

PETROLEUM WATCH

CALIFORNIA ENERGY COMMISSION

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PETROLEUM NEWS

PRICES

- **Crude Oil Prices:** On December 28, Brent and West Texas Intermediate (WTI) crude prices closed at \$54.06 and \$46.31, respectively (**page 2**).
- **California Retail Gasoline Prices:** On December 31, prices reached \$3.22, a decrease of \$0.26 since the end of November. Through December, California prices averaged \$0.93 higher than the national average (**page 4**).
- **California Retail Diesel Prices:** On December 31, prices reached \$3.81. This was a decrease of \$0.15 from the end of November. Through December, California prices averaged \$0.73 higher than the national average (**page 5**).

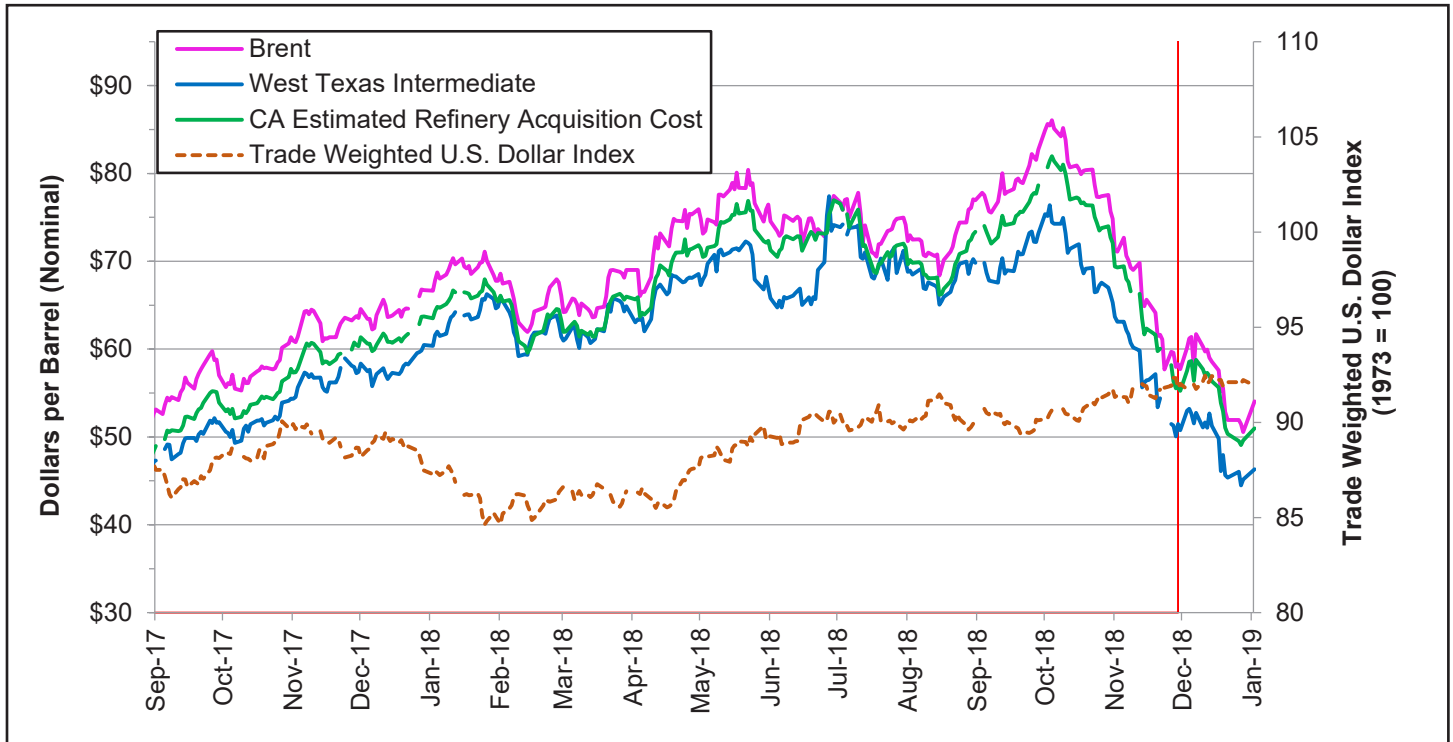
REFINING NEWS

- **Phillips 66 Wilmington:** On December 16, the refinery shut down the distillate hydrocracker unit because of mechanical issues. The unit was back online December 23.



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 PRICES

December 2018 vs 2017

(Percent Change)

Brent 11% lower

WTI 14% lower

CA-RAC 11% lower

December 2018 Averages

Brent \$57.06

WTI \$49.52

CA-RAC \$54.85

December 28, 2018

Brent \$54.06

WTI \$46.31

CA-RAC \$50.97

Continuing worries of an economic slowdown brought crude oil spot prices to the lowest levels seen since September 2017 (**Figure 1**). Since the previous *Petroleum Watch*, spot prices for all grades saw a slight recovery followed by further decline. On December 4, WTI reached a monthly high of \$53.21. On December 7, Brent reached a monthly high of \$61.71 and California Estimated Refinery Acquisition Costs (CA-RAC) reached \$58.78.¹ Crude oil spot prices declined the rest of December (**sidebar**).

