



PETROLEUM WATCH

California Energy Commission

January 2016

Recent Petroleum News and Outside Analyses

Prices

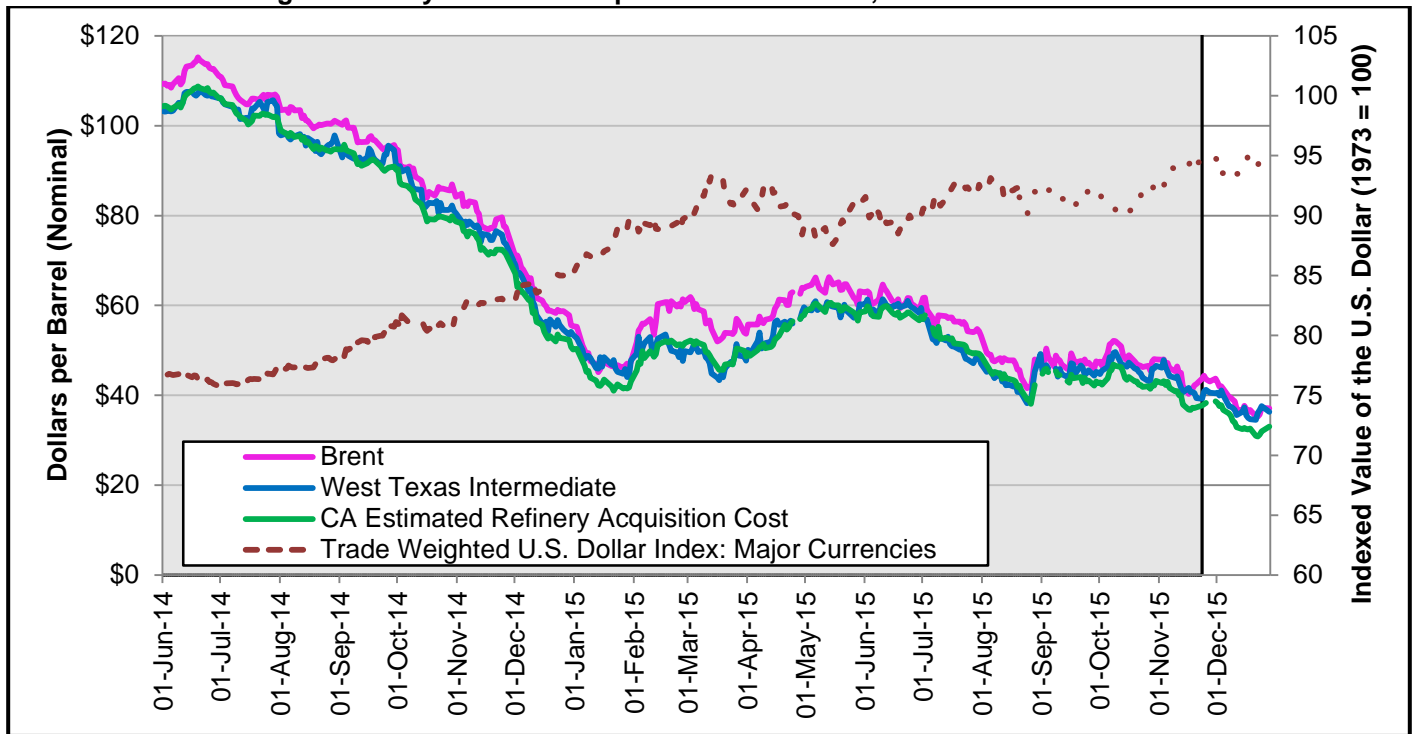
- **California Gasoline Prices:** California regular gasoline prices were \$0.80 higher than the national average on December 23. This is substantially higher than the \$0.60 average difference for November.
- **California Diesel Prices:** California diesel prices were \$0.37 higher than the national average on December 28. This is a \$0.04 increase from the November average of \$0.33.

Refining News

- **ExxonMobil Torrance Refinery:** The restart of the refinery fluid catalytic cracker unit (FCC), which is used to produce gasoline, has been delayed from March until sometime in the second quarter of 2016.
- **Tesoro Carson and Wilmington Refineries:** Both refineries have suffered unplanned outages to the FCC units.
- When combined, the above outages account for just over 200,000 barrels per day of gasoline production in Southern California, which is the equivalent of 8.4 million gallons per day.

Crude Oil Prices

Figure 1: Daily West Coast Spot Crude Oil Prices, June 2014 to Present¹



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

Crude oil prices continued to fall for December 2015 (Figure 1). The California Estimated Refiner Acquisition Cost² (CA-RAC) of crude oil fell to \$35.25 on December 30, 2015, an almost 40 percent drop from \$50.96 on December 30, 2014. These prices will likely continue into 2016 as production of crude oil was greater than consumption for the sixteenth month in a row in December, at 1.55 million barrels per day.

Since the previous *Petroleum Watch*, the CA-RAC price fell by 14 percent, with all three prices tracked here moving closely together. Meanwhile the U.S. dollar remained stable. More than any other factor, the continued world oversupply of crude has held prices back to levels not seen since December 2009.

Crude Oil Prices

December 2014 vs 2015

(Percent Change)

