



PETROLEUM WATCH

California Energy Commission

October 2018

Recent Petroleum News

Prices

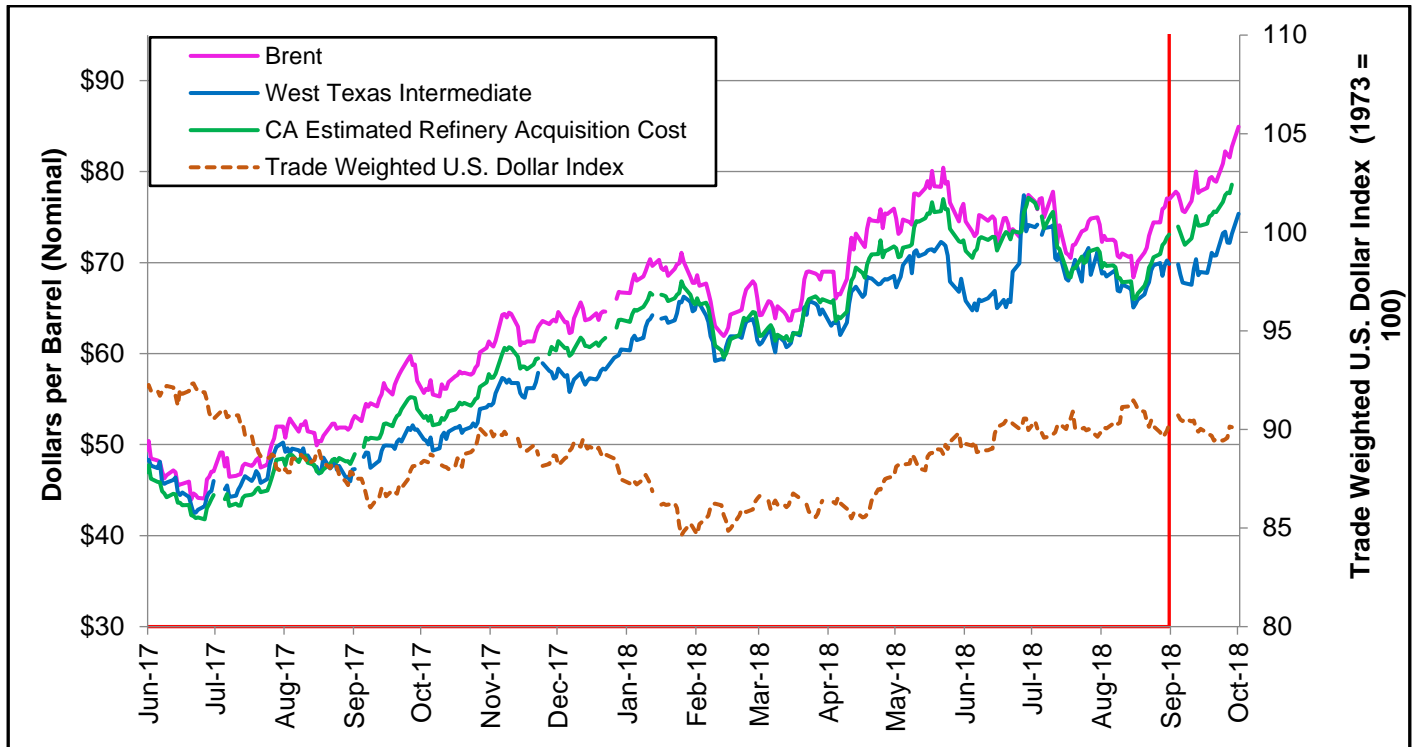
- **Crude Oil Prices:** On September 28, Brent and West Texas Intermediate (WTI) crude prices closed at \$82.72 and \$73.16, respectively ([page 2](#)).
- **California Retail Gasoline Prices:** On October 1, prices reached \$3.62, an increase of \$0.12 since the end of August. Through September, California prices averaged \$0.67 higher than the national average ([page 4](#)).
- **California Retail Diesel Prices:** On October 1, prices reached \$4.04. This was an increase of \$0.08 from the end of August. Through September, California prices averaged \$0.71 higher than the national average ([page 5](#)).

Refining News

- **Chevron El Segundo:** On September 17, the refinery shutdown a fluid catalytic cracker and alkylation unit for unplanned maintenance. Maintenance was completed on September 24.
- **Chevron Richmond:** On September 21, the refinery began a 45-day planned maintenance on its hydrocracker. Planned maintenance on the Rheniformer began on September 22.
- **Phillips 66 Wilmington:** On September 25, the refinery shut down a delayed coker unit for unplanned repairs. The unit was restarted on September 27.
- **Marathon Petroleum Corporation:** On October 1, Marathon completed its acquisition of Andeavor, which includes control of three California refineries. Marathon is now the largest refiner in the United States and boasts a refining capacity 3 million barrels per day.

Crude Oil Prices

Figure 1: Daily West Coast Spot Crude Oil Prices



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

Crude oil spot prices increased to the highest levels seen to date for 2018. These spot price increases followed a short dip seen at the start of September (**Figure 1**). Brent, WTI, and California Estimated Refinery Acquisition Cost (CA-RAC) closed at \$77.51, \$69.82, \$73.73, respectively on September 4.¹ Brent and CA-RAC spot prices hit a September low on September 7 at \$75.55 and \$71.72, while WTI bottomed out at \$67.55 on September 8. Crude oil spot prices increased rapidly after September 8, with all prices increasing during a 9-day trading streak from September 14 to 26. By September 28 Brent increased 9.4 percent, WTI increased 8.3 percent, and CA-RAC increased 9.1 percent from the September low.

