.28 on September 2; the spread then dropped just below zero on September 16 and rebounded to \$0.20 on September 27. The San Francisco (SF) spot less NYMEX futures spread also increased in early September but did not have the downspike seen in Los Angeles. It moved to a high of \$0.34 on September 9 and then moved gradually down to \$0.18 on September 27 (Figure 6).

The spreads both increased by \$0.19 during September. The LA-less-NYMEX spread increased from -\$0.01 to \$0.18, and the SF-less-NYMEX spread rose from \$0.01 in August to \$0.20.

In spite of the larger spreads this month, both the LA-less-NYMEX and SF-less-NYMEX spreads are low by 2015 standards.

<u>Gasoline Spot-Futures Spread</u>	
<u>September 2016 vs 2015</u>	
Los Angeles	15¢ lower
San Francisco	3¢ lower
<u>September 2016 Averages</u>	
Los Angeles	17¢
San Francisco	25¢
<u>September 27, 2016</u>	
Los Angeles	20¢
San Francisco	18¢

**Figure 7: California Spot Diesel to NYMEX Futures Price Spread**



Note: NYMEX is the New York Mercantile Exchange  
 Source: U.S. EIA and OPIS

Diesel spreads did not change as much as gasoline spreads. The LA-less-NYMEX spread ended August at \$0.03, fell to \$0.01, and then climbed to \$0.05 on September 27. The SF-less-NYMEX spread was a bit more lively, ending August at \$0.07 and climbing to \$0.11 before falling to \$0.01 and then climbing to \$0.06 by September 27 (Figure 7).

The monthly average LA-less-NYMEX spread strayed from zero for the first time since June, moving up to \$0.03 in September, which is \$0.06 higher than a year ago. The monthly average SF-less-NYMEX spread increased from zero to \$0.06 in September, which is just \$0.01 higher than a year ago.