The difference of Brent-minus-WTI was variable and unsteady throughout December. The differences ranged from a low of \$5.42 to a high of \$9.22. The average difference for the month fell from \$8.32 in November to \$7.54

in December. The variance in difference indicates the uncertainty between the international economic outlook and the economic outlook for the United States.

While discussion on raising U.S. trade barriers with China and economic sanctions against Iran has calmed down, China has refused to import crude oil from the U.S.² Losing such a large buyer will likely lower the price for WTI while increasing the Brent price. If this trend continues then the spread between WTI and Brent will widen.

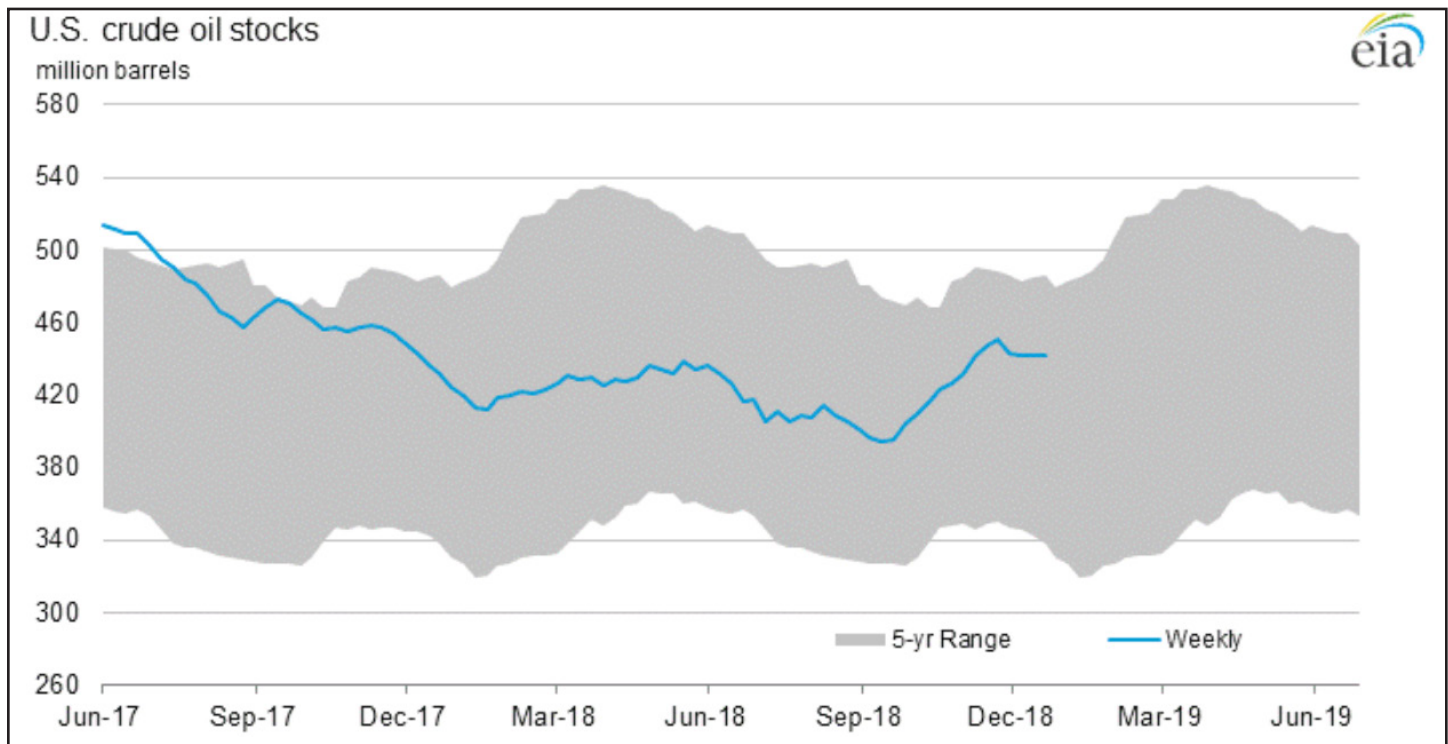
Demand indicators still show increasing demand (**page 3**), but fear of a global economic slowdown overshadowed any news that strengthened prices. Crude oil spot prices will continue to fluctuate as long as uncertainty over global trade and politics remains.

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

² "Crude refusal: China shuns U.S. oil despite trade war truce," Reuters, December 20, 2018 <https://www.reuters.com/article/us-usa-trade-china-oil/crude-refusal-china-shuns-u-s-oil-despite-trade-war-truce-idUSKCN10K0FG>.