WTI	37% lower
Brent	39% lower
CA-RAC	40% lower

December 2015 Averages

WTI	\$37.19
Brent	\$38.07
CA-RAC	\$33.78

December 30, 2015

WTI	\$36.59
Brent	\$35.65
CA-RAC	\$32.29

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

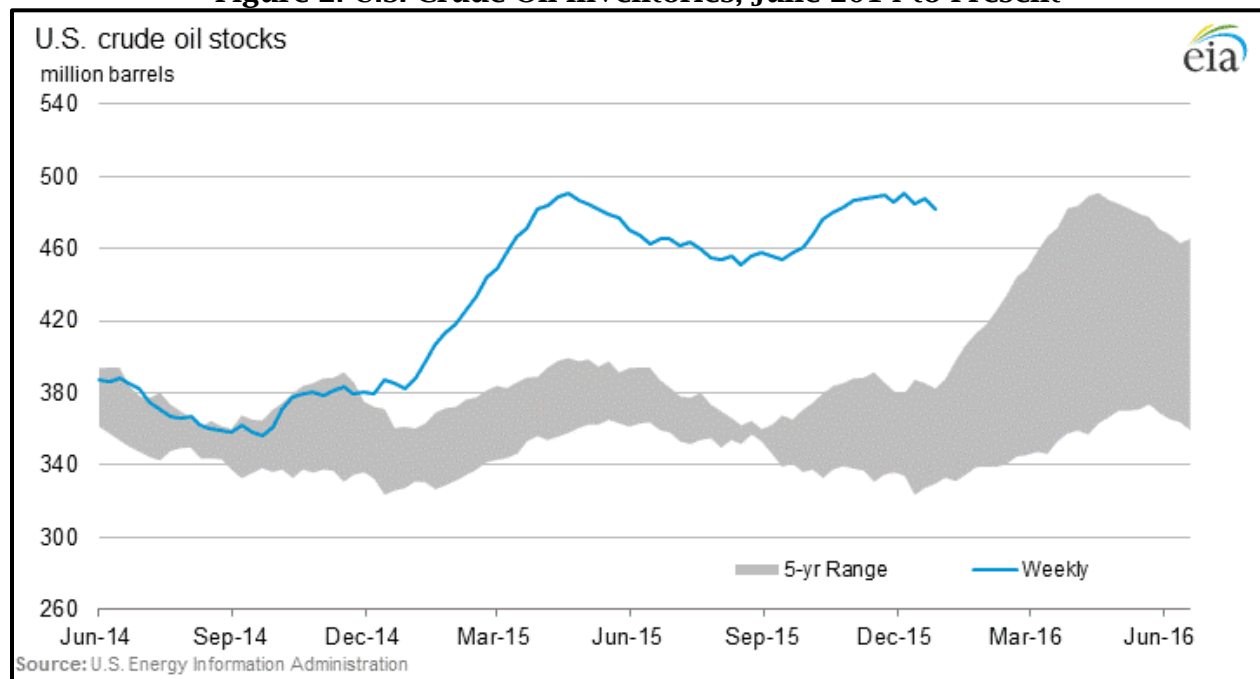
2 California estimated refiner acquisition cost (CA-RAC) is an estimate of the average price of crude oil paid by California refineries. Energy Commission staff weighs the recorded prices of San Joaquin Valley, Alaskan North Slope, and Brent crude oil against California refinery crude receipt data.

Crude Oil Production and Storage

Although the price of crude oil has fallen further over the past month, U.S. production remains strong. In combination with continued high levels of output from the Organization of the Petroleum Exporting Countries (OPEC) producers (see third bullet below), domestic crude oil inventories remain well above historical averages. This overhang of supply should prevent crude prices from rising.

- The U.S. EIA estimate of U.S. crude oil output for December was 9.2 million barrels per day (bpd). This has remained essentially unchanged since late October and is slightly higher than year-ago production of 9.1 million bpd.
- Crude oil inventories in the United States remain at unusually high levels and have remained fairly steady throughout December, settling at 482 million barrels at the end of the month. (See **Figure 2**.) This is about 100 million barrels higher than previous five-year highs.

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

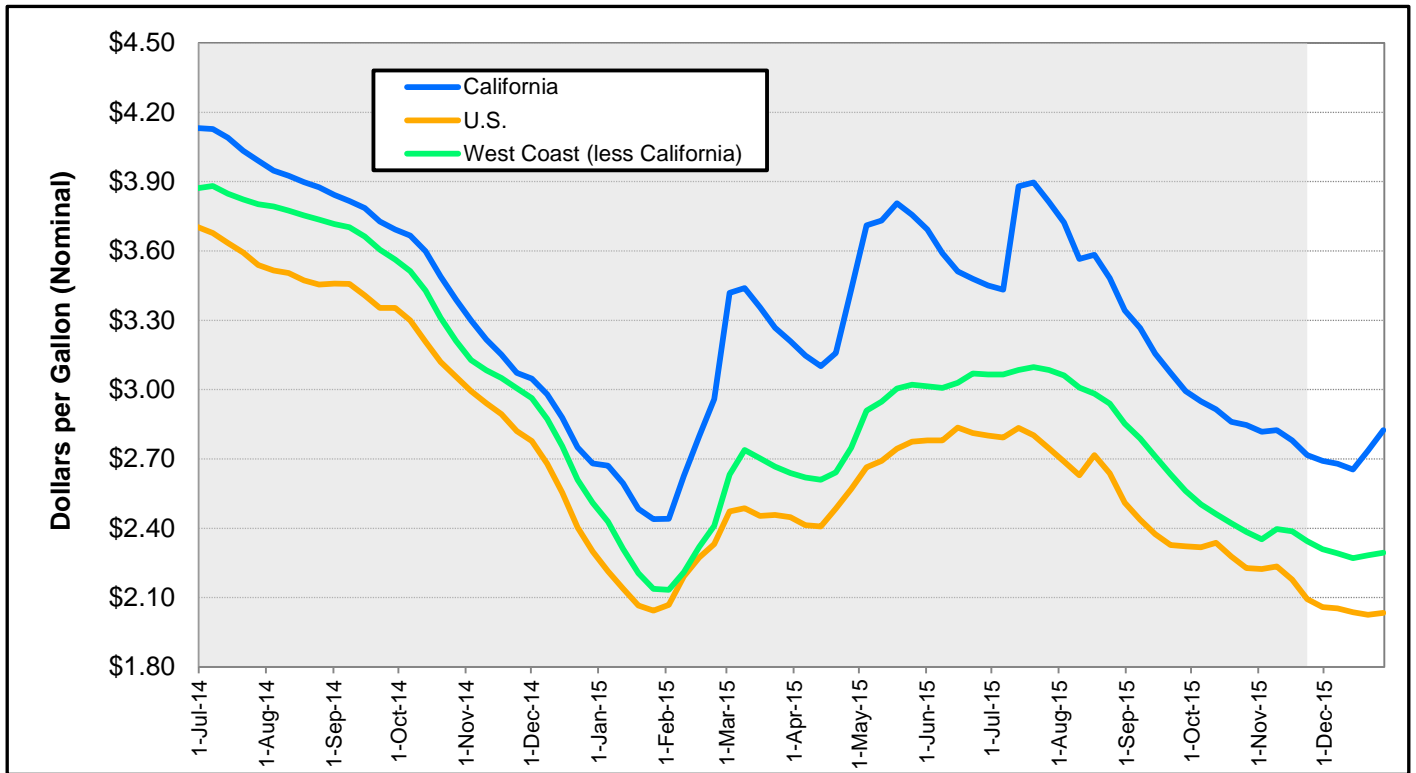


Source: U.S. EIA.