**Diesel Spot-Futures Spread**

**September 2016 vs 2015**

Los Angeles	6¢ higher
San Francisco	1¢ higher

**September 2016 Averages**

Los Angeles	3¢
San Francisco	6¢

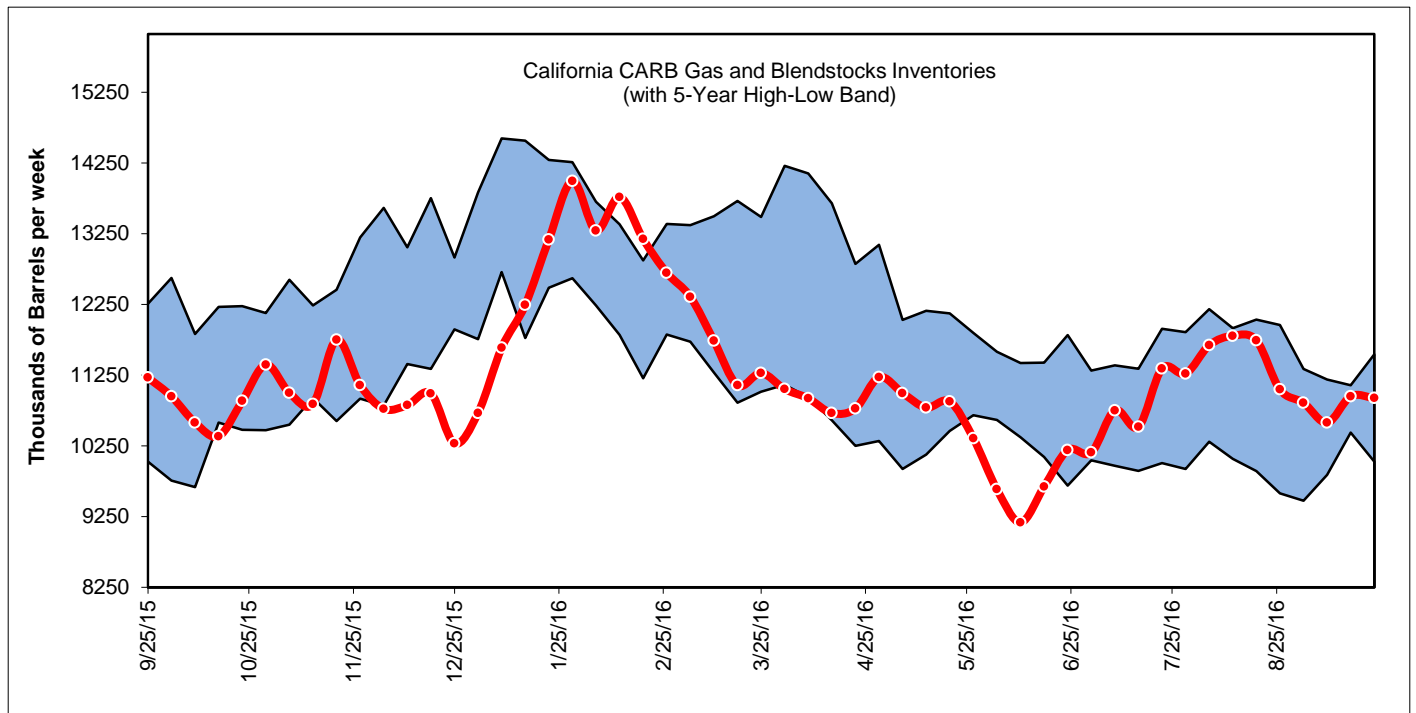
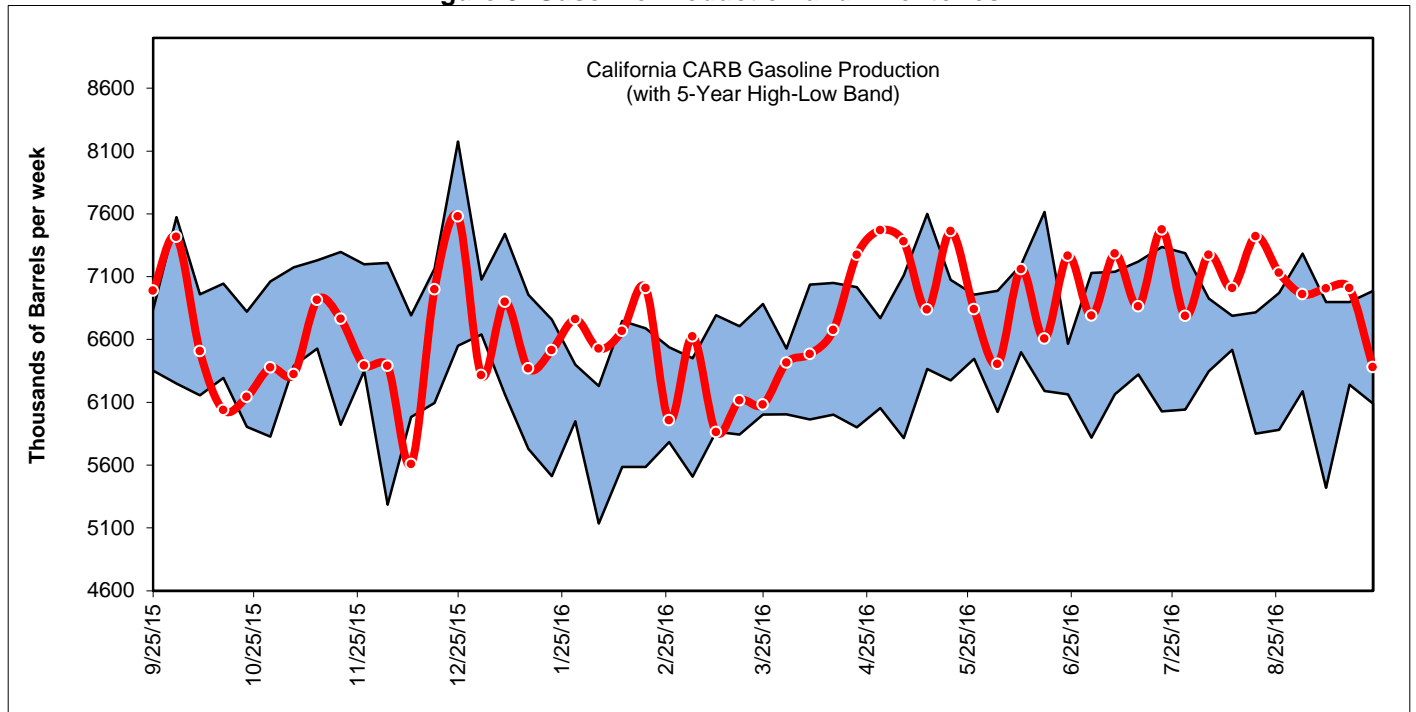
**September 27, 2016**