CRUDE OIL PRODUCTION & STORAGE

Figure 2: U.S. Crude Oil Inventories



Source: U.S. Energy Information Administration

- U.S. crude oil production for December averaged 11.65 million barrels per day (bpd). This amount is 50,000 bpd lower than November's four-week average of 11.70 million bpd. This is a 1.88 million bpd increase from December 2017, when production averaged 9.77 million bpd.
- Crude oil imports increased in December by 13,000 bpd to 7.46 million bpd over November. Compared to December 2017 imports, this is a decrease of 323,000 bpd.
- U.S. crude oil refinery inputs increased by 407,000 bpd since November, finishing December at a four-week average of 17.48 million bpd. Refinery inputs are 234,000 bpd higher than a year ago.

- Average U.S. crude oil inventory in December slightly decreased from November to 441 million barrels from 443 million barrels. Current inventories are 16.9 million barrels higher than a year ago.
- According to OPEC's December *Monthly Oil Market Report*, total November OPEC production decreased by 11,000 bpd to 32.9 million bpd.³ OPEC forecasts global crude oil demand at 100.06 million bpd for 2019.

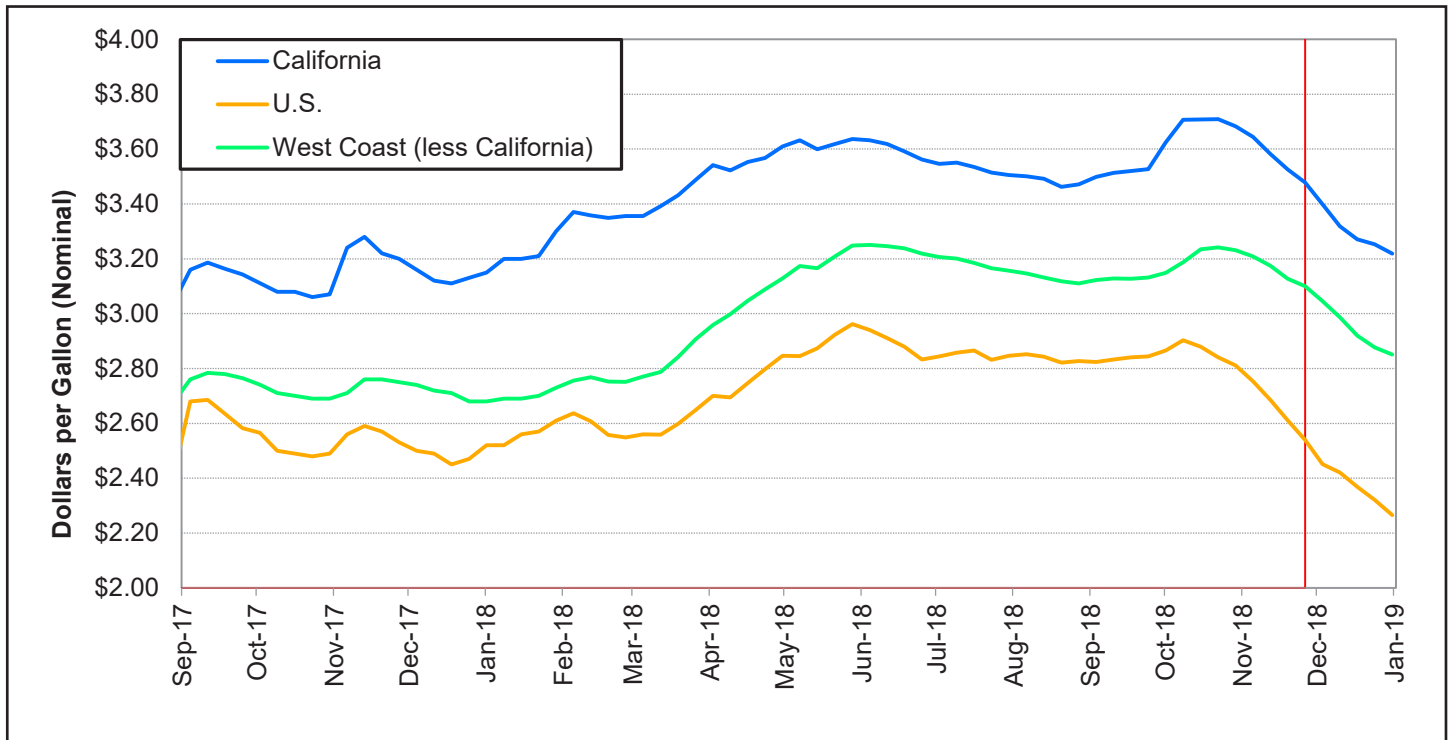
Short-term demand is still strong, yet longer term outlooks point to softening demand. The slight increase in refinery inputs and crude oil imports indicate that short-term demand for products continues to increase. The longer-term indicators are less certain, crude oil stocks remain 3.9 percent greater than in December 2017,

indicating that refineries are expecting weaker demand for petroleum products compared to 2017. The year-over-year increase in crude oil stocks is occurring in an environment of near record refinery inputs combined with falling crude prices. These factors should be incentivizing refineries towards greater drawdowns from inventories. Long-term indications such as the 50,000 bpd decrease in crude oil production display the uncertainty of predicting domestic demand for 2019. The United States crude oil production is showing small signs of a slowdown with the slight drop in crude oil production this December, but production rates over 7.0 million bpd are still historically high. Crude oil imports show monthly increases but are below 7.5 million bpd for the first time since March 2017. While each indicator is at a strong level, the rates of change in the indicators are slowing.