The difference between WTI and Brent continues to widen. The Brent-minus-WTI differential averaged \$3.14 in July 2018, increased to \$4.47 in August 2018 and nearly averaged double to \$8.72 in September. The initial increase, \$1.40 on September 10, coincides with the emergency preparations for the landfall of Hurricane Florence in South Carolina.² But the persistence of the differential might be sustained by fear of pinched crude supply due to Iran's trade sanctions.

<u>Crude Oil Prices</u>	
<u>September 2018 vs 2017</u>	
<u>(Percent Change)</u>	
Brent	40% higher
WTI	41% higher
CA-RAC	43% higher
<u>September 2018 Averages</u>	
Brent	\$78.89
WTI	\$70.23
CA-RAC	\$74.76
<u>September 28, 2018</u>	
Brent	\$82.72
WTI	\$73.16
CA-RAC	\$78.30

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

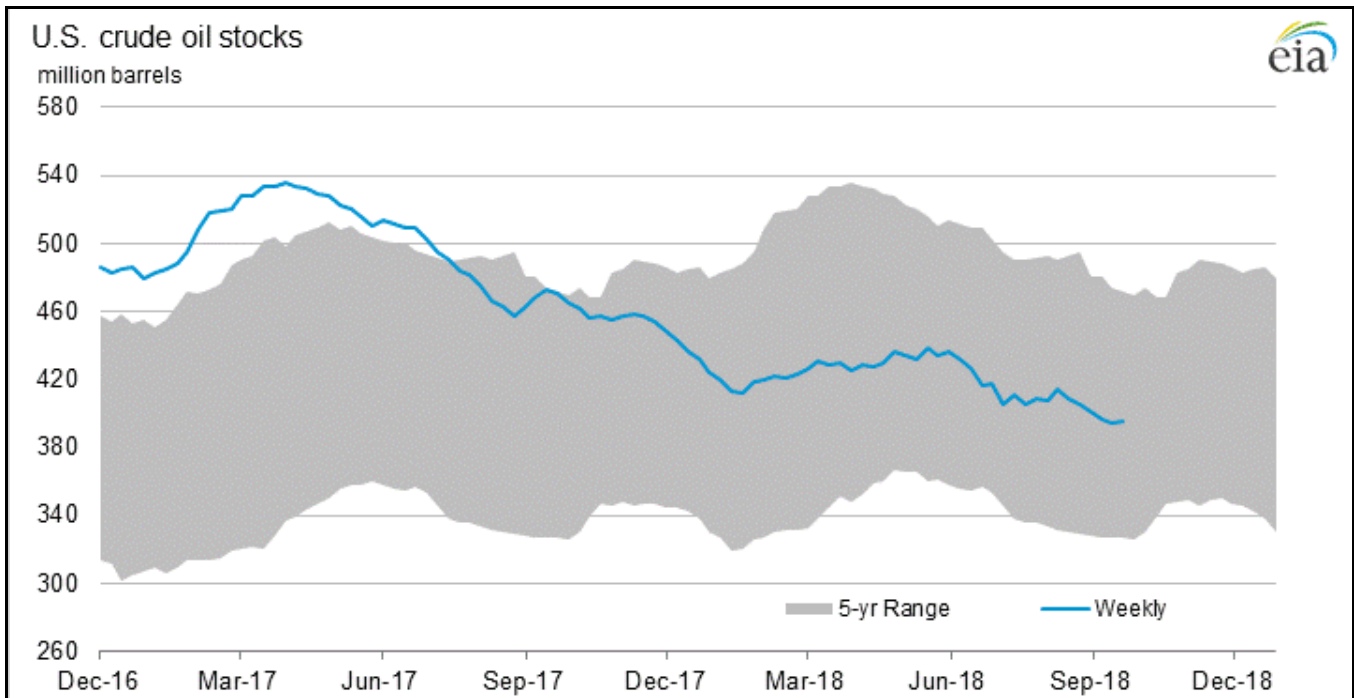
² *Five Factors to watch as Brent oil hits \$80 a barrel*, Financial Times, September 13, 2018: <https://www.ft.com/content/04dcd90e-b66e-11e8-bbc3-ccd7de085ffe>

Crude Oil Production and Storage

September U.S. crude oil production and inventories increased over August 2018 averages. Refinery input levels fell, while imports decreased slightly (Figure 2).

- U.S. crude oil production for September averaged 11.02 million barrels per day (bpd). This is 50,000 bpd higher than August’s average of 10.97 million bpd. This is a 1.5 million bpd increase from September 2017, when production was 9.5 million bpd.
- Crude oil imports decreased from August by 87,000 bpd to 7.85 million bpd in September. Compared to import levels from September 2017 this is an increase of 724,000 bpd.
- U.S. crude oil refinery inputs decreased by 678,000 bpd since August, finishing September at a four-week average of 17.1 million bpd. Refinery inputs are 1.73 million bpd higher than a year ago.
- Average U.S. crude oil inventory levels in September slightly decreased from August to 404.0 million barrels from 407.3 million barrels. Current inventories are 61 million barrels lower than one year ago.