Los Angeles	5¢
San Francisco	6¢



# California Gasoline and Diesel Production and Inventories

Figure 8: Gasoline Production and Inventories

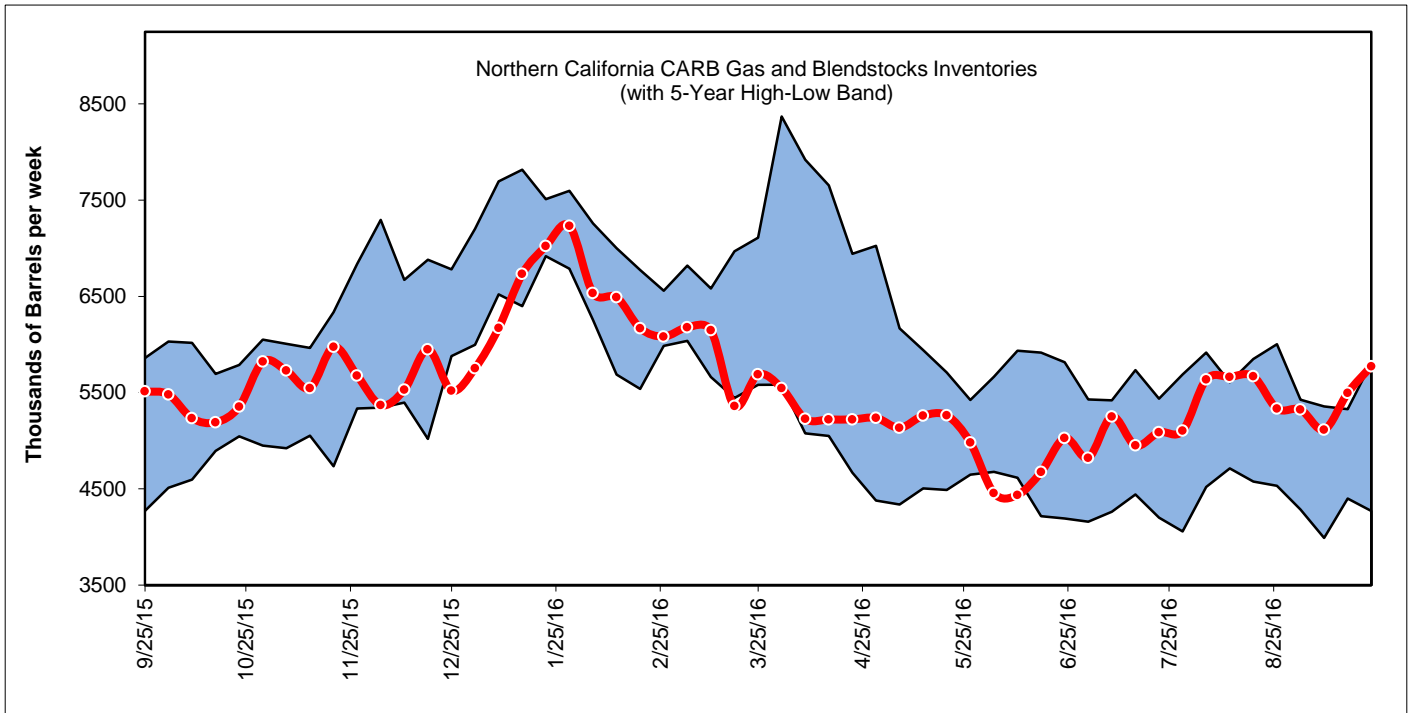
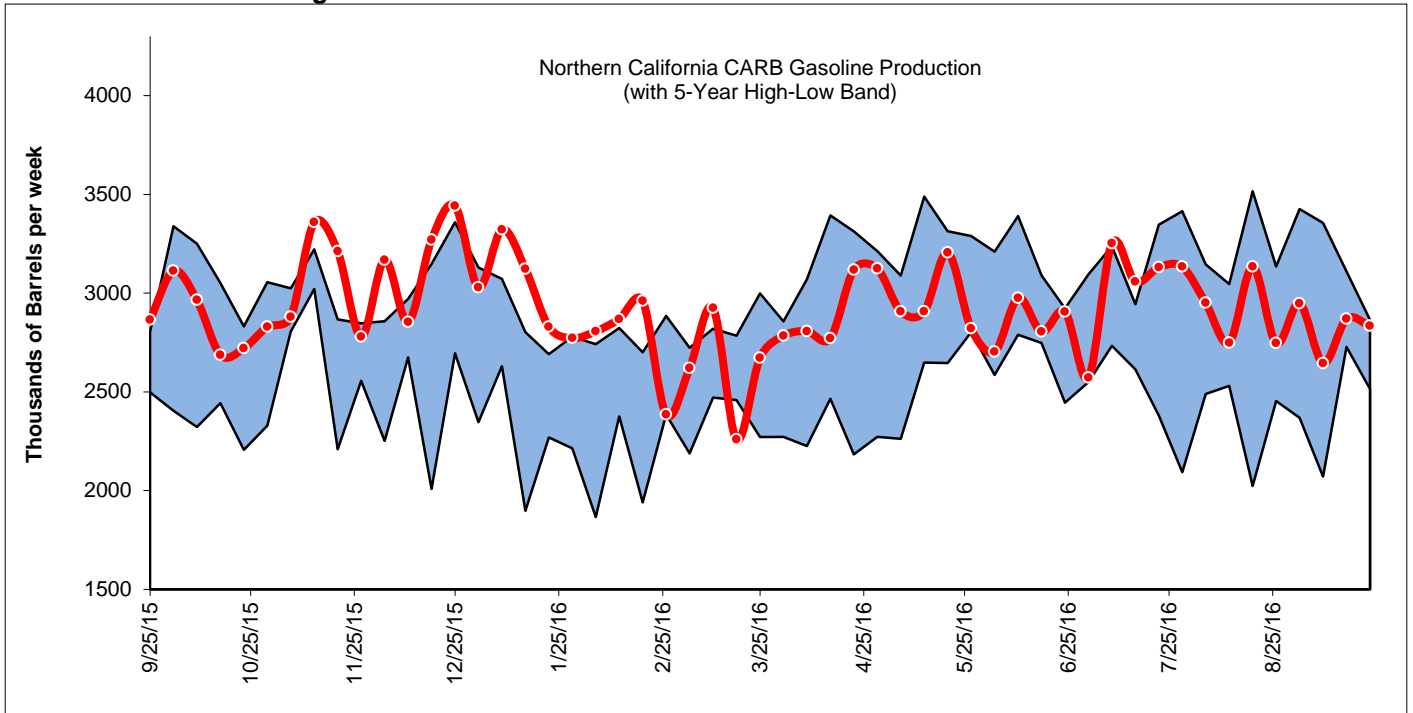


