PETROLEUM WATCH
California Energy Commission
November 2015

Recent Petroleum News and Outside Analyses

Prices

- **California Gasoline Prices:** The gasoline price difference between California and the United States continues to decrease, averaging $0.76 in September and $0.60 in October.
- **California Diesel Prices:** The diesel price difference between California and the United States decreased by $0.05 from September levels, to $0.29 in October.

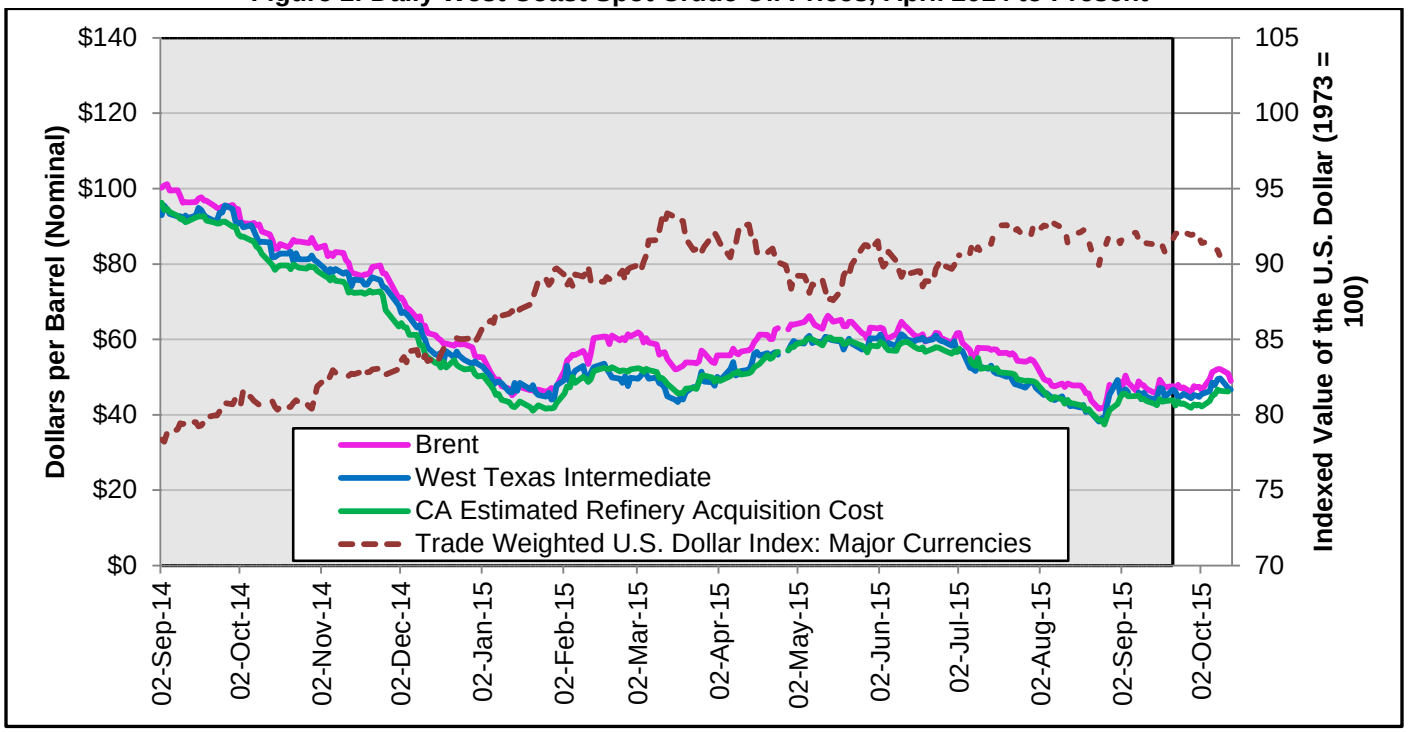
Refining News

- **Tesoro Wilmington Refinery:** On October 12, the California Emergency Management Agency was notified by Tesoro of a leaking flange at the 107,000-barrel-per-day refinery. Per the filing, 84 gallons of oil mixture was leaked.
- **Chevron Richmond Refinery:** On October 19, a fire was reported at the 245,000-barrel-per-day refinery in the San Francisco Bay Area. The fire appears to have resulted in a minor halt of activity, and no response by a Contra Costa County official was necessary.
- **Kinder Morgan Pipelines**: On October 20, British Petroleum sold 15 oil terminals to Kinder Morgan, 14 of which will be operated through a new limited liability company. These terminals cover multiple locations in the United States, including California.
- **Exxon Mobil Torrance Refinery:** On October 23, the refinery reported a leaking pipe to one of its coker units. The incident resulted in a release composed primarily of steam, activating community warning sirens.

Product of the Energy Assessments Division's Supply Analysis Office.

Crude Oil Prices

Figure 1: Daily West Coast Spot Crude Oil Prices, April 2014 to Present[1]



Source: U.S. Energy Information Administration (U.S. EIA), Oil Price Information Service (OPIS), and Federal Reserve Bank of St. Louis.

In comparison to the same time last year, crude oil prices remain low (**Figure 1**). The California Estimated Refiner Acquisition Cost[2] (CA-RAC) of crude oil was roughly half on October 12, 2015, ($46.16) than it was on September 2, 2014 ($96.30). These lower prices for crude have persisted through 2015 at a year-to-date average price of $49.91, $50.79, and $55.00 per barrel for CA-RAC, West Texas Intermediate (WTI), and Brent, respectively.

Since the start of October, the United States (U.S.) dollar weakened in comparison to the other major world currencies by 1.4 percent. Crude oil prices appear to have responded to that weakening with a corresponding increase in Brent and WTI prices of 10 percent, while CA-RAC increased 8.5 percent.

Crude Oil Prices

October 2014 vs 2015
(Percent Change)

WTI	**43% lower**
Brent	**44% lower**
CA-RAC	**45% lower**

October 2015 Averages

WTI	**$50.06**
Brent	**$47.32**
CA-RAC	**$44.78**

October 12, 2015

WTI	**$47.09**
Brent	**$50.95**
CA-RAC	**$46.16**

1 Shaded areas on all graphs indicate previous report data. Unshaded areas indicate new data since October's *Petroleum Watch*.