Figure 2: U.S. Crude Oil Inventories



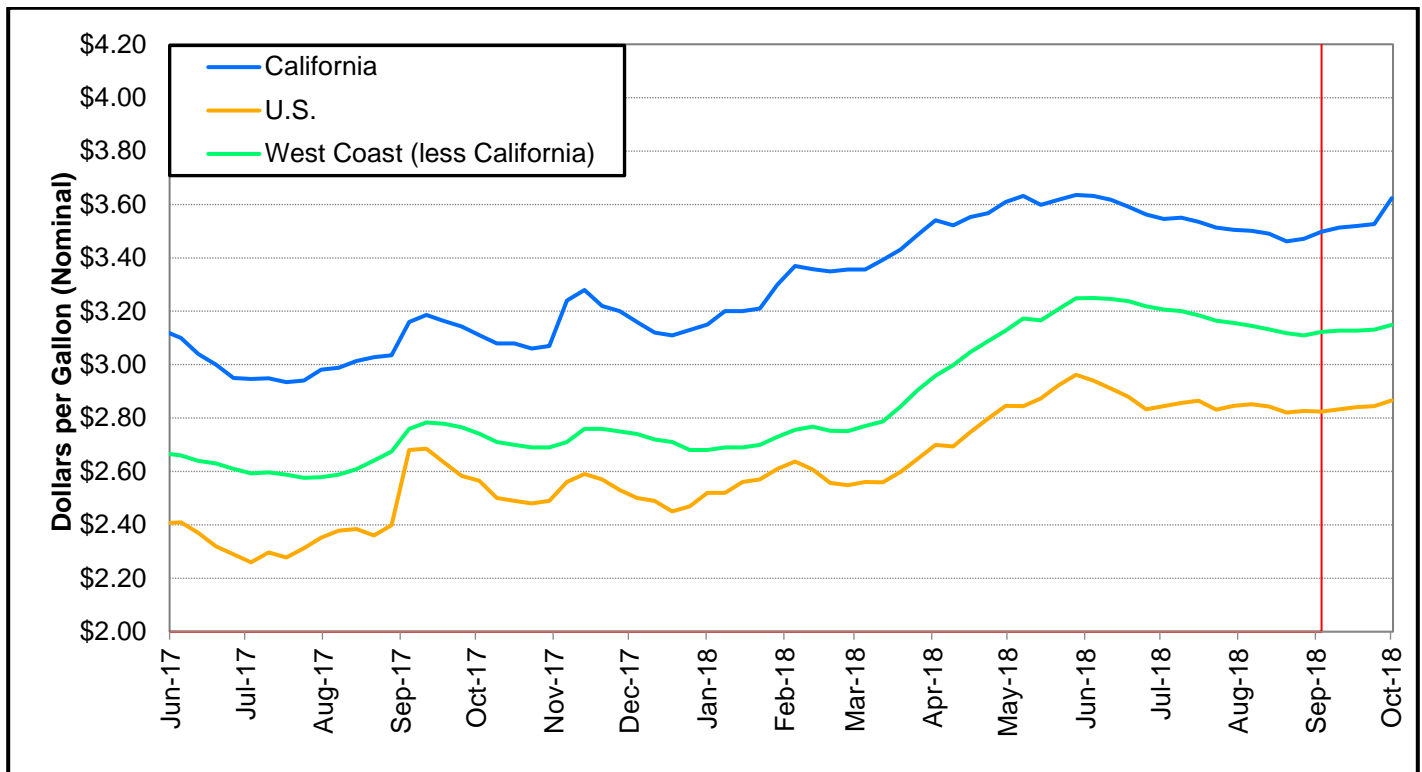
Source: U.S. Energy Information Administration

According to the Organization of Petroleum Exporting Countries’ (OPEC) September *Monthly Oil Market Report*, total August OPEC production increased by 278,000 bpd to 32.56 million bpd.³ OPEC’s crude oil demand growth forecast for the rest of 2018 has been revised down 40,000 bpd to 1.62 million bpd, with total oil demand at 98.82 million bpd.

³ OPEC September *Monthly Oil Market Report*, page iii, page 57: http://www.opec.org/opec_web/en/publications/338.htm.

Gasoline and Diesel Retail Prices

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



Source: U.S. Energy Information Administration

September average gasoline prices have slightly increased in California and the United States while remaining unchanged in the West Coast (less CA). California increased \$0.02 to \$3.51 from \$3.49 since August. The United States is up \$0.01 from August to \$2.84 and the West Coast stayed at \$3.13, presenting a month of calm activity. The only deviation was a sudden price increase the week ending on October 1. California gasoline retail prices rose \$0.09 from \$3.53 on September 24 to \$3.62 on October 1, far surpassing the \$0.02 increase in the rest of the West Coast and the \$0.03 increase in the United States. California retail prices have not seen a rise this substantial since January 2018.

A considerable upsurge was seen in crude oil prices during September (Figure 1). But without an equivalent nationwide gasoline price increase it can be concluded that crude oil prices are not the cause of California's upturn. For the week of September 21 there was a notable drawdown of Southern California inventories.⁴ Low gasoline inventory levels signify weak supply creating upward pressure on gasoline retail prices. If refineries persist with low inventory levels, then California prices will remain higher than the rest of the United States.