Source: PIIRA data

During the weeks following August 26, California gasoline production remained fairly steady but plunged during the week of September 23 (**Figure 8**). This drop firmly breaks the pattern of peaks and troughs that began in June. This downturn is due to a similar drop in Southern California (**Figure 10**).

California gasoline inventories fell slightly from the August 26 level then rebounded to almost the same level during the week of September 23.

**Figure 9: Northern California Gasoline Production and Inventories**

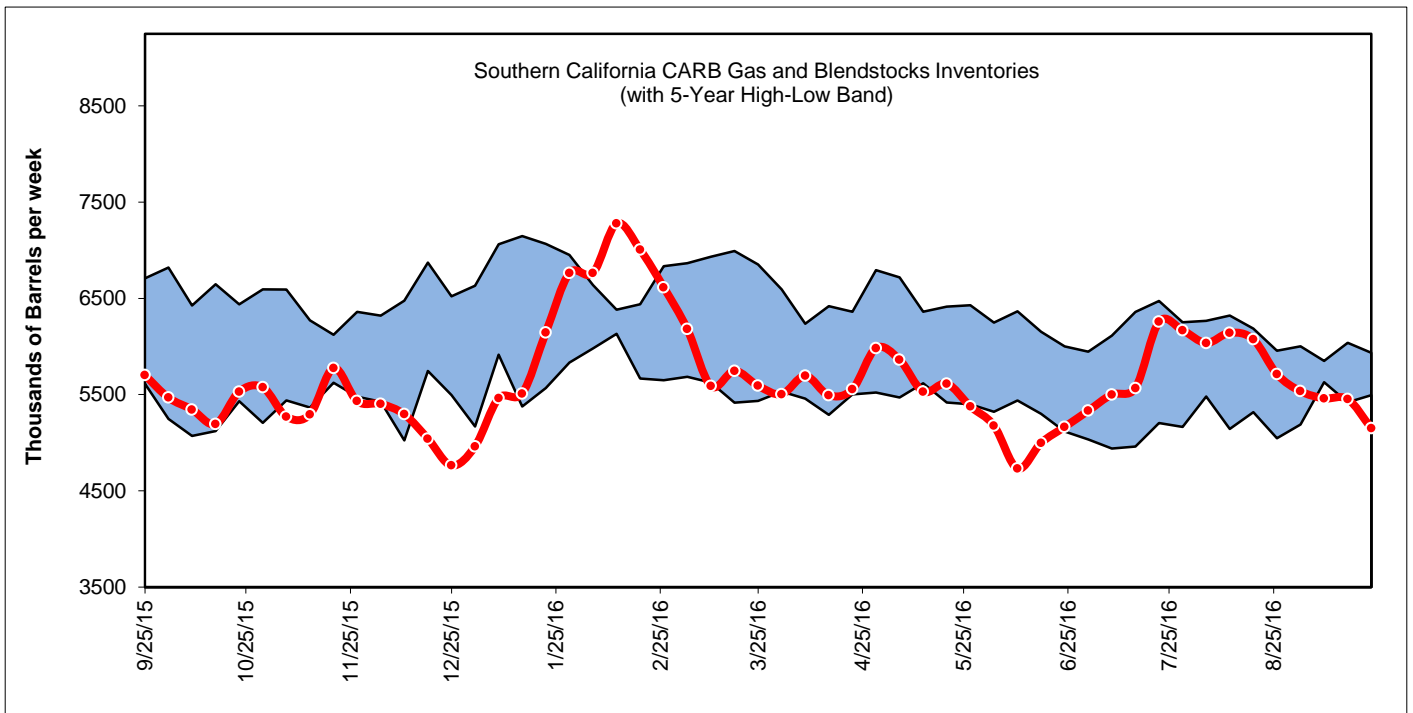
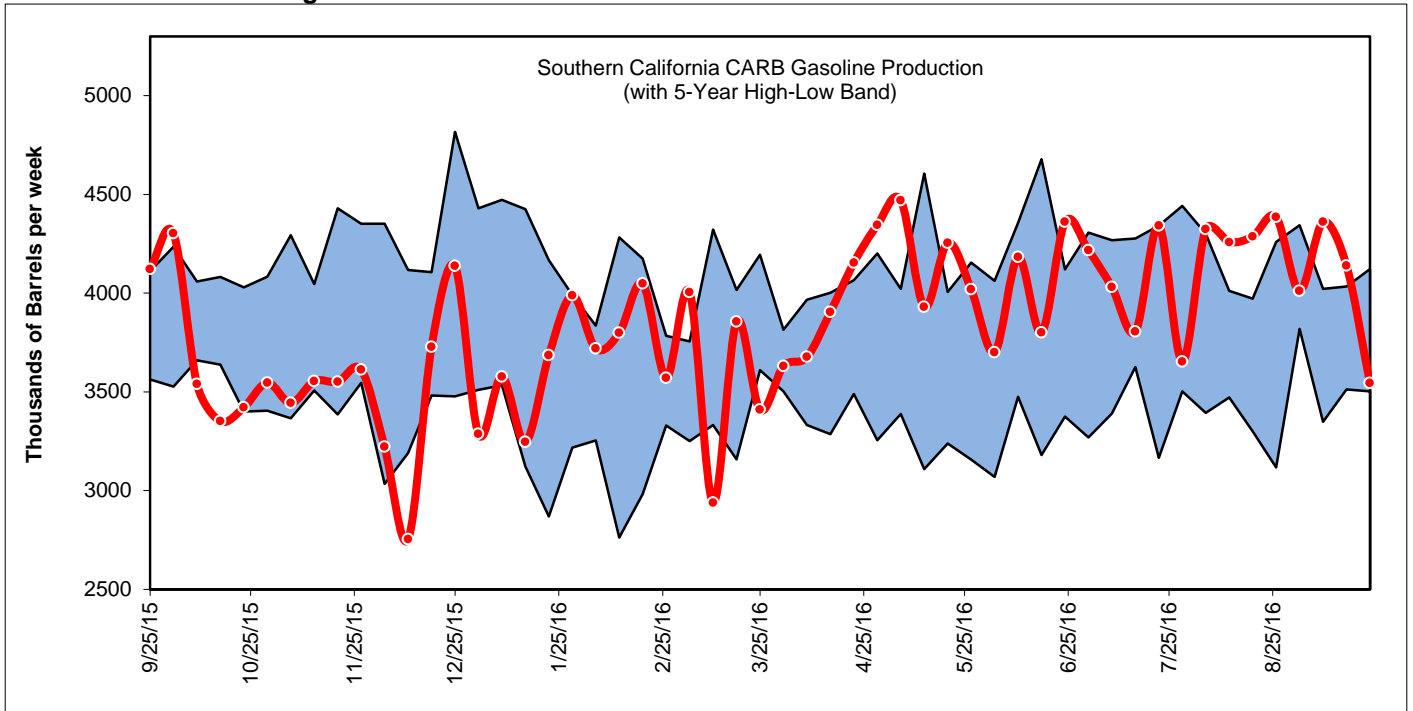