³ OPEC December *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: Gasoline Retail Prices



Source: U.S. Energy Information Administration

GASOLINE PRICES

December 2018 vs 2017

(Percent Change)

| | |
|------------|-----------|
| California | 5% higher |
| U.S. | 5% lower |
| West Coast | 8% higher |

December 2018 Averages

| | |
|------------|--------|
| California | \$3.29 |
| U.S. | \$2.37 |
| West Coast | \$2.94 |

December 31, 2018

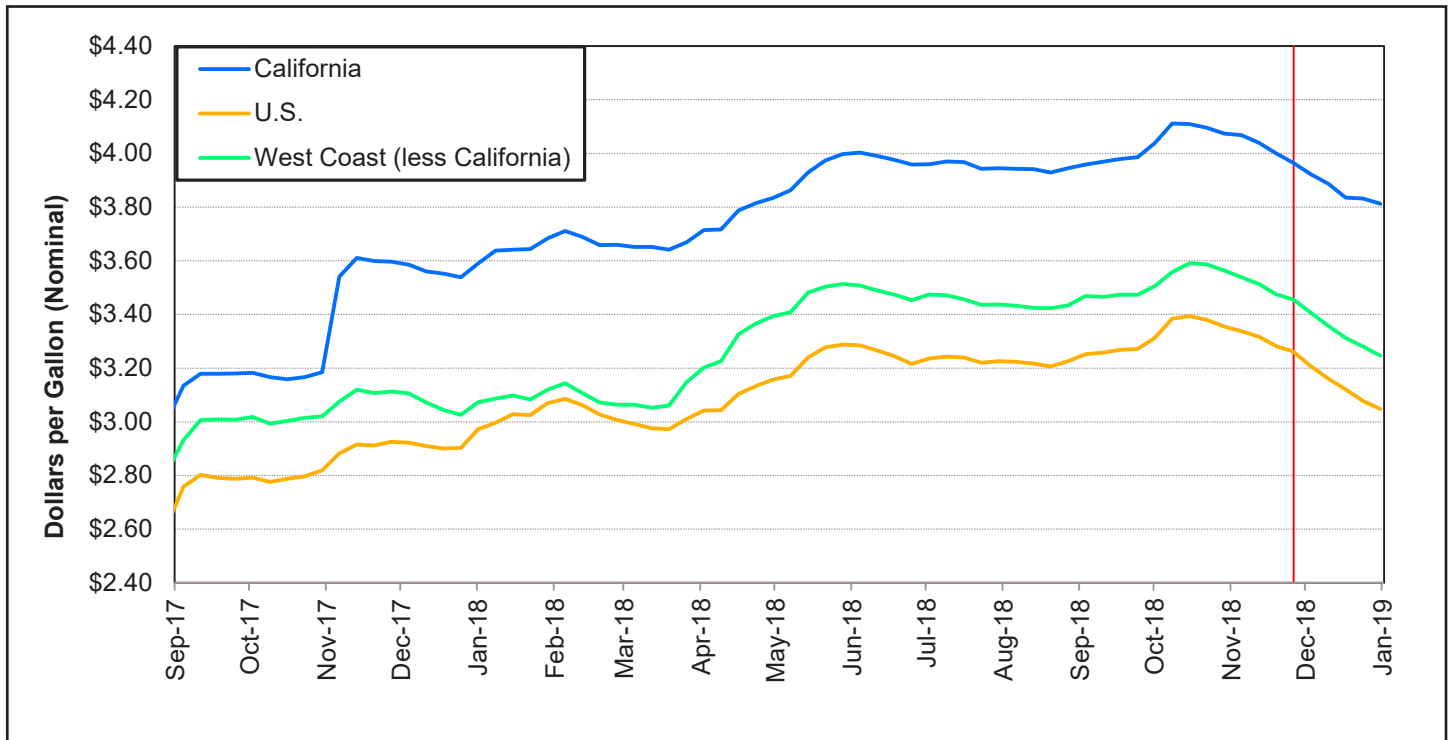
| | |
|------------|--------|
| California | \$3.22 |
| U.S. | \$2.27 |
| West Coast | \$2.85 |

Gasoline retail prices have continued to decline since October (Figure 3). The monthly average prices for California, United States, and West Coast (less California) decreased by \$0.27, \$0.28, and \$0.21, respectively (sidebar). On December 31, the average price for a gallon of gasoline was \$3.22 in California, \$2.27 in the United States, and \$2.85 on the West Coast. The price difference between California and the United States was \$0.95.

Crude oil prices have been falling since early October (Figure 1). California gasoline production and inventories increased in December (Figure 6). The low crude prices and increased production and inventories have helped bring down gasoline prices.