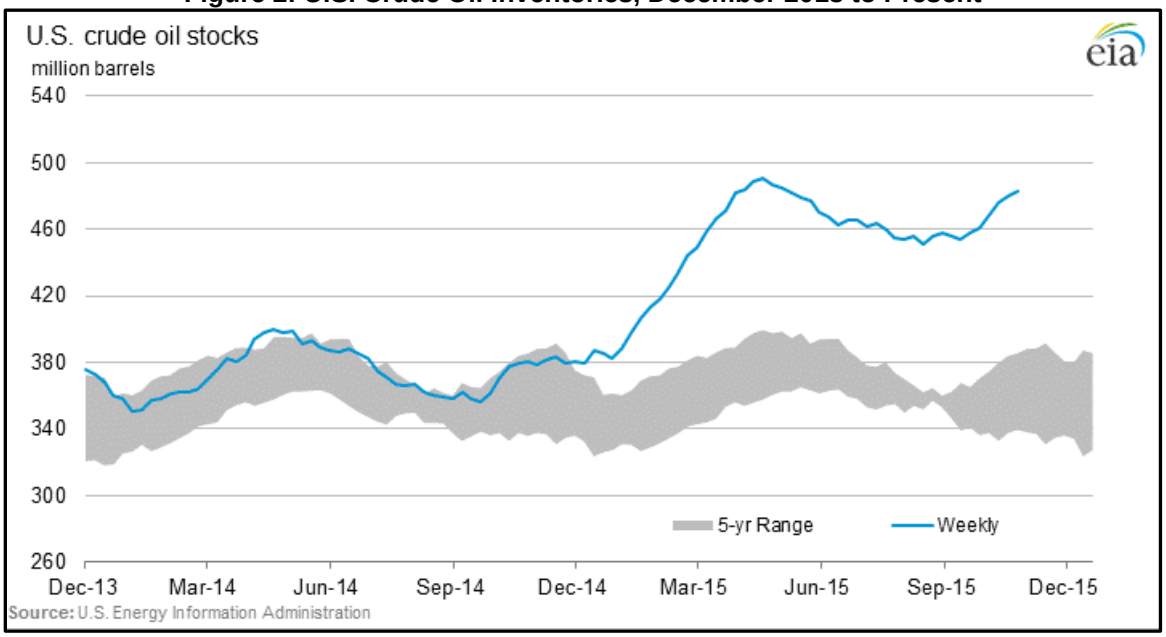
2 *California estimated refiner acquisition cost* is an estimate of the average price of crude oil paid by California refineries. It is created using California refinery input proportions of California crude, Alaskan crude, and foreign crude and multiplying them by the prices of San Joaquin Valley, Alaskan North Slope, and Brent crude oil, respectively.

Crude Oil Production and Storage

While the price of crude oil remains roughly $50 a barrel, U.S. production of crude oil remains strong at roughly 290 million barrels per month, leading to increased U.S. crude oil inventories. U.S. refinery utilization has fallen in October to a monthly average of 87 percent from 90 percent in September. This mixture of reduced utilization and strong production has kept crude oil inventories well above historical averages of 360 million barrels to roughly 482 million barrels.

- The U.S. EIA estimate of U.S. crude oil output for August was revised from 9.1 million barrels per day (bpd) to 9.3 million bpd.
- Imports of Canadian crude oil increased in October to 3.9 million bpd.
- Crude oil inventories in the United States remain at unusually high levels and have increased to 482 million barrels in the final week of October (**Figure 2**). The end of the summer driving season has reduced petroleum consumption, and with reductions in refinery utilization rates, crude oil inventories have increased to levels seen in March.

Figure 2: U.S. Crude Oil Inventories, December 2013 to Present

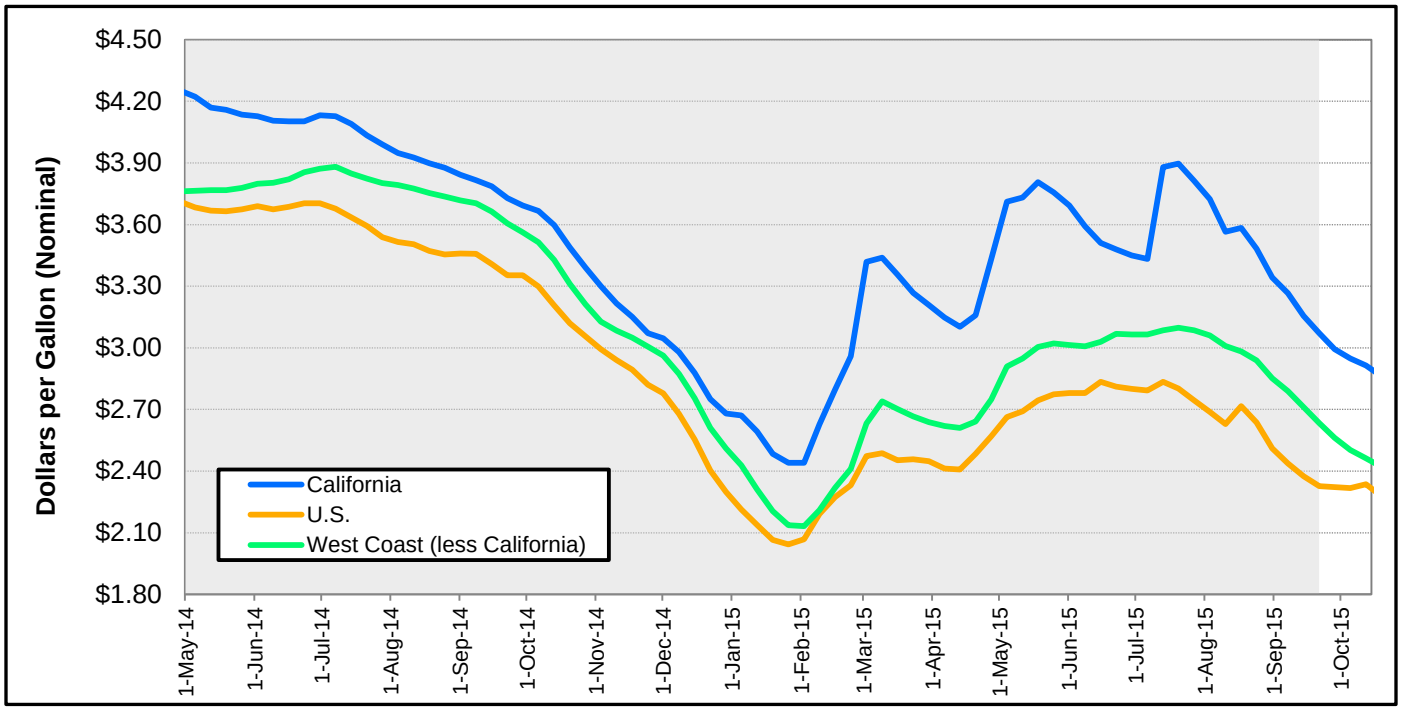


Source: U.S. EIA.