Source: PIIRA data

Northern California gasoline production continued the downward zigzag pattern that began in the week of July 29 (**Figure 9**).

Northern California gasoline inventories fell, but then rose above the five-year high on September 16 and continued to climb.

**Figure 10: Southern California Gasoline Production and Inventories**

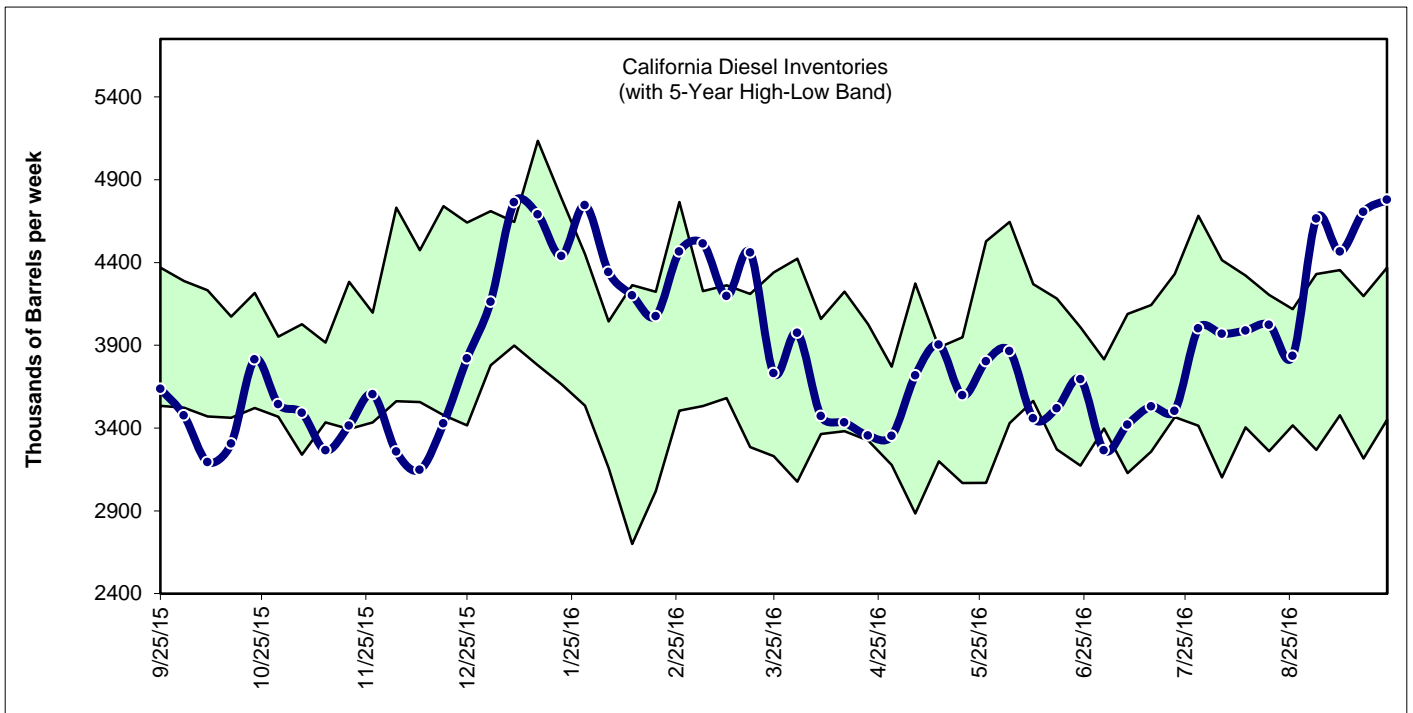
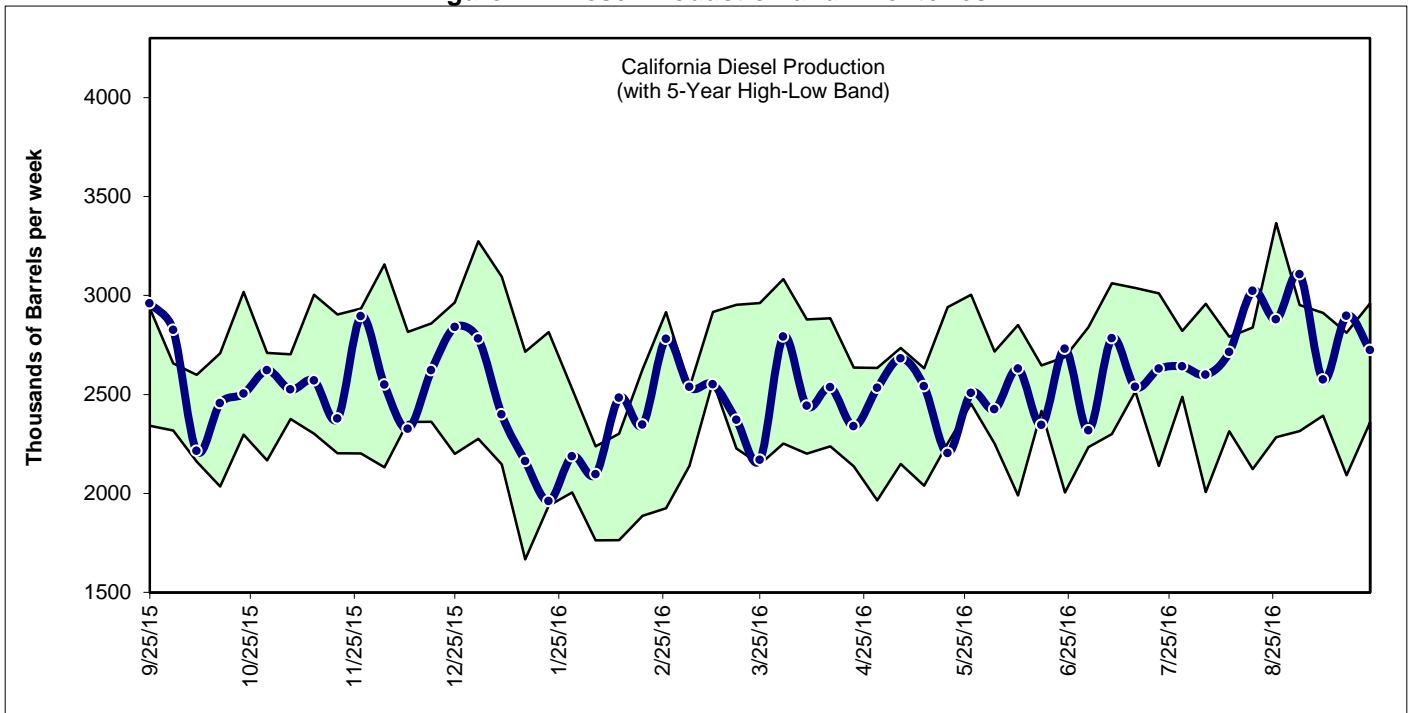


Source: PIIRA data

Since August 26, Southern California gasoline production has declined and rebounded, only to fall sharply during the week of September 23 (**Figure 10**). This could be due to the power outage experienced at PBF’s Torrance refinery. Production had been above the five-year high for five of the past six weeks, but this one-week move took it to the five-year low.

Southern California inventory levels have declined gradually since August 26 and ended the month below the five-year low. The final weekly drop may be partially due to the outage at the PBF refinery in Torrance.

Figure 11: Diesel Production and Inventories



Source: PIIRA data

California diesel production declined in an irregular pattern between August 26 and September 23; nevertheless, production stayed near or above the five-year high (**Figure 11**).

California diesel inventories increased sharply during the week of September 2 and have moved slightly higher since then, reaching a new fifty-two week high on September 23. Inventories have been well above the five-year high for the past four weeks.