GASOLINE AND DIESEL RETAIL PRICES

Figure 4: Diesel Retail Prices



Source: U.S. Energy Information Administration

DIESEL PRICES

December 2018 vs 2017

(Percent Change)

| | |
|------------|-----------|
| California | 8% higher |
| U.S. | 7% higher |
| West Coast | 8% higher |

December 2018 Averages

| | |
|------------|--------|
| California | \$3.86 |
| U.S. | \$3.12 |
| West Coast | \$3.32 |

Week of December 31, 2018

| | |
|------------|--------|
| California | \$3.81 |
| U.S. | \$3.05 |
| West Coast | \$3.25 |

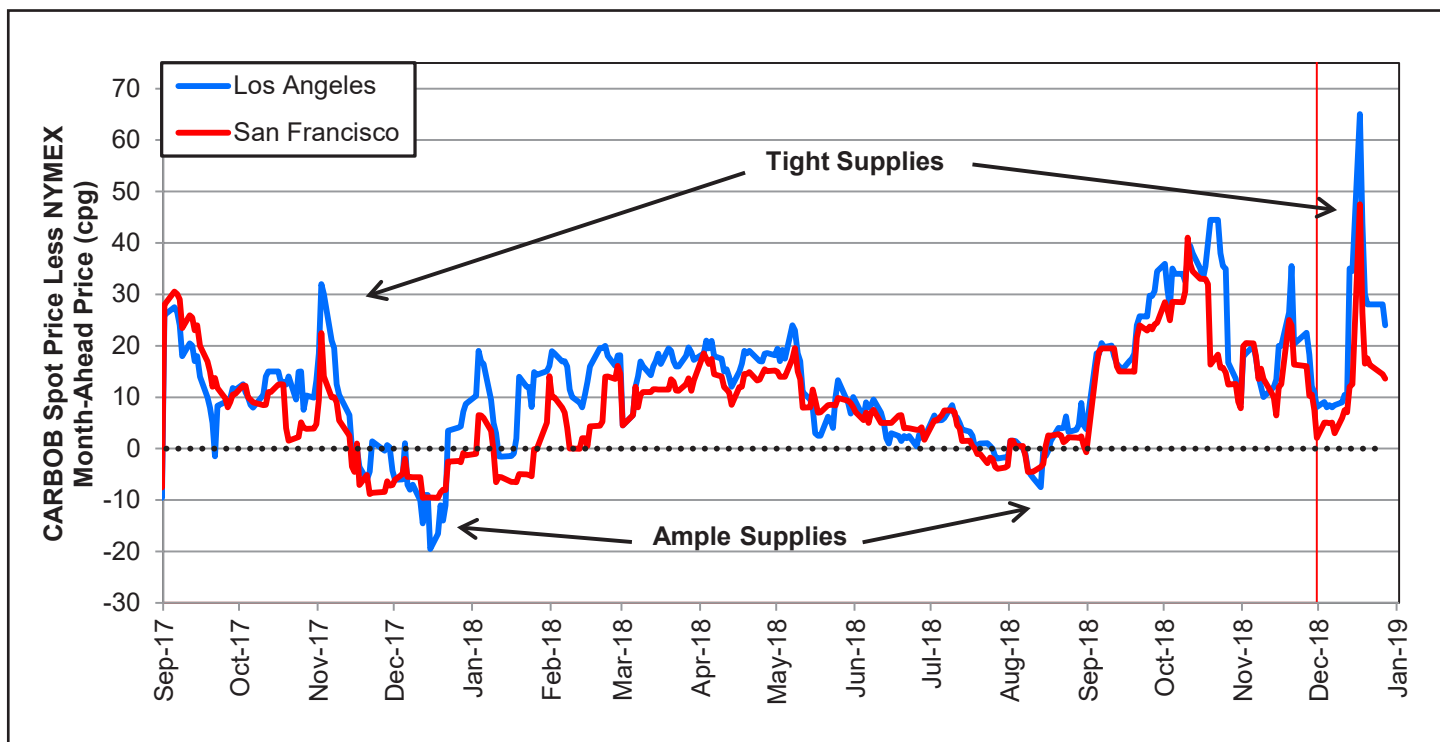
December diesel retail monthly average prices were lower than November (**Figure 4**). California's average monthly retail price decreased \$0.16 from November to \$3.86 per gallon. This price is up \$0.30 from December 2017. West Coast (less California) and the United States monthly average retail prices both decreased \$0.18 to \$3.32 and \$3.12, respectively. These average price drops continue the downward trend that began in October.

California diesel prices have averaged \$0.71 to \$0.72 cents higher than the United States since May 2017. As of December 17, 2018, California retail diesel prices did not decline as fast as the rest of the United States (**Figure 4**). On December 24, California diesel prices showed no change, while retail prices

in the United States decreased \$0.04, making California diesel \$0.76 more expensive than the rest of the United States. California's price slowdown is a result of tightening supplies. California diesel inventories dropped on December 14 and have remained at the bottom threshold of the five-year band (**Figure 8**).