- According to the most recent data from OPEC, Saudi Arabian crude output has fallen slightly for the fourth month in a row, from 10.2 million bpd in October to 10.1 million bpd in November, but Saudi Arabian production remains 5 percent higher than the 2014 average. Total OPEC production, however, increased from 31.5 million bpd to 31.7 million bpd from October to November and is 5 percent higher than the 2014 average.

Gasoline and Diesel Retail Prices

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



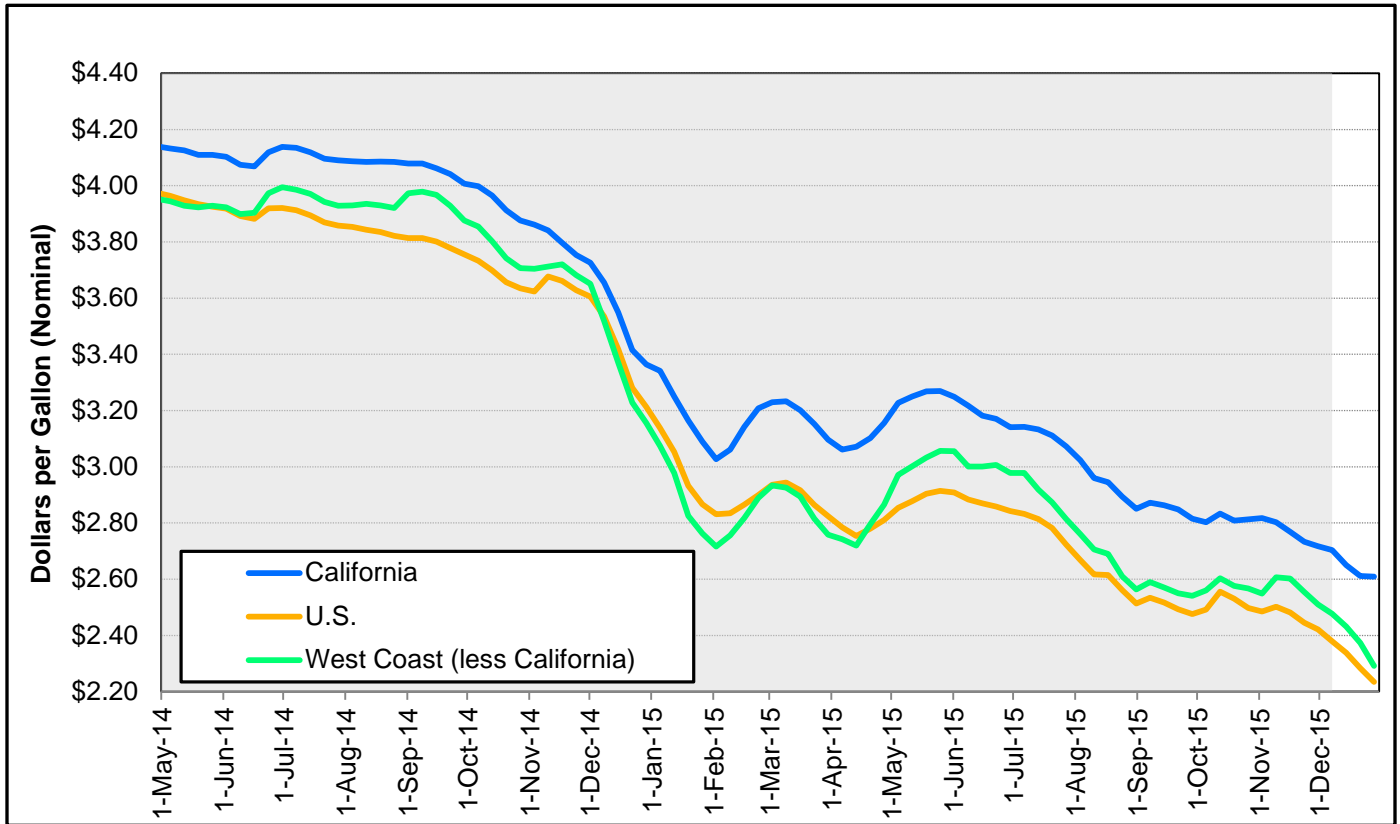
Source: U.S. EIA.

After a steady decline since mid-July, California gasoline prices are climbing back up after reaching a low of \$2.65 during the week of December 14 (Figure 3). This is due to a number of unplanned refinery outages over the past month. (See Refining News, page 1.) West Coast and U.S. gasoline prices are slowly increasing after hitting a low of \$2.28 and \$2.03 during the week of December 21. During the week of December 28, the difference between gasoline prices for California and the United States reached \$0.79, a level not seen since mid-September 2015.

The December 2015 average for California and U.S. gasoline prices reached \$2.72 and \$2.04, respectively. This is \$0.10 and \$0.45 lower than the December 2014 averages. The 2015 average California gasoline price is \$3.17, which is \$0.57 lower than the 2014 average price at \$3.74.

<u>Gasoline Prices</u>	
<u>December 2014 vs 2015</u>	
<u>(Percent Change)</u>	
California	3% lower
U.S.	18% lower
West Coast	15% lower
<u>December 2015 Averages</u>	
California	\$2.72
U.S.	\$2.04
West Coast	\$2.29
<u>Week of December 28, 2015</u>	
California	\$2.83
U.S.	\$2.03
West Coast	\$2.29