- According to the most recent data from the Organization of the Petroleum Exporting Countries (OPEC), Saudi Arabian crude output has fallen from August into September, from 10,273 million bpd to 10,225 million bpd. This was a small decrease of 48.2 million bpd, a change of 0.5 percent from the previous month, but Saudi Arabian production still remains 6 percent higher than the 2014 average. Total OPEC production increased by 0.3 percent from September to October, remaining 4.1 percent higher than the 2014 average.

Gasoline and Diesel Retail Prices and Margins

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



Source: U.S. EIA.

California retail gasoline prices continued to fall in October. After falling 8 percent over the month of September, prices decreased another 3 percent from the week of October 5 to the week of October 19 (**Figure 3**). From the 2015 California peak in gasoline prices of $3.90, gasoline prices have fallen $1.04 and are approaching an average California-to-United States differential of roughly $0.60, similar to values last seen in February. This downward trend in California prices is normal for September and October as gasoline demand and related cost of production fall due to reduced vacation driving from colder weather and production of winter blend gasoline.

Unlike California and West Coast prices, U.S. gasoline prices have flattened in October, averaging $2.31. This is in contrast to West Coast prices, which fell $0.14 from the last week in September for a total decrease of 5.5 percent. With both California and West Coast gasoline prices decreasing, the California-to-West Coast[3] differential has remained $0.44.

Gasoline Prices

October 2014 vs 2015 (Percent Change)

California	18% lower
U.S.	27% lower
West Coast	27% lower

October 2015 Averages

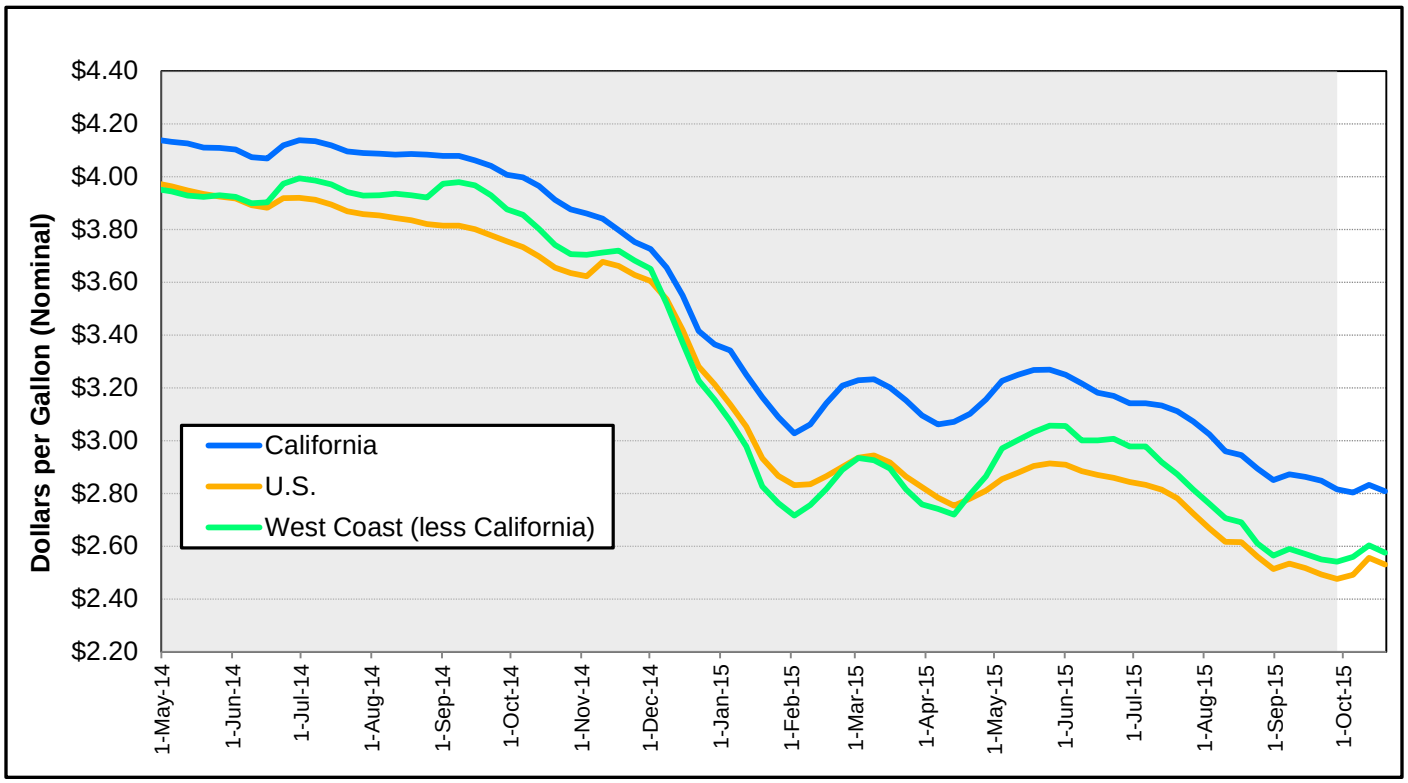
California	$2.91
U.S.	$2.31
West Coast	$2.46

Week of October 19, 2015

California	$2.86
U.S.	$2.28
West Coast	$2.42

3 West Coast is being defined as all PADD 5 states minus California for this report. PADD stands for *Petroleum Administration for Defense Districts*. PADD 5 includes the states of Hawaii, Alaska, Washington, Oregon, California, Nevada, and Arizona.

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



Source: U.S. EIA.

California average diesel fuel prices have leveled off from the end of September through October, averaging $2.81 per gallon (**Figure 4**). This price is $0.87 lower than the same time last year, with California prices maintaining roughly a $0.30 California-to-United States price differential in 2015. Diesel is still being sold at a discount to gasoline in California, but with the recent decreases in gasoline prices, this difference has fallen to $0.05 from a peak of $0.79 on the week of July 20.

West Coast and U.S. diesel prices also continue to be lower than last year, 32 and 31 percent respectively. In the first two weeks of October, both diesel prices increased, with the U.S. diesel price increasing $0.08 and the West Coast price increasing $0.06. This increase was not seen in the California diesel price, which increased only $0.02 over the same period, leading to reduced California-to-United States and California-to-West Coast differentials of $0.28 and $0.24 respectively for the month of October.