SPOT MARKET SPREADS

Figure 5: California Spot Gasoline to NYMEX Futures Price Spread



Source: U.S. Energy Information Administration and OPIIS

GASOLINE SPOT - FUTURES SPREAD

December 2018 vs 2017

Los Angeles 29¢ higher

San Francisco 19¢ higher

December 2018 Averages

Los Angeles 23¢

San Francisco 13¢

December 31, 2018

Los Angeles 23¢

San Francisco 13¢

On December 17, the Los Angeles (LA) and San Francisco (SF) gasoline spot less New York Mercantile Exchanges (NYMEX) futures spreads increased to new 2018 highs of \$0.65 and \$0.48, respectively (**Figure 5**). The LA spread averaged \$0.09 from December 3 to December 12 and increased to \$0.35 on December 13 and \$0.65 on December 17. The SF spread followed the same trend and averaged \$0.07 between December 3 to 14 and increased to \$0.48 on December 17. The LA and SF spreads decreased to \$0.23 and \$0.13, respectively, on December 31 (**sidebar**).

From December 13 to 20, Kinder Morgan shut down a leaking petroleum product pipeline between El Paso, Texas to Tucson, Arizona.⁴ The shut down led to increased draws from gasoline and diesel supplies

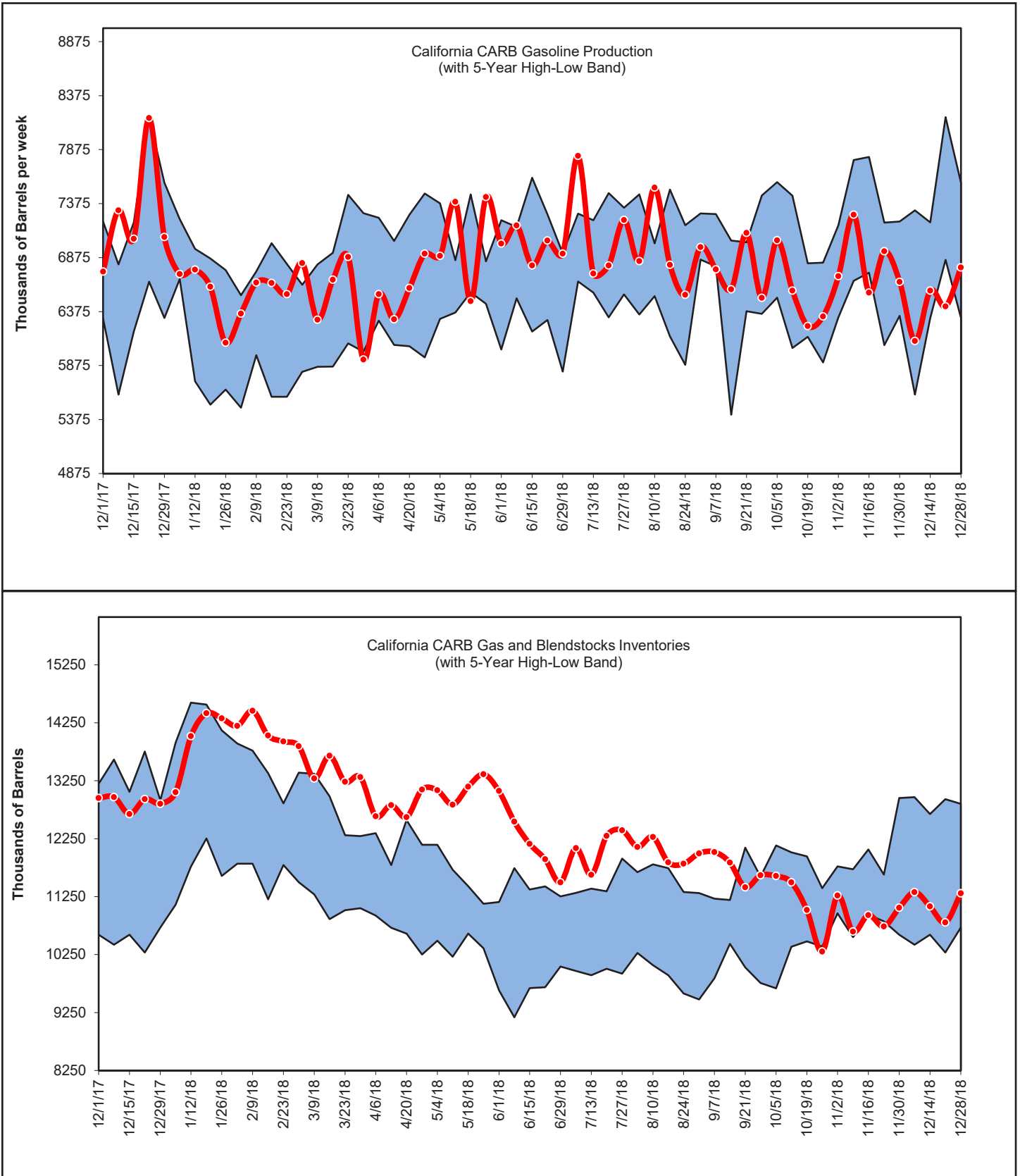
in California. On December 16, Phillips 66 had an issue with a distillate hydrocracker unit. The spike in the spreads match the timing of those issues.