Gasoline Prices

September 2018 vs 2017 (Percent Change)

California	11% higher
U.S.	7% higher
West Coast	13% higher

September 2018 Averages

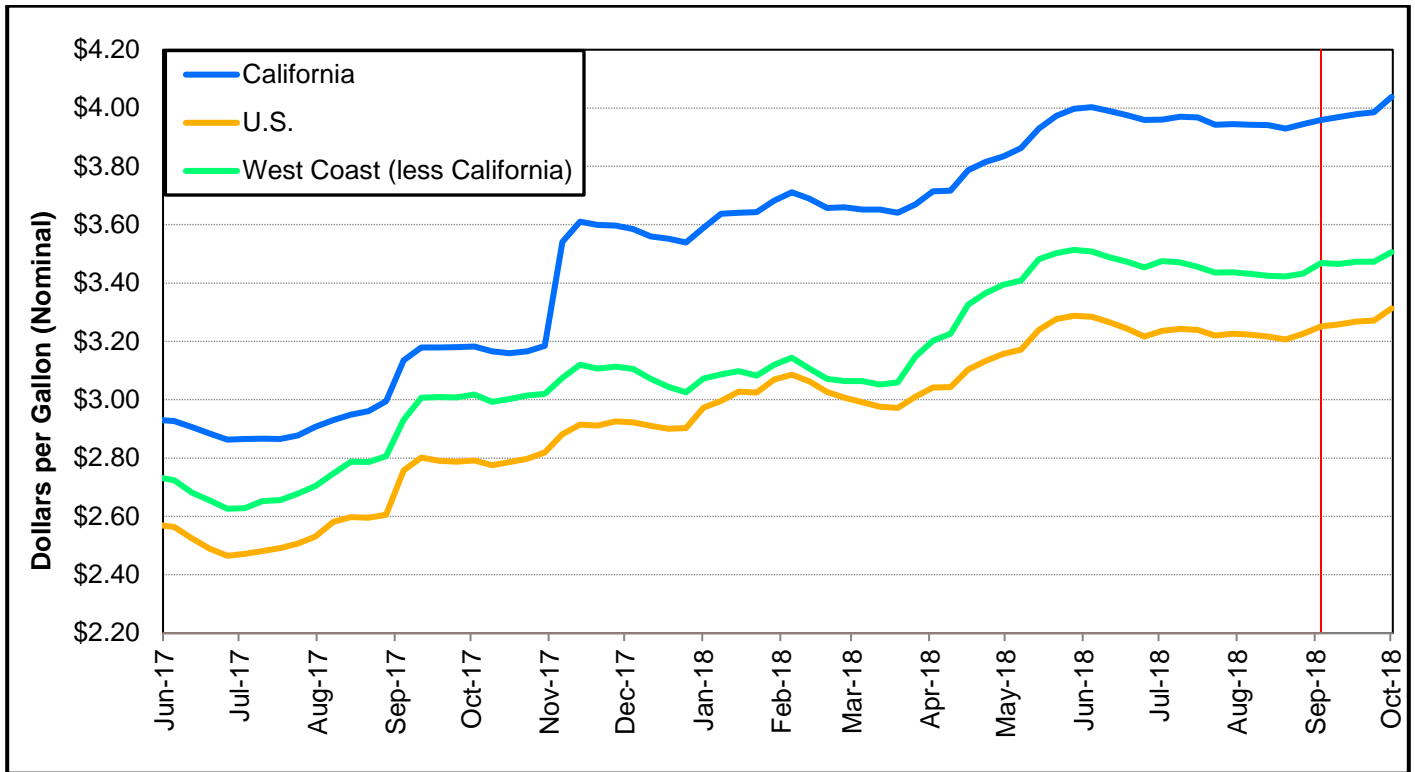
California	\$3.51
U.S.	\$2.84
West Coast	\$3.13

Week of October 1, 2018

California	\$3.62
U.S.	\$2.87
West Coast	\$3.15

⁴ California Energy Commission. September 28, 2018. "Weekly Fuels Watch Report.": http://www.energy.ca.gov/almanac/petroleum_data/fuels_watch/output.php.