Diesel Prices

October 2014 vs 2015
(Percent Change)

California	**29% lower**
U.S.	**31% lower**
West Coast	**32% lower**

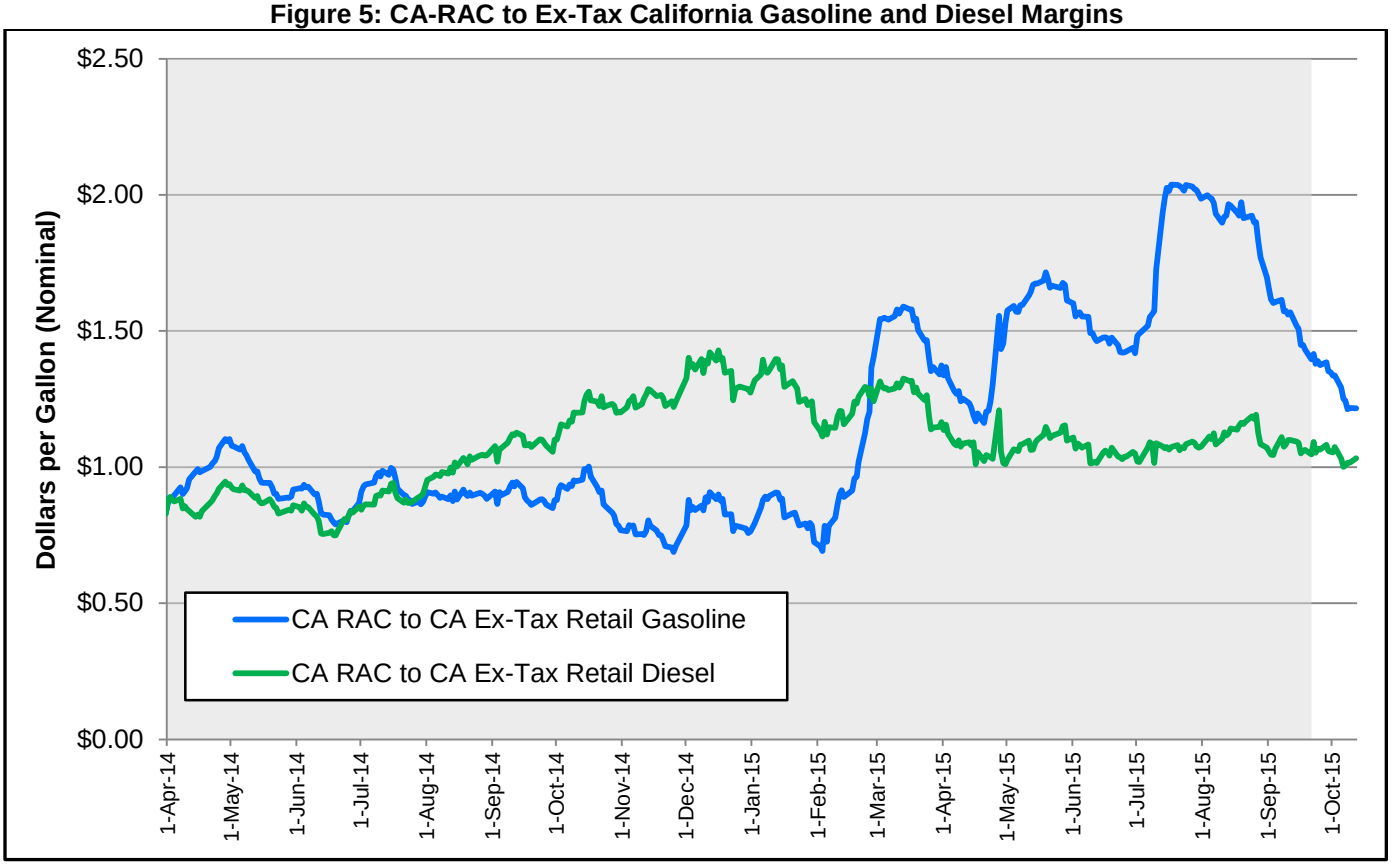
October 2015 Averages

California	**$2.81**
U.S.	**$2.53**
West Coast	**$2.58**

Week of October 19, 2015

California	**$2.81**
U.S.	**$2.53**
West Coast	**$2.58**

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



Source: U.S. EIA and OPIS.

The difference between the gasoline and diesel CA-RAC–to–ex-tax retail margins[4] has rapidly decreased from the early July peak. Since then, the peak CA-RAC-to-ex-tax retail gasoline has decreased $0.82, from $2.04 for the week of July 17 to $1.22 for the week of October 12 (**Figure 5**). Unlike gasoline, CA-RAC-to-ex-tax retail diesel margin only slightly decreased by $0.04 over that same period from $1.07 to $1.03. For October, the two margins are averaging a $0.23 difference, which is $0.58 lower than the July peak difference of $0.81.

While normal seasonal reductions in driving demand have helped ease prices, weekly California gasoline production and inventory totals have shown a noticeable increase in September (**Figure 8**), easing prices from the supply side as well. Both totals have fallen in October, due to gasoline becoming cheaper with the switch to winter blend gasoline in happening in November.

Crude to Retail Margins

October 2014 vs 2015
(Percent Change)