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



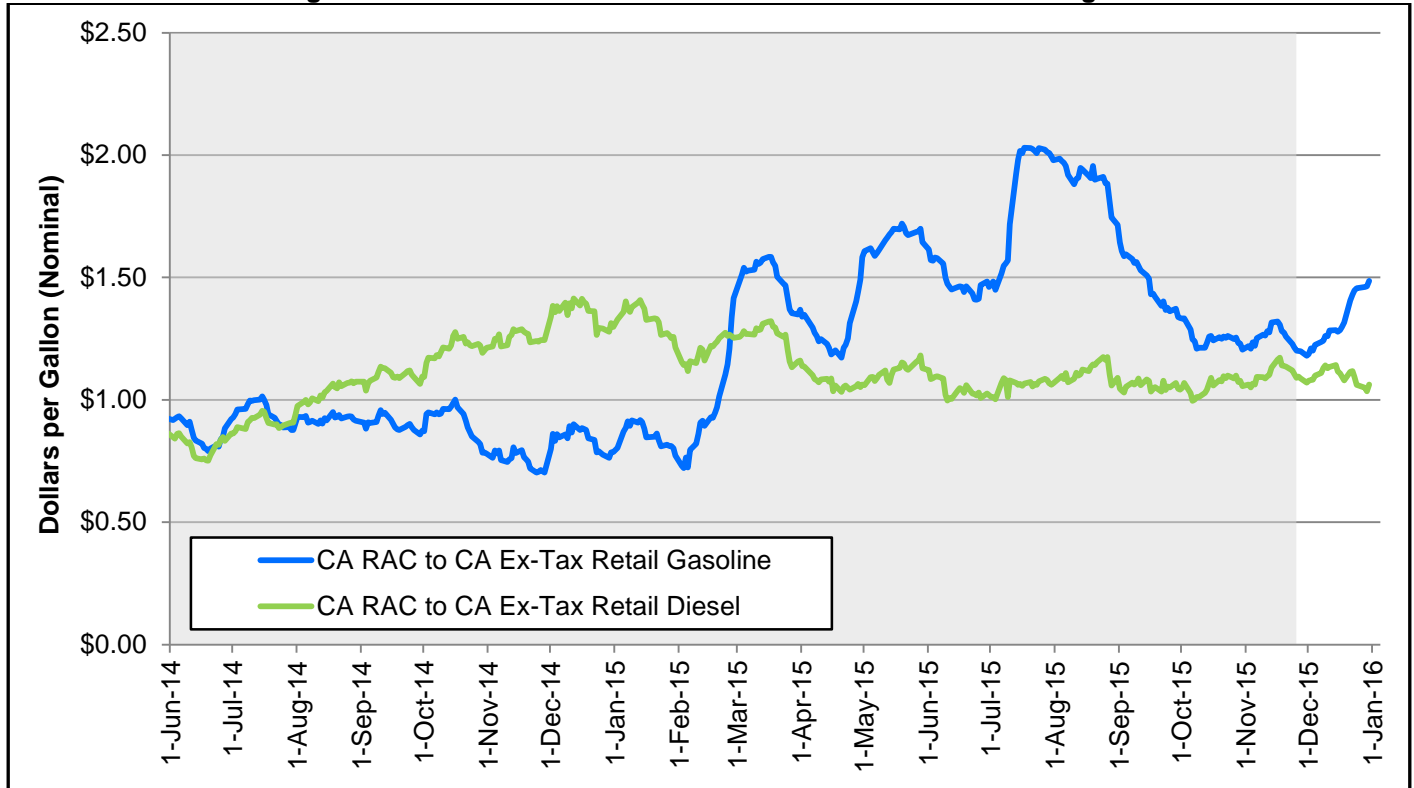
Source: U.S. EIA.

California diesel prices have continued November declines and set a new 2015 low at \$2.61 during the week of December 28 (Figure 4). The rest of the country's diesel prices have steadily decreased to \$2.24 for the United States and \$2.29 for the West Coast in the same week. The 2015 California average diesel price is \$0.99 cents lower than the 2014 average diesel price. Similarly, December U.S. diesel prices remain lower than 2014 prices, by 32 percent.

For the week of December 28, the difference between U.S. and California diesel prices decreased to \$0.37. Average December California diesel prices are \$0.25 more than West Coast prices, which is a \$0.05 increase from the November average. Average December California diesel prices are \$0.33 more than U.S. prices, which is a \$0.12 increase since the November average.

<u>Diesel Prices</u>	
<u>December 2014 vs 2015</u>	
(Percent Change)	
California	25% lower
U.S.	32% lower
West Coast	29% lower
<u>December 2015 Averages</u>	
California	\$2.64
U.S.	\$2.31
West Coast	\$2.40
<u>Week of December 28, 2015</u>	
California	\$2.61
U.S.	\$2.24
West Coast	\$2.29

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



Source: U.S. EIA and OPIS.

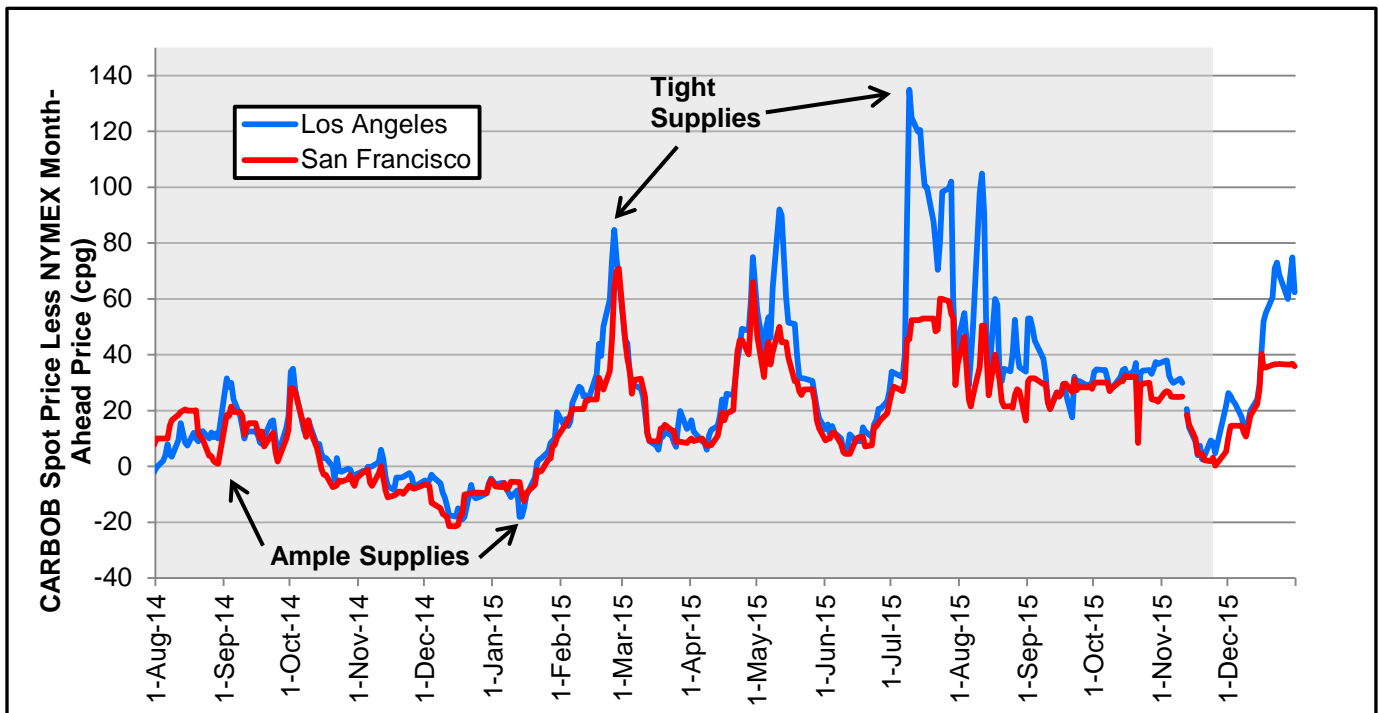
The California Refinery Acquisition Cost (CA-RAC)-to-ex-tax retail gasoline margin³ has risen over the levels seen in November. The November-to-December change for the CA-RAC-to-ex-tax retail margin increased \$0.07 for gasoline but decreased \$0.01 for diesel. For December, the CA-RAC-to-ex-tax average margins are \$1.32 and \$1.10 for gasoline and diesel, respectively (Figure 5).