California gasoline production had a healthy 2018 and averaged 6.7 million barrel per week (bpw). Gasoline production and inventories each fell under the five-year band for only three weeks of the year. Inventories for 2018 averaged 130,000 barrels more than the five-year maximum. During December, gasoline production fell under the band for the week of December 21 at 6.4 million barrels (**Figure 6**). Gasoline inventories did not have much movement and averaged 11.1 million gallons through December.

⁴ "Problems with the pipeline," KOLD News 13, December 24, 2018 <http://www.tucsonnewsnow.com/2018/12/24/problems-with-pipeline>.

SPOT MARKET SPREADS

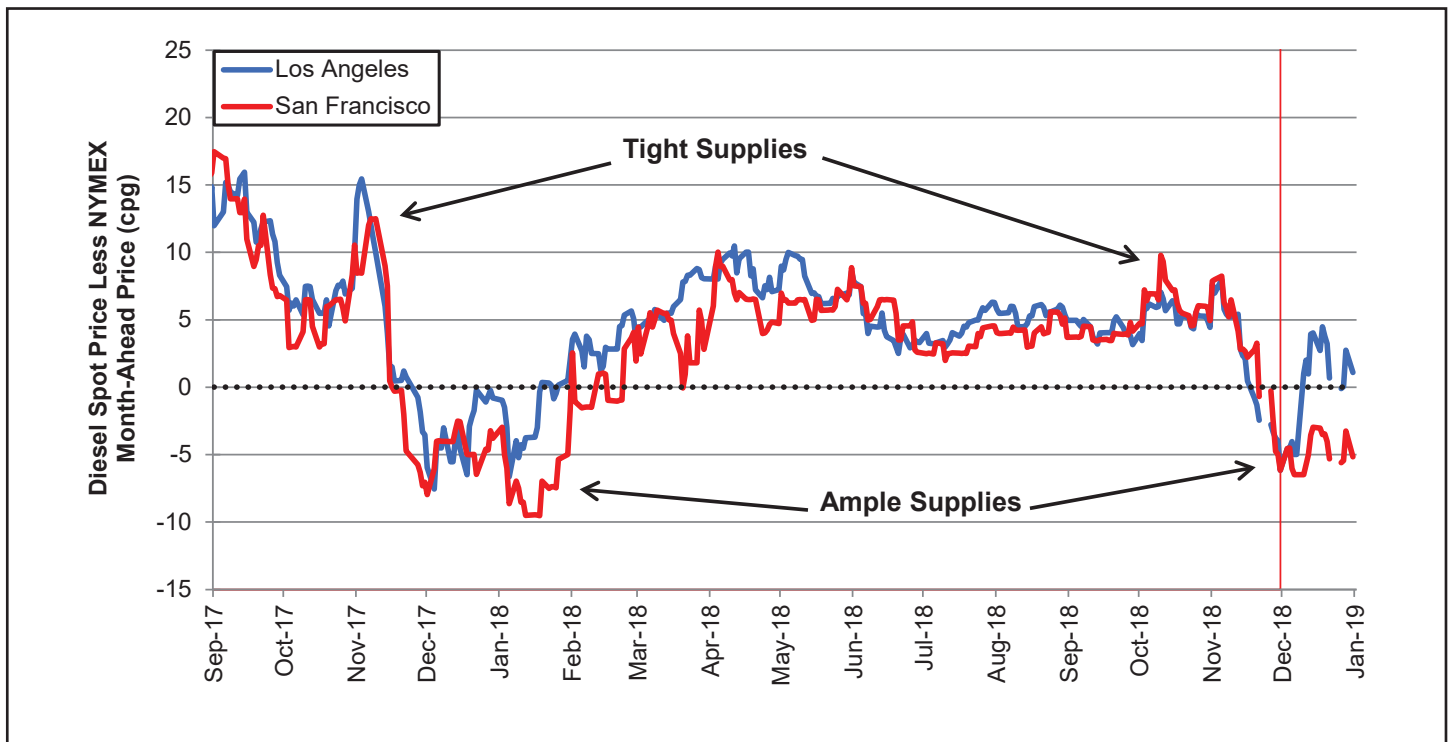
Figure 6: Gasoline Production and Inventories



Source: California Energy Commission PIIRA data

SPOT MARKET SPREADS

Figure 7: California Spot Diesel to NYMEX Futures Price Spread



Source: U.S. Energy Information Administration and OPIS

DIESEL SPOT - FUTURES SPREAD

December 2018 vs 2017

| | |
|---------------|-----------|
| Los Angeles | 3¢ higher |
| San Francisco | same |