Gasoline	**40% higher**
Diesel	**15% lower**

September 2015 Averages

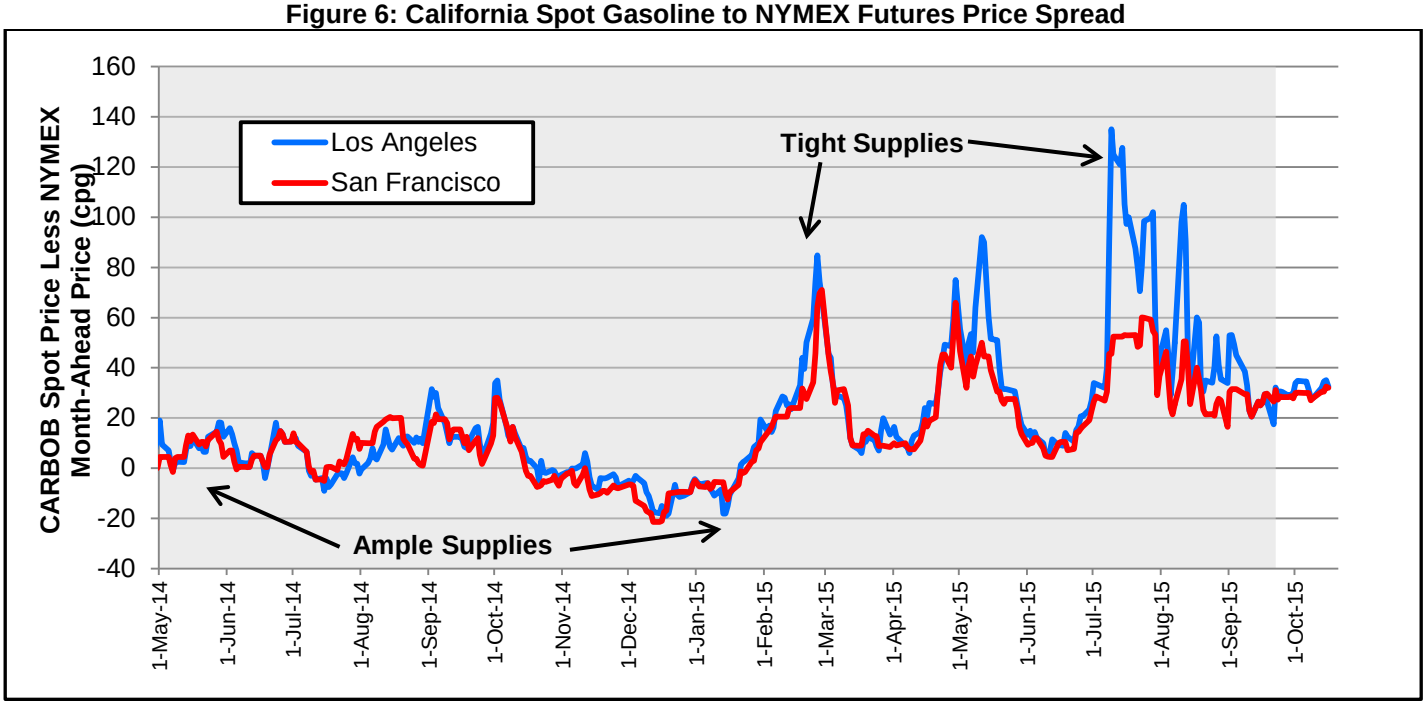
Gasoline	**$1.49**
Diesel	**$1.07**

October 12, 2015

Gasoline	**$1.22**
Diesel	**$1.03**

4 The *RAC-to-retail margin* refers to the difference between the retail price and the refiners' acquisition cost for crude oil. Thus, it includes all costs of producing gasoline or diesel. "Ex-tax" refers to the removal of all California taxes on the price of fuel, which is done to remove any distortions from taxes that may affect this calculation.

Figure 6: California Spot Gasoline to NYMEX Futures Price Spread



Source: U.S. EIA and OPIS.

California spot gasoline prices have risen since September 21, increasing the Los Angeles-to-New York Mercantile Exchange (NYMEX) spot–futures spread[5] to $0.15 (**Figure 6**). The spread jumped from $0.17 on September 21 to $0.32 the next day, which roughly held through mid-October, never fluctuating below $0.28 or higher than $0.34. The average year-to-date differential for L.A. less NYMEX has now reached $0.34, while the 2014 average was $0.07 for the same period.

The San Francisco-to-NYMEX spot-futures spread widened $0.08 from $0.26 on September 21 to $0.32 on October 16. The average year-to-date differential for this spread has now reached $0.25, which in 2014 was $0.05.

The widening of California spreads in October is due to refinery maintenance and turnarounds. Per U.S. EIA data, the U.S. West Coast weekly refinery inputs and utilization were recorded at 89.7 percent on September 18 and fell to 84.3 percent as of October 16 due to these events. As these turnarounds wind down and California transitions to winter-blend gasoline in November, spreads should narrow as supply eases and cost decreases.

Gasoline Spot–Futures Spread

October 2014 vs 2015
(cents)

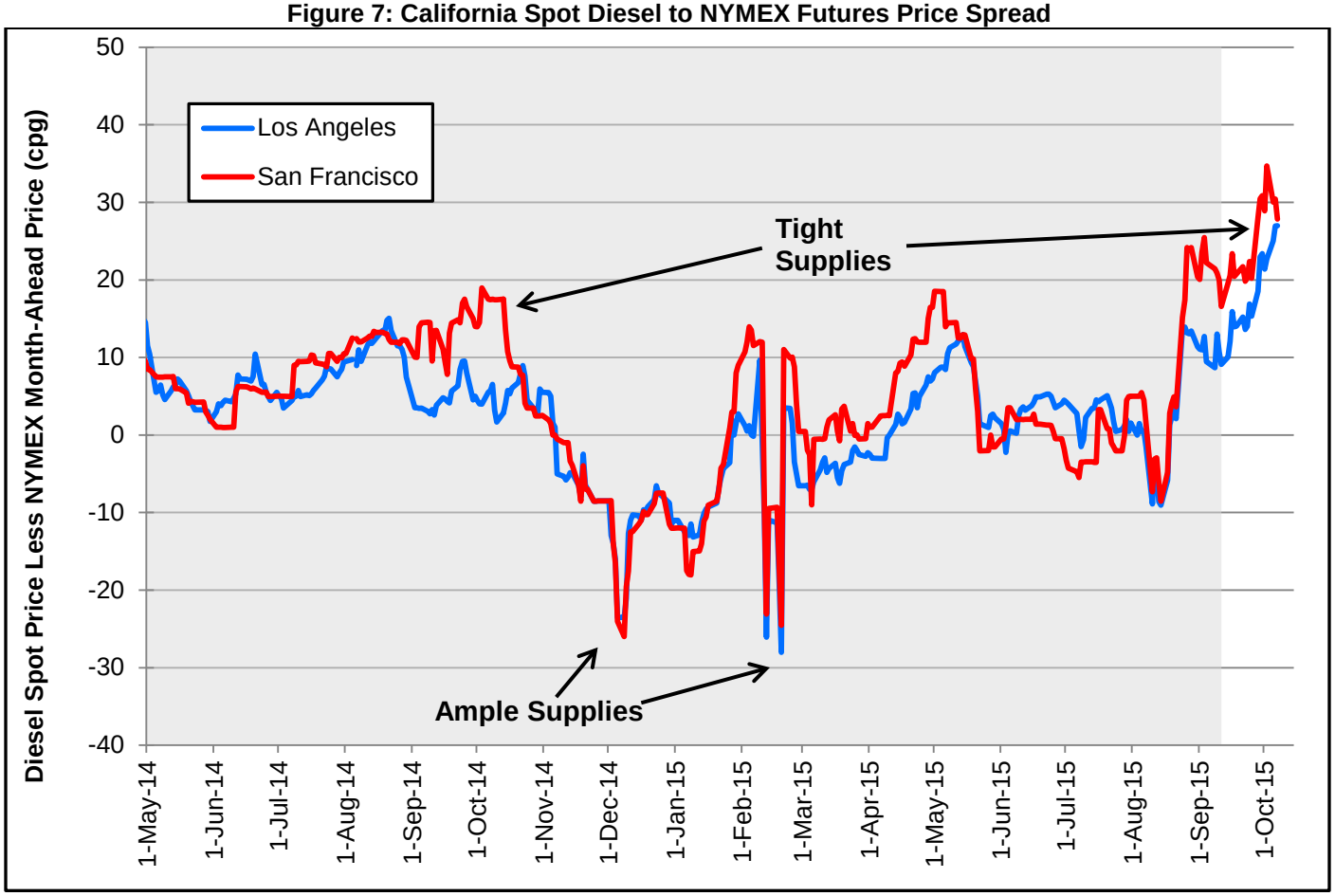
Los Angeles	**25¢ higher**
San Fran.	**26¢ higher**

October 2015 Averages

Los Angeles	**33¢**
San Francisco	**30¢**

5 A higher spread between the state's spot fuel prices and the NYMEX futures price indicates supplies are tighter in California, and a lower or negative spread indicates the market is relatively well-supplied compared to the rest of the country. The NYMEX futures price reflects the national market, while California Reformulated Gasoline Blendstock for Oxygenate Blending (CARBOB) is a gasoline blend unique to California and is usually sold at a premium to the NYMEX.