As the holiday season finishes, demand for both gasoline and diesel will likely decline. Gasoline inventories remained stagnant until the last week of December (see Figure 8), tightening the gasoline margin but leaving the diesel margin alone. Since November 17, the CA RAC-to-ex-tax margins added \$0.18 for gasoline, but subtracted \$0.11 for diesel. The outage at ExxonMobil’s Torrance refinery continues to keep the gasoline margin elevated when compared to the same time last year (\$0.48 more), as the market struggles to find additional supplies of gasoline.

<u>Crude to Retail Margins</u>	
<u>December 2014 vs 2015</u>	
(Percent Change)	
Gasoline	57% higher
Diesel	19% lower
<u>December 2015 Averages</u>	
Gasoline	\$1.32
Diesel	\$1.10
<u>December 30, 2015</u>	
Gasoline	\$1.48
Diesel	\$1.06

³ 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 incremental costs of producing gasoline or diesel. Ex-tax refers to the removal of all 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 spreads experienced an increase in December after decreasing in November (Figure 6). The spread between the Los Angeles (L.A.) spot price and the New York Mercantile Exchange (NYMEX) futures price first fell from \$0.26 on December 1 to \$0.12 on December 9, then it increased from \$0.16 on December 10 to \$0.73 on December 23, and finally it fell from \$0.75 on December 30 to \$0.62 on December 31. The monthly average for L.A. -less NYMEX has increased from \$0.19 in November to \$0.42 in December.

Gasoline prices are typically low during winter time as demand for gasoline has decreased since summer. Ongoing and unplanned refinery outages have kept inventories from returning to normal levels, causing a spike in the spot-futures spread, especially in Southern California.

The spread between the San Francisco (S.F.) spot price and the NYMEX futures price followed the same trend, except the price increases stopped on December 17 and have been flat since then. The spread increased from \$0.10 on December 1 to just \$0.37 on December 24. The monthly average for S.F. less NYMEX increased from \$0.14 for November to \$0.26 for December.

Gasoline Spot-Futures Spread

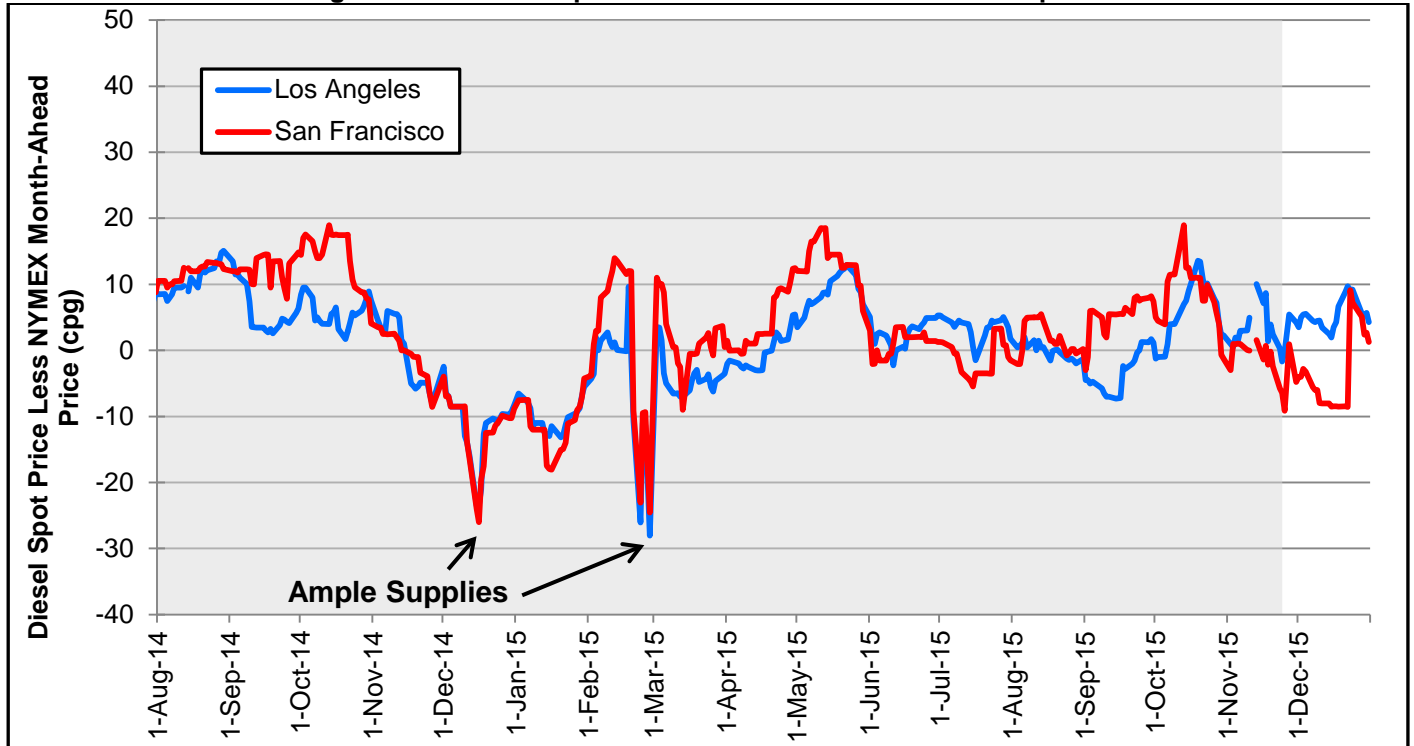
December 2014 vs 2015 (cents)

Los Angeles	52¢ higher
San Francisco	39¢ higher

December 2015 Averages

Los Angeles	42¢
San Francisco	26¢

Figure 7: California Spot Diesel to NYMEX Futures Price Spread



Source: U.S. EIA and OPIS.