December 2018 Averages

| | |
|---------------|-----|
| Los Angeles | 0¢ |
| San Francisco | -5¢ |

December 31 2018

| | |
|---------------|-----|
| Los Angeles | 1¢ |
| San Francisco | -5¢ |

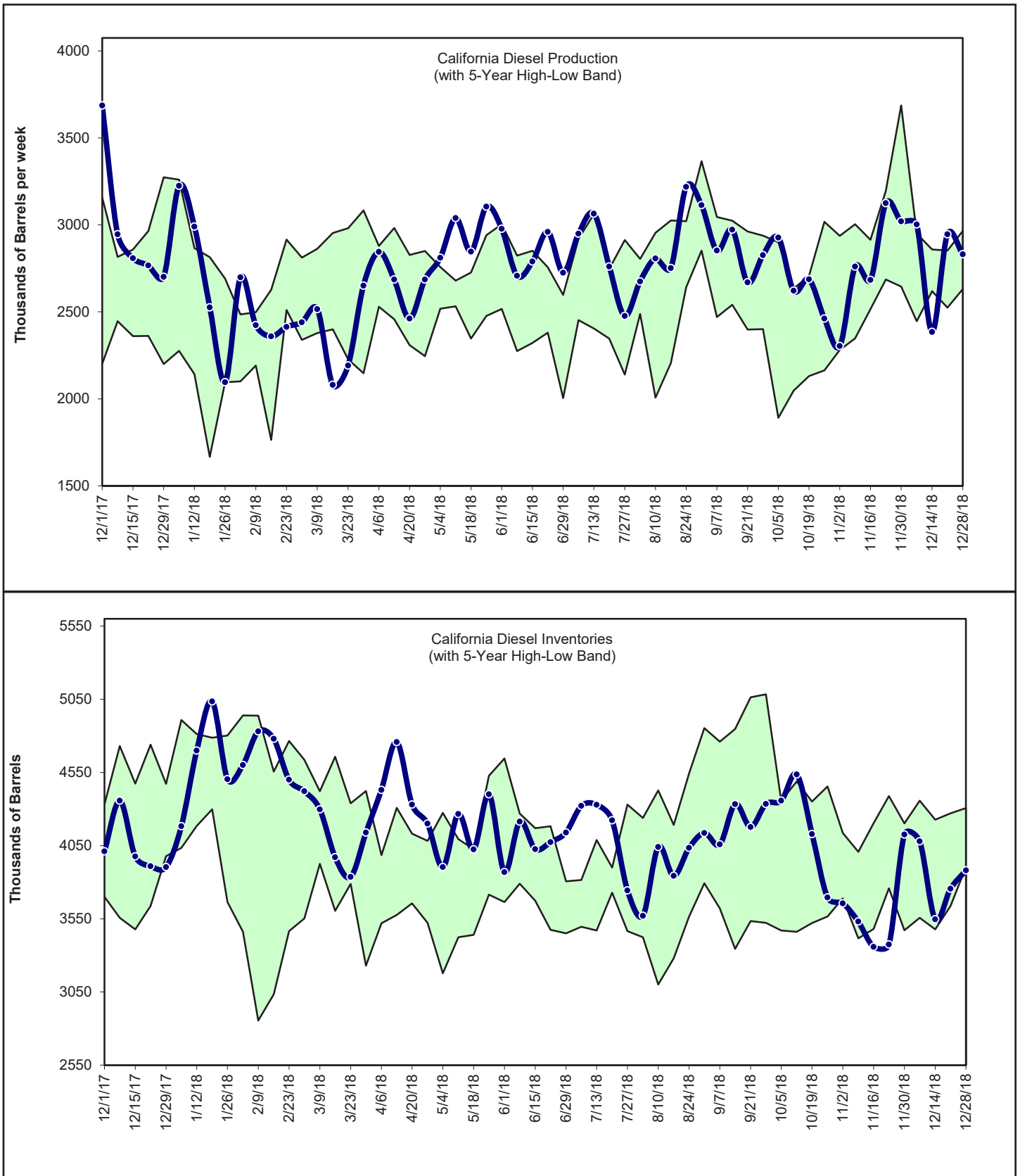
The LA and SF spread started December at a discount before the LA spread diverged from SF (**Figure 7**). On December 3, LA and SF started at $-\$0.06$ and mirrored each other for the first week of December. On December 10, the LA spread jumped to $\$0.01$ while SF went to $-\$0.06$. The LA and SF spreads rose and the gap between the LA and SF prices grew. The gap was greatest at $\$0.08$ on December 18 with LA at $\$0.04$ and SF at $-\$0.04$. On December 31, the LA spread was $\$0.01$ and SF was $-\$0.05$.

The LA and SF spreads separated in December because of refinery issues and increased exports in the region. The LA spread jumped quickly because of a pipeline leak and an issue at a refinery (**page 8**). The increased demand for LA gasoline and diesel kept the spread high in December.

Diesel production throughout December remained near the top of the five-year-band. On December 7, production peaked at 3 million bpw and slowly tapered off to 2.8 million bpw by December 28. Diesel inventories have been adequate as levels have been just above the five-year-band minimum. Inventory dipped to a monthly low of 3.5 million barrels on December 14, California added to its inventories and ended with 3.9 million barrels on December 28. December diesel inventories averaged 200,000 barrels less than 2017. December diesel inventories averaged 3.8 million bpw.

SPOT MARKET SPREADS