Figure 7: California Spot Diesel to NYMEX Futures Price Spread



Source: U.S. EIA and OPIS.

In October, the Los Angeles-to-NYMEX and the San Francisco-to-NYMEX diesel spreads extended gains seen in late September (**Figure 7**). The Los Angeles-to-NYMEX spread increased to $0.27 on October 16, setting a 2015 high. The San Francisco-to-NYMEX spread traded more erratically relative to the Los Angeles less NYMEX; this spread fluctuated between $0.20 to $0.34 before settling to $0.28 on October 16. This spread indicates an undersupplied northern market relative to the southern one, with either increased demand pushing the spot higher, or lower Northern California diesel inventories numbers elevating the spread (See Weekly Fuels Watch at http://www.energyalmanac.ca.gov/petroleum/fuels_watch/index.php.

October diesel spot market increases are in contrast to September movements, which largely remained constant. In September the Los Angeles-to-NYMEX spread edged slightly higher from $0.10 to $0.14, while the San Francisco-to-NYMEX saw a slight increase from $0.19 to $0.20. September values for these differentials denote a balanced market with adequate supply to meet California's heavy-duty vehicle demand.

Diesel Spot–Futures Spread

October 2014 vs 2015
(cents)

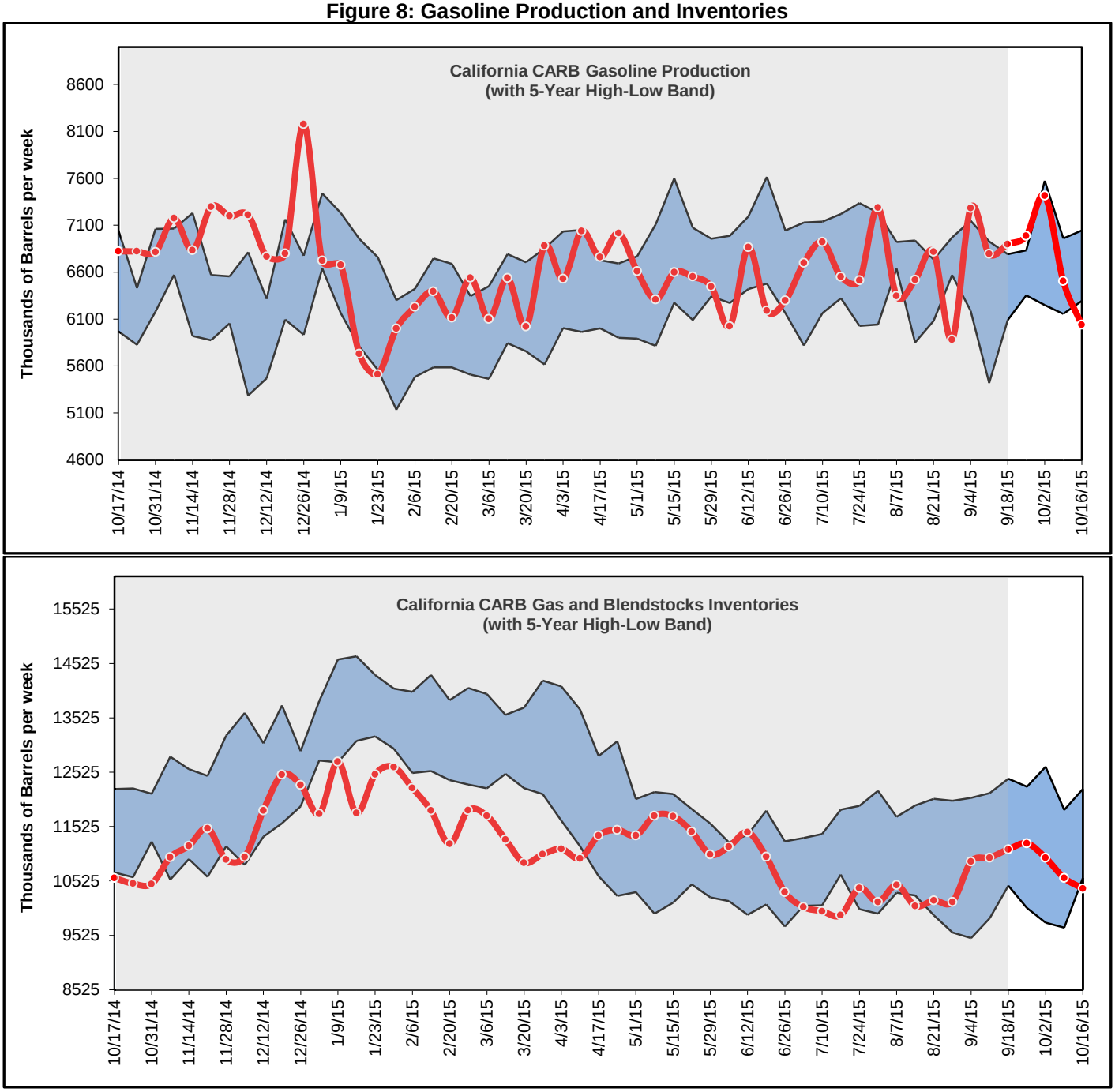
Los Angeles	**15¢ higher**
San Fran.	**14¢ higher**