California spot diesel spreads showed moderate volatility in December, in comparison to gasoline spot market changes (Figure 7). Starting from a low of -\$0.02 on November 24, the L.A.-less-NYMEX spread steadily widened, reaching a high of \$0.10 on December 22. The SF-less-NYMEX spread started from a low of -\$0.09 on November 25 and almost matched NYMEX prices at \$0.01 on November 27.

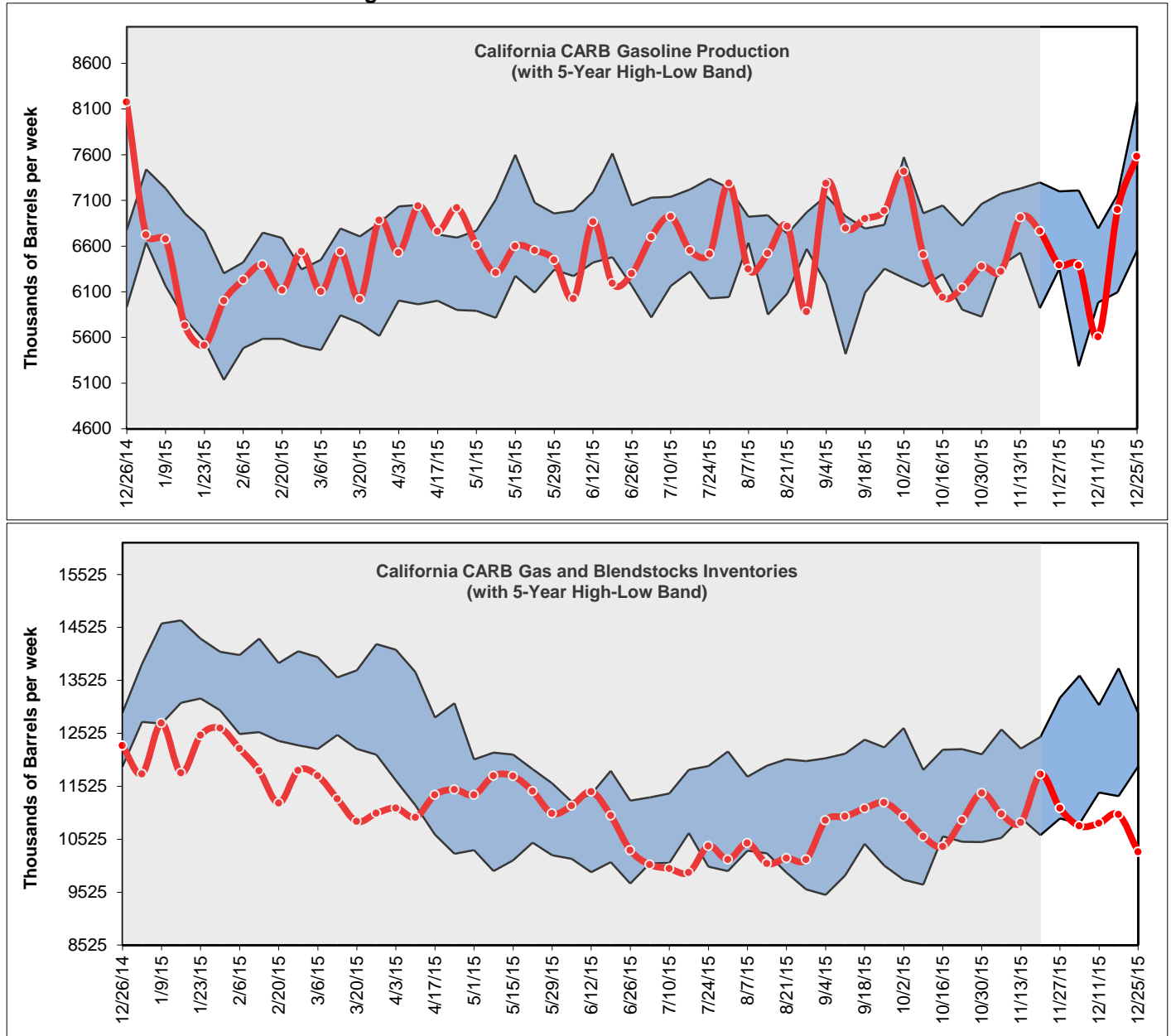
In December, the San Francisco spread showed the opposite trend of the Los Angeles spread, with a steadily widening spread again reaching a low of -\$0.09 on December 22, only to return to the highest spread in December at \$0.09 on December 23. Both spreads have since narrowed.

Apparent low December demand for Northern California diesel fuel drove the S.F.-less-NYMEX differentials to about \$0.10 lower than Los Angeles for the first three weeks.

<u>Diesel Spot-Futures Spread</u>	
<u>December 2014 vs 2015</u>	
(cents)	
Los Angeles	17¢ higher
San Francisco	8¢ higher
<u>December 2015 Averages</u>	
Los Angeles	5¢
San Francisco	-4¢