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



Source: U.S. Energy Information Administration

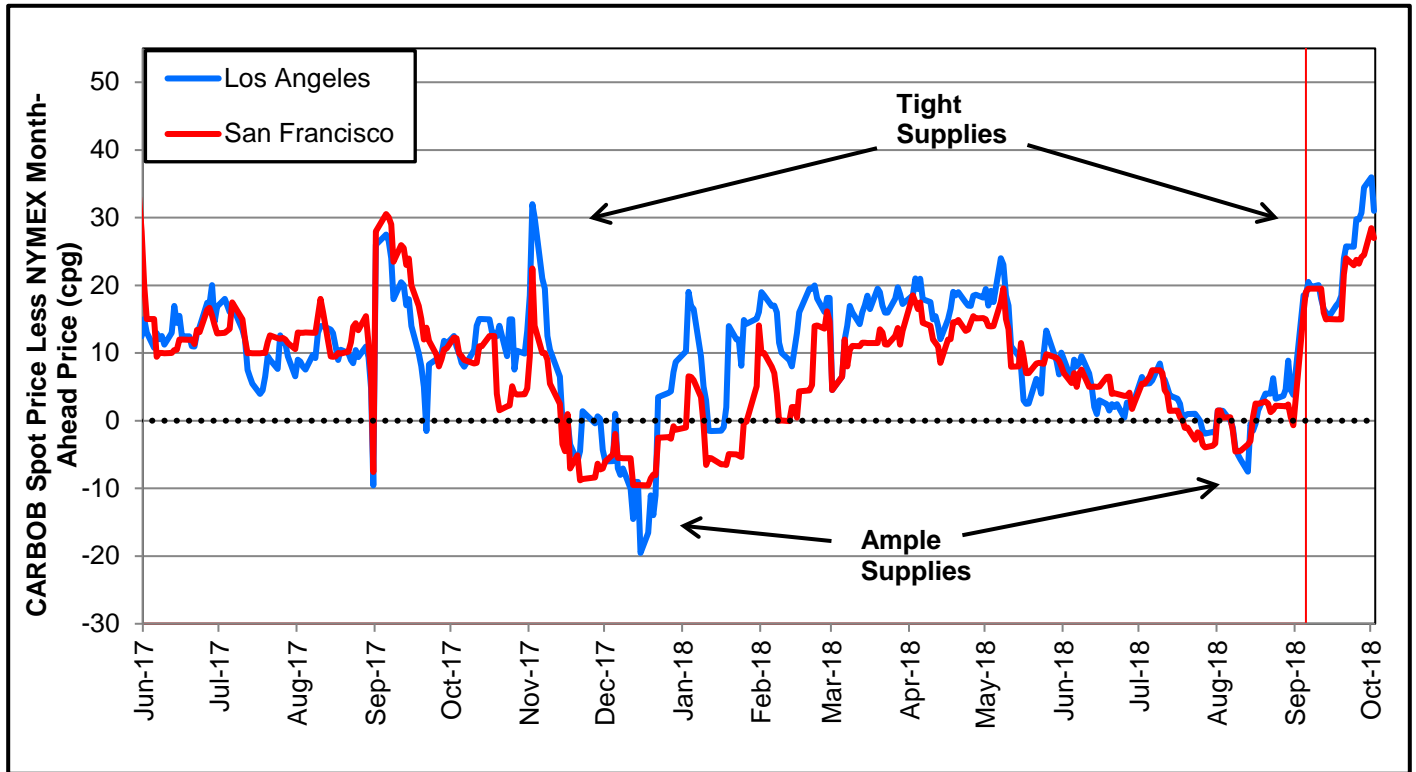
Retail diesel prices throughout the United States rose slightly during September (Figure 4). The September average price in California increased to \$3.97, up \$0.03 from August’s average of \$3.94. The United States and West Coast (less California) averages each increased \$0.04 to \$3.26 and \$3.47, respectively. On October 1, the price of diesel in California was \$4.04 (sidebar). This is the highest price seen since September 2014.

The higher prices are likely related to changes in crude oil prices and inventories. Crude oil prices have been on the rise since mid-August, with an upsurge in September (Figure 1). Crude oil inventories have been declining since July. Diesel prices were flat in August and may not have reflected the increased price and decreased supply of crude oil.

<u>Diesel Prices</u>	
<u>September 2018 vs 2017</u>	
<u>(Percent Change)</u>	
California	25% higher
U.S.	17% higher
West Coast	16% higher
<u>September 2018 Averages</u>	
California	\$3.97
U.S.	\$3.26
West Coast	\$3.47
<u>Week of October 1, 2018</u>	
California	\$4.04
U.S.	\$3.31
West Coast	\$3.51

Gasoline and Diesel Spot Markets

Figure 5: California Spot Gasoline to NYMEX Futures Price Spread



Source: U.S. Energy Information Administration and OPIIS

The Los Angeles (LA) and San Francisco (SF) gasoline spot less New York Mercantile Exchange (NYMEX) futures spreads in September were the highest year-to-date at \$0.22 and \$0.19, respectively (Figure 5). The LA spread was \$0.19 on September 4 and increased \$0.15 to \$0.34 on September 28 and decreased \$0.03 to \$0.31 on October 2. The SF spread also increased \$0.08 from \$0.16 to \$0.24 from September 4 to September 28 and continued to increase to \$0.27 on October 2. On October 1, both spreads set new year-to-date highs of \$0.36 for the LA spread and \$0.28 for the SF spread.

California gasoline inventory decreased during September and fell within the five-year band on September 21 before increasing back above the band the next week (Figure 6). The decrease in gasoline supplies this month resulted in a low of 11.4 million of barrels on September 21. This is the lowest inventory recorded since November 3, 2017. On September 14, both LA and SF spreads were \$0.15 each. After two southern refineries, Chevron El Segundo and Phillips Wilmington, needed unplanned maintenance on September 17 and September 28 (Page 1), respectively, the LA spot price increased much higher than the SF spot price. The LA-less-SF price increased to \$0.03 on September 18 after Chevron reported unplanned maintenance and increased to \$0.07 on September 27. The LA-less-SF price continued to increase to \$0.10 on the day Phillips reported unplanned maintenance. As a result, the LA increased from \$0.15 to \$0.36 and SF increased from \$0.15 to \$0.28 from September 14 to October 1.

Gasoline Spot-Futures Spread

September 2018 vs 2017

Los Angeles	7¢ Higher
San Francisco	1¢ Higher

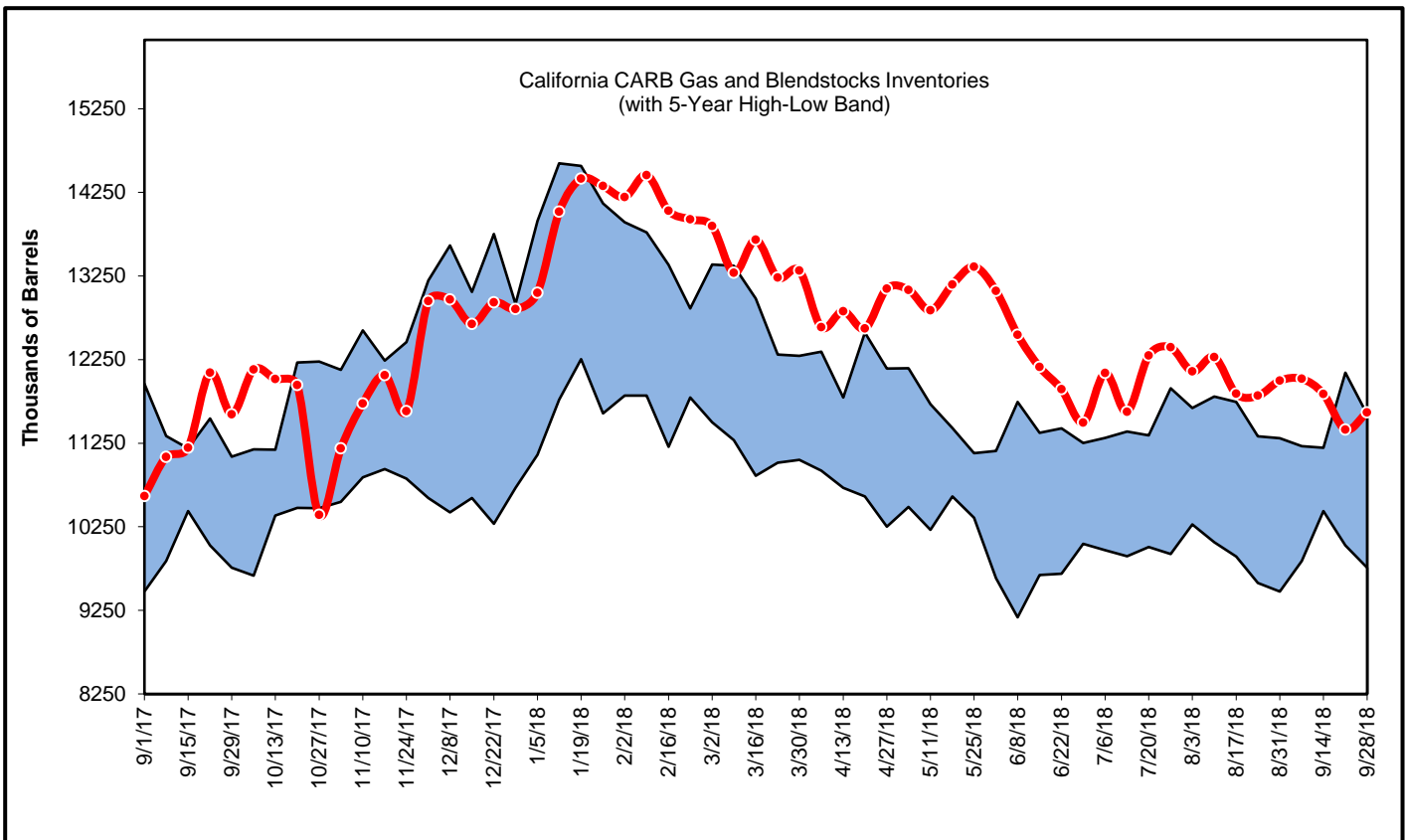
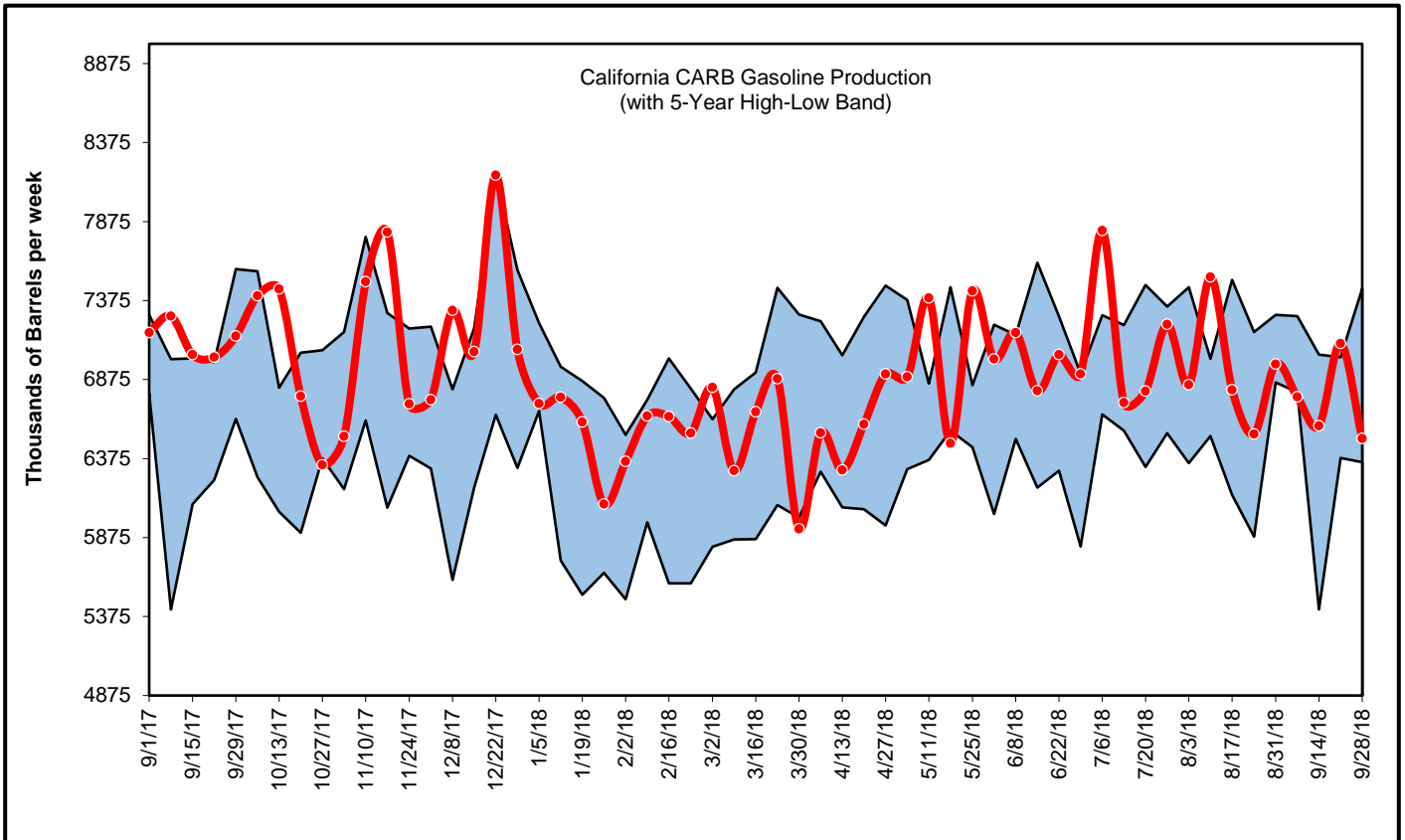
September 2018 Averages

Los Angeles	22¢
San Francisco	19¢

September 28, 2018

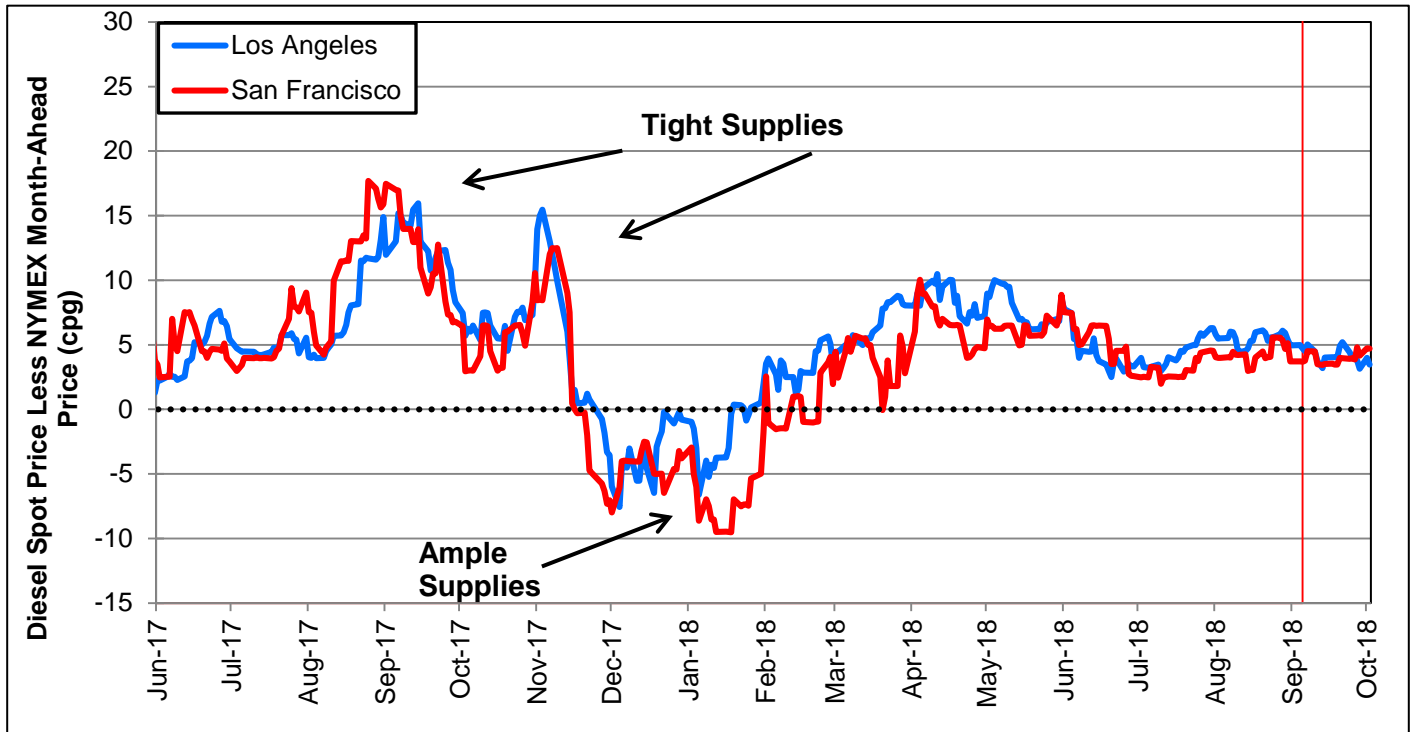
Los Angeles	34¢
San Francisco	24¢

Figure 6: Gasoline Production and Inventories



Source: California Energy Commission PIIRA data

Figure 7: California Spot Diesel to NYMEX Futures Price Spread



Source: U.S. Energy Information Administration and OPIIS

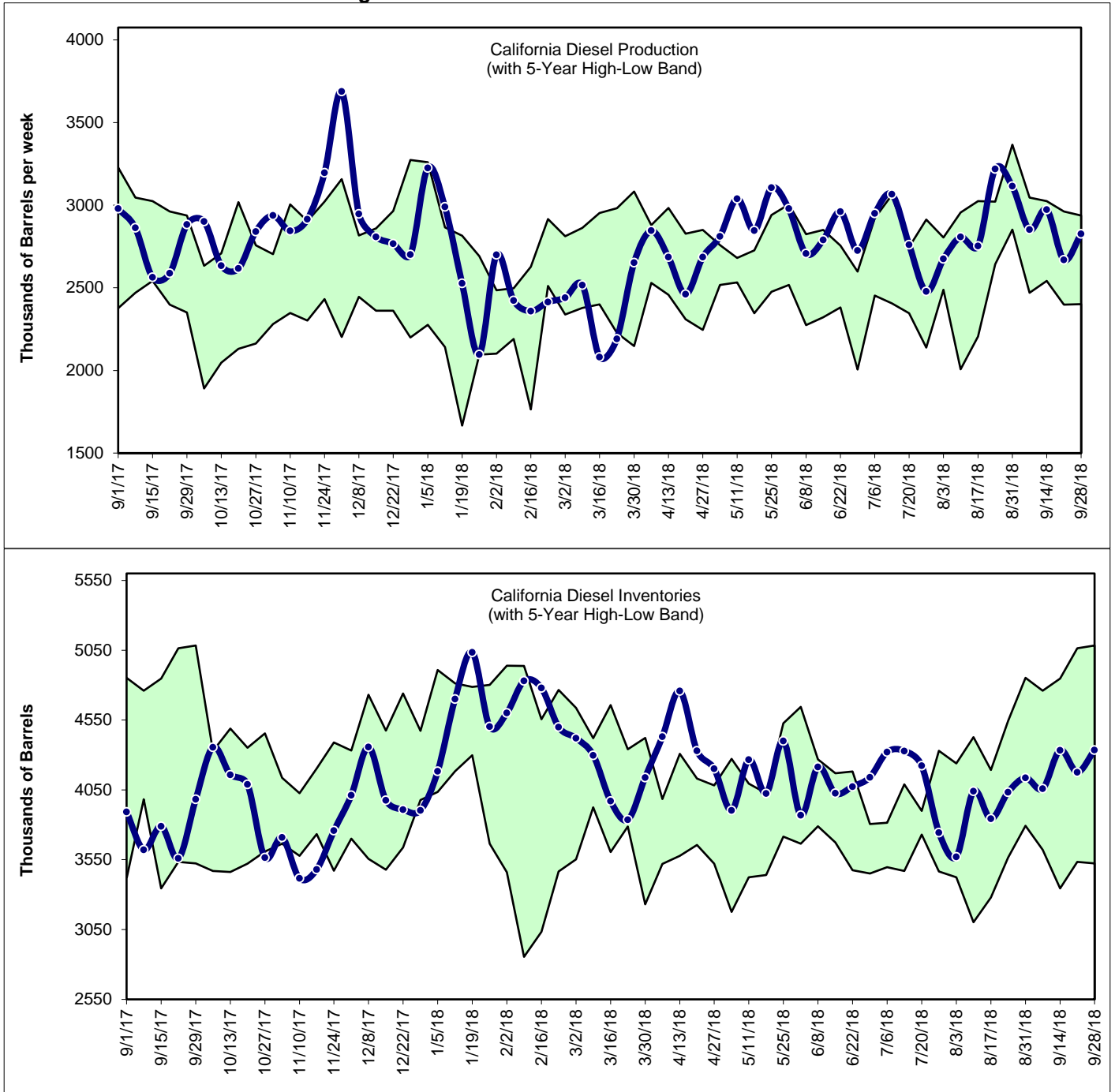
The LA and SF diesel differential spot price converged in September moving very little throughout the month. The LA and SF differential started at \$0.05 and \$0.04 on September 1 and converged on September 7 at \$0.05. The LA and SF differential splits on September 18 with LA and SF at \$0.04 and \$0.03, respectively, and briefly converged again on September 25 at \$0.04. The LA and SF differential ended September at \$0.03 and \$0.04 with both differentials averaging \$0.04 (sidebar).

Diesel production remained strong in September starting within the five-year band, averaging 2.8 million barrels per week (bpw). This is an increase of 100,000 (bpw) compared to last year. Inventory continued to increase adding 200,000 barrels, ending September at 4.3 million barrels compared to last month.

September continues an interesting trend of stability in the LA and SF differential. For the past five years, the LA and SF differential in September had a price range of \$0.05 making this year an outlier moving only \$0.02. The loss of volatility can be contributed to high production and inventory (Figure 7) keeping up with market demand which has kept a ceiling on the LA and SF differential.

<u>Diesel Spot-Futures Spread</u>	
<u>September 2018 vs 2017</u>	
Los Angeles	9¢ lower
San Francisco	8¢ lower
<u>July 2018 Averages</u>	
Los Angeles	4¢
San Francisco	4¢
<u>July 31, 2018</u>	
Los Angeles	3¢
San Francisco	4¢

Figure 8: Diesel Production and Inventories



Source: California Energy Commission PIIRA data