October 2015 Averages

Los Angeles	**21¢**
San Francisco	**28¢**

California Gasoline and Diesel Production and Inventories

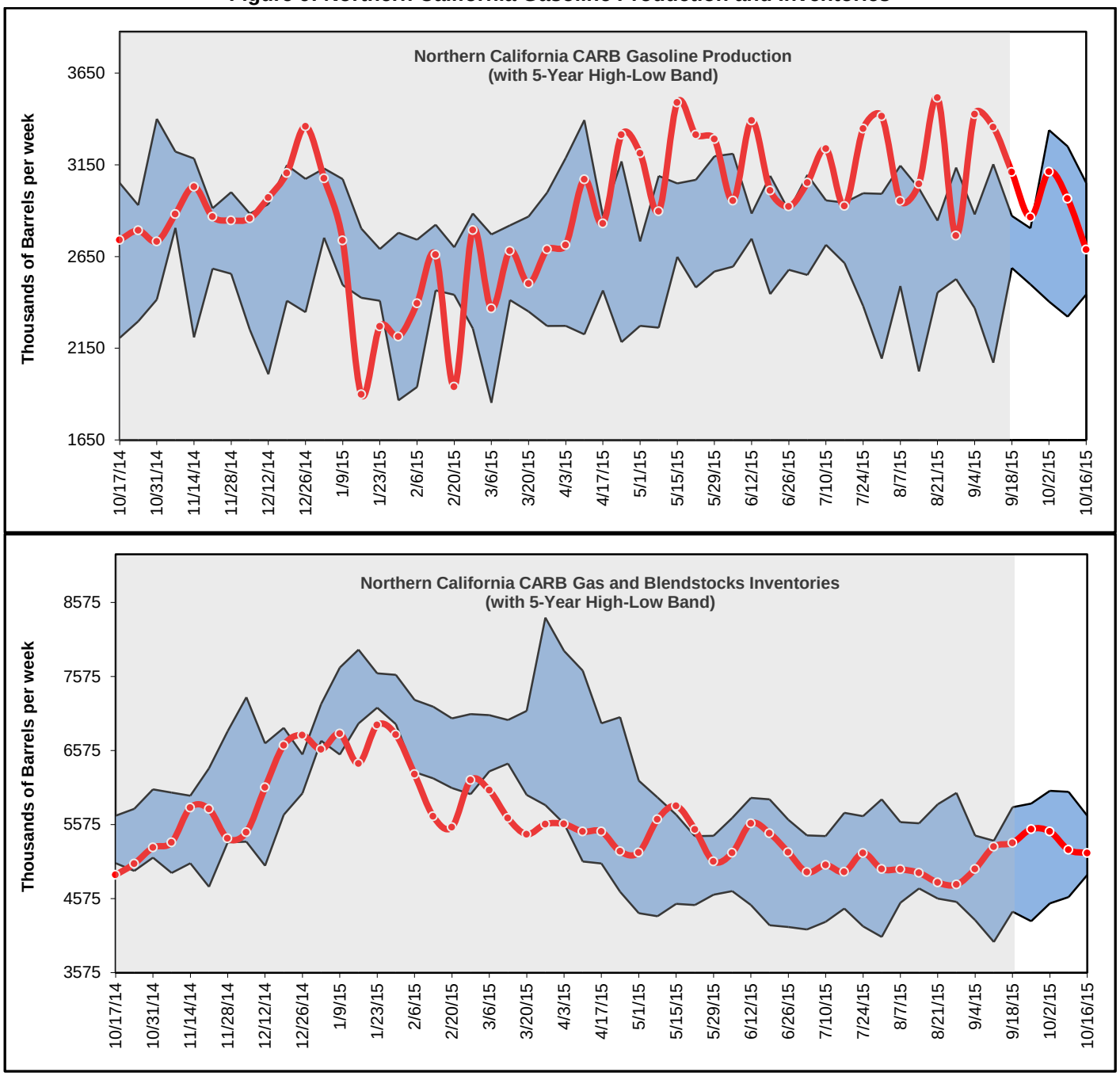
Figure 8: Gasoline Production and Inventories



Source: PIIRA data.

In the past five weeks, production of California reformulated gasoline averaged 6.7 million barrels per week, higher than the year-to-date gasoline product for 2015thataveraged at 6.5 million barrels per week (**Figure 8**). Gasoline production climbed to the high end of the five-year production band at 7.4 million barrels during the week of October 2, 2015, before declining to the low end of the five-year production band at 6.0 million barrels. Since the September 2015 *Petroleum Watch*, inventory levels in California have fallen from 11.1 million to 10.4 million barrels for the week of October 16, 2015. This decrease placed inventory levels back down to the low end of the five-year band, which is slightly lower than the same time last year.

Figure 9: Northern California Gasoline Production and Inventories

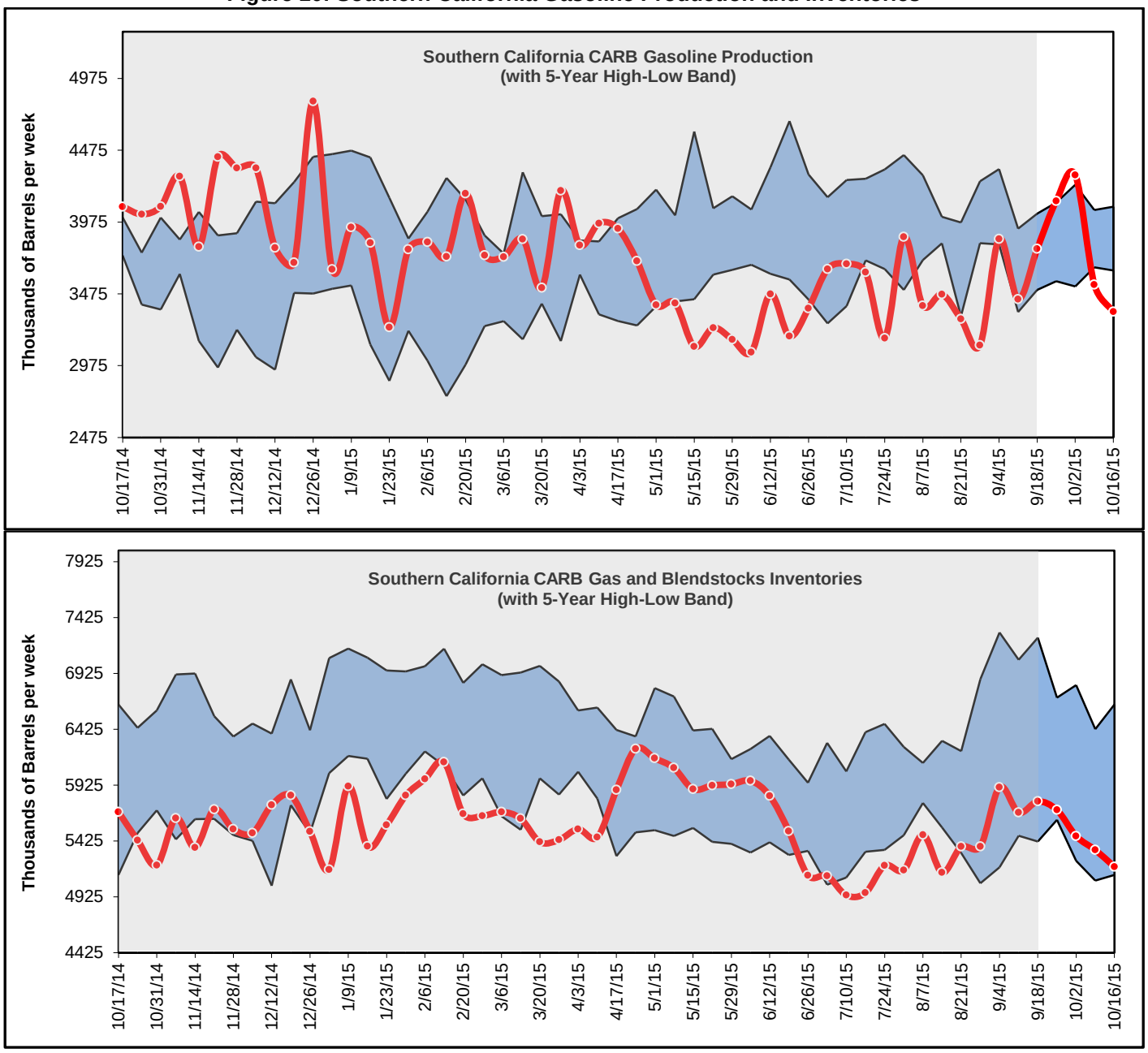


Source: PIIRA data.

During the past five weeks, from September 18, 2015, through October 16, 2015, Northern California weekly gasoline production has slowly realigned itself within the middle of the five-year band ending at 2.7 million barrels (**Figure 9**). The average for this period is similar to a year ago at 2.9 million barrels of gasoline per week. This is a decrease in average production for Northern California, which was consistently producing above five-year norms since late April and is at its lowest point since that time.

Even with the decline in production, inventories in Northern California continue to hold steady at 5.0 million barrels per week since the beginning of July.

Figure 10: Southern California Gasoline Production and Inventories

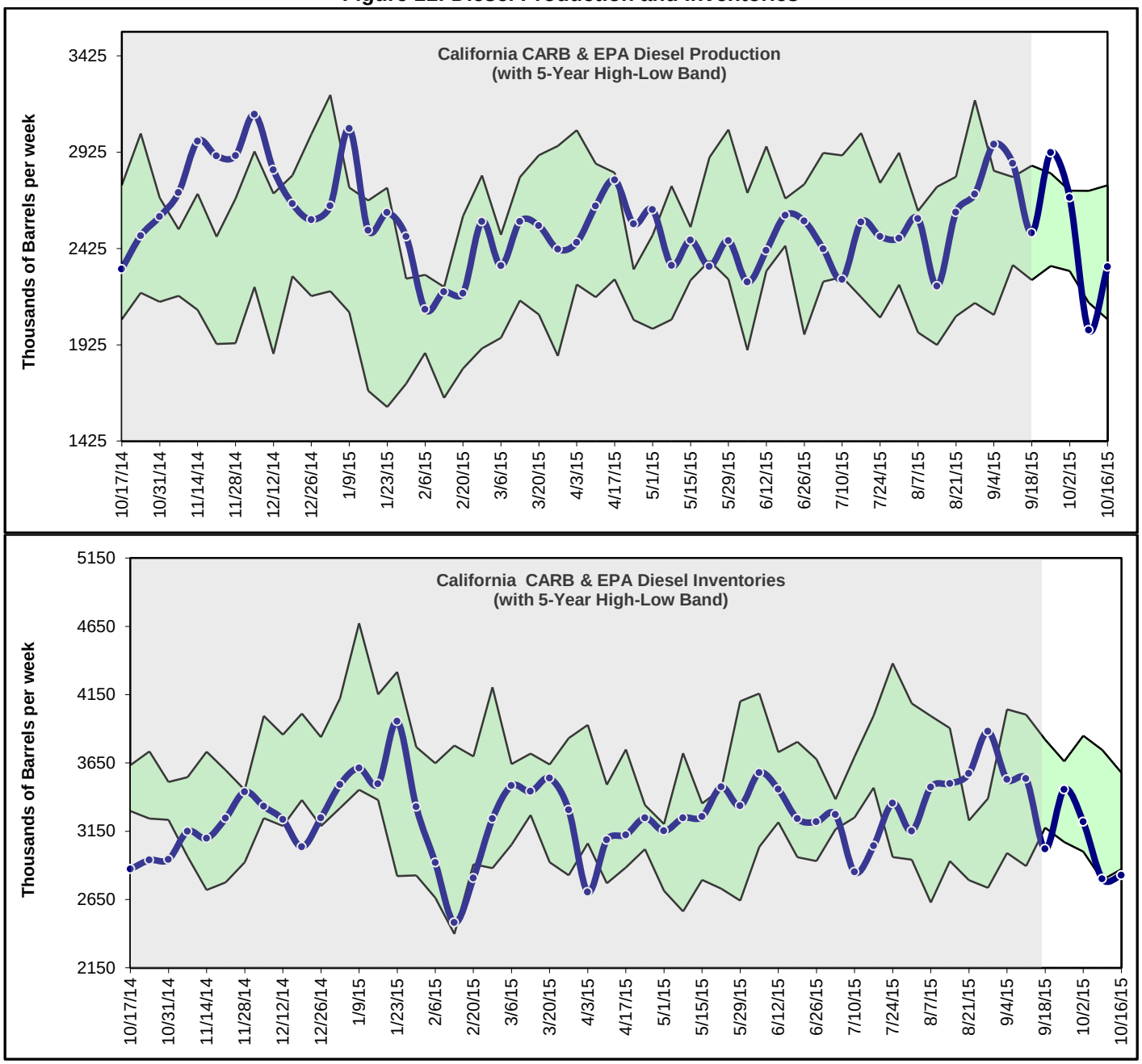


Source: PIIRA data.

Southern California has seen both a significant increase and decrease in gasoline production over the last five weeks (**Figure 10**). Production rose from 3.8 million barrels a week (bpw) on September 18 to 4.3 million bpw on October 2, before falling to 3.4 million bpw on October 16. Over that period, the production averaged 3.8 million bpw, which was a 9 percent increase since the September *Petroleum Watch*, and has moved the five-week average higher than the year-to-date 2015 average of 3.6 million barrels per week.

Inventory levels in Southern California, as a result of the increase in gasoline production, have fallen from 5.8 million barrels to 5.2 million barrels from September 18 to October 16. Even with this decrease, inventory levels are still above the low end of the five-year band with a five-week average of 5.5 million barrels per week.

Figure 11: Diesel Production and Inventories



Source: PIIRA data.

California diesel production has noticeably decreased since September 18 (**Figure 8**). During the week of October 9, a new five-year production low was set at 2.0 million barrels before moving back above the five-year low to the same level a year ago at 2.3 million barrels. This is slightly lower than the year-to-date 2015 average of 2.5 million barrels per week.

Diesel inventories have also set a new five-year low during the weeks of October 9 and October 16, at roughly 2.8 million barrels. Both inventory levels are lower than the year-to-date 2015 averages by roughly 3.0 million barrels.