California Gasoline and Diesel Production and Inventories

Figure 8: Gasoline Production and Inventories

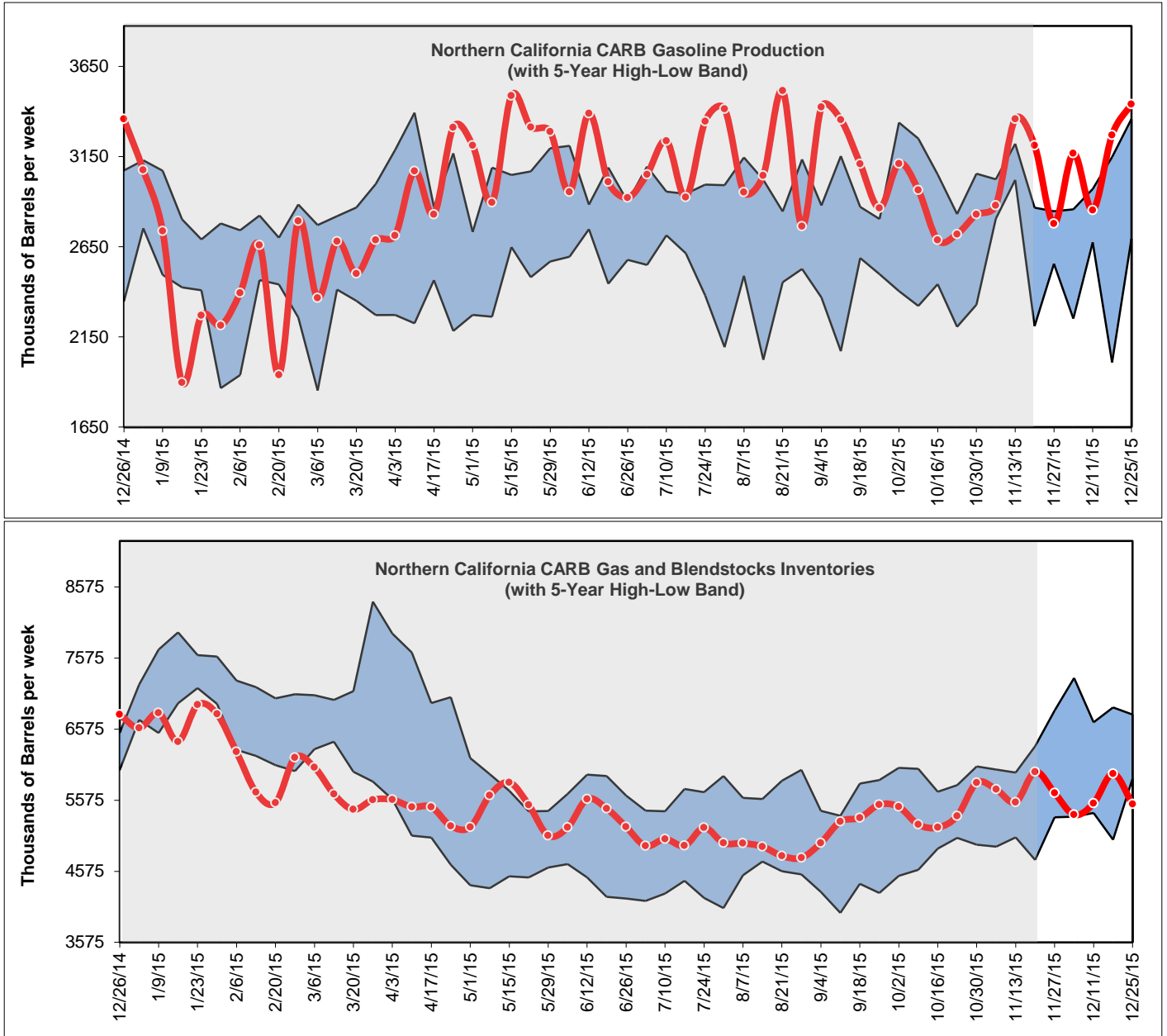


Source: PIIRA data.

Between November 13, 2015, and December 11, 2015, California gasoline production has gone down from 6.91 million barrels to 5.61 million barrels (see **Figure 8**). During those weeks, Tesoro’s refinery in Carson experienced reduced runs due to a bad fluid catalytic cracker (FCC) unit.

From December 11, 2015 to Christmas Day, California’s production of gasoline rose to 7.58 million barrels per week. This is the highest gasoline production for all of 2015. Despite the high production in gasoline, California CARB gasoline and blendstock inventories are down and below the five-year high-low band, reaching 11.23 million barrels on December 25. This level was 1.48 million barrels below the previous five-year-low mark for this period.

Figure 9: Northern California Gasoline Production and Inventories

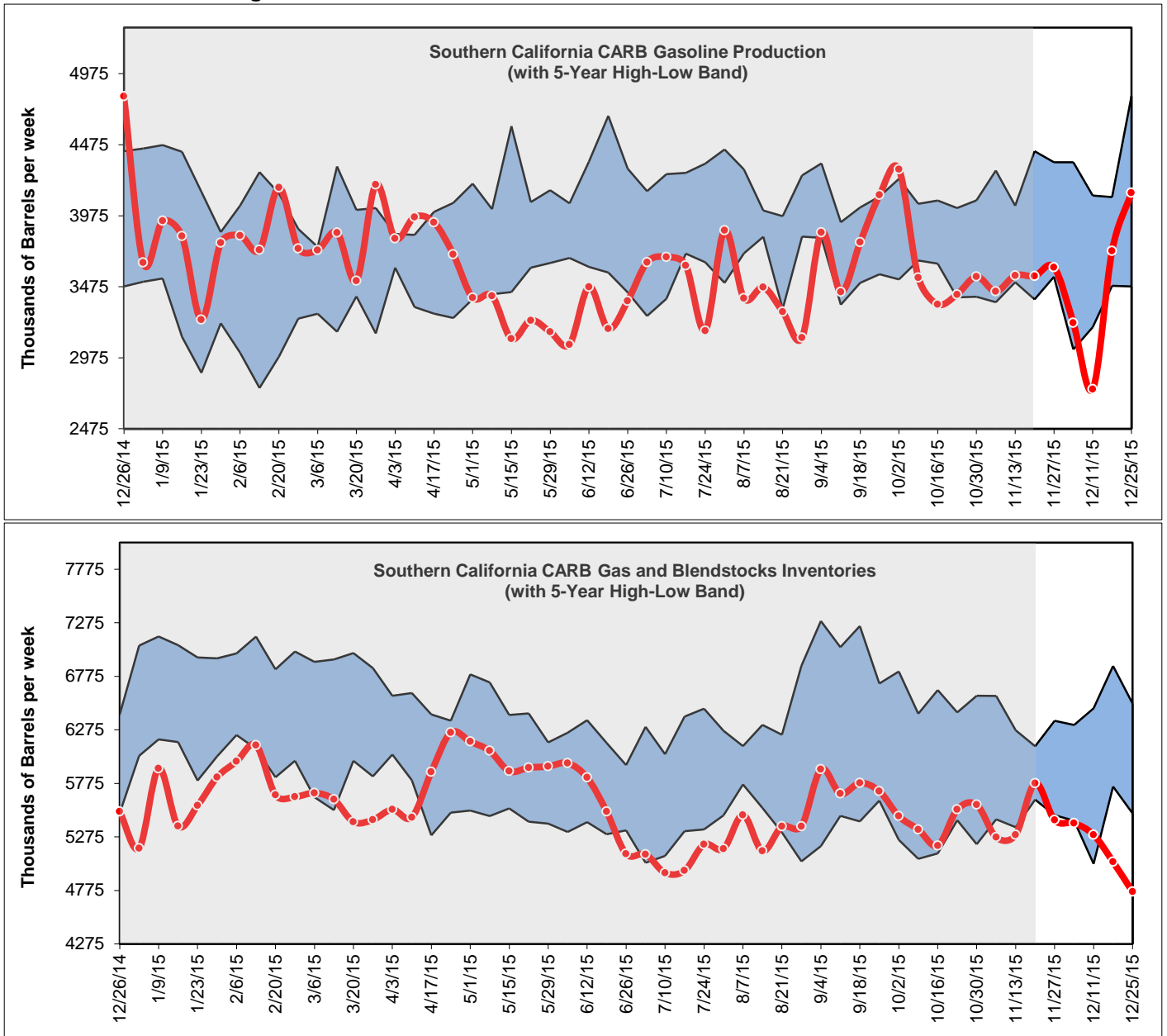


Source: PIIRA data.

Northern California gasoline production has been averaging 2.94 million barrels per week for 2015. Production ended the year at 3.44 million barrels compared to 3.36 million barrels from the same time last year, just 80,000 barrels per week more than last year. (See Figure 9.)

Inventories have been within the five-year band until December 25, 2015, when inventories dropped to 5.52 million barrels and out of the five-year high-low band. This apparent Northern California tightening in gasoline markets, along with abnormally low Southern California inventory figures, are likely increasing spot and retail prices throughout California.

Figure 10: Southern California Gasoline Production and Inventories

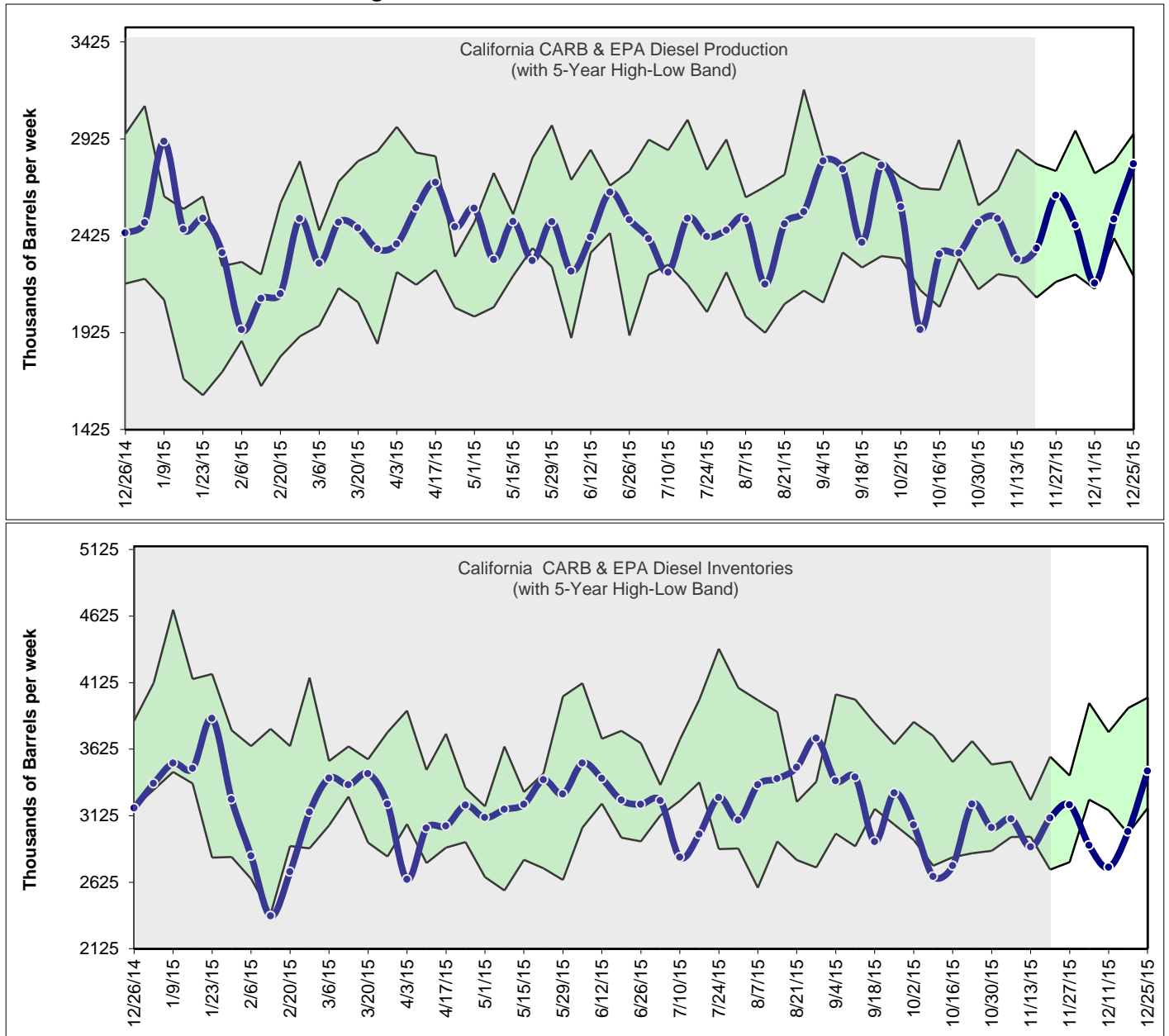


Source: PIIRA data.

On December 11, 2015, Southern California gasoline production marked a new 2015 low at 2.75 million barrels. Two weeks earlier, Tesoro’s Carson refinery shut down an FCC unit and Tesoro’s Wilmington refinery also experienced an unplanned FCC outage. Southern California production did manage to recover to 4.1 million barrels on Christmas Day.

Meanwhile, inventories in Southern California have been down and below the five-year band. Inventories have decreased to a low for the year at 4.76 million barrels. (See Figure 10.) On December 25, 2015, inventories reached a new five-year low at 4.76 million barrels, 0.73 million barrels below the previous low for this period.

Figure 11: Diesel Production and Inventories



Source: PIIRA data.

The week ending December 25, 2015, diesel production reached 2.79 million barrels. It has not been this high since September 4, 2015, at 2.81 million barrels (see Figure 11). With refinery issues affecting gasoline production units during the month of December, diesel production remained high and within the five-year band.

Although diesel inventories dropped below the five-year band after two California refinery outages at the beginning of December, two weeks later, inventories increased to 3.46 million barrels and reentered the five-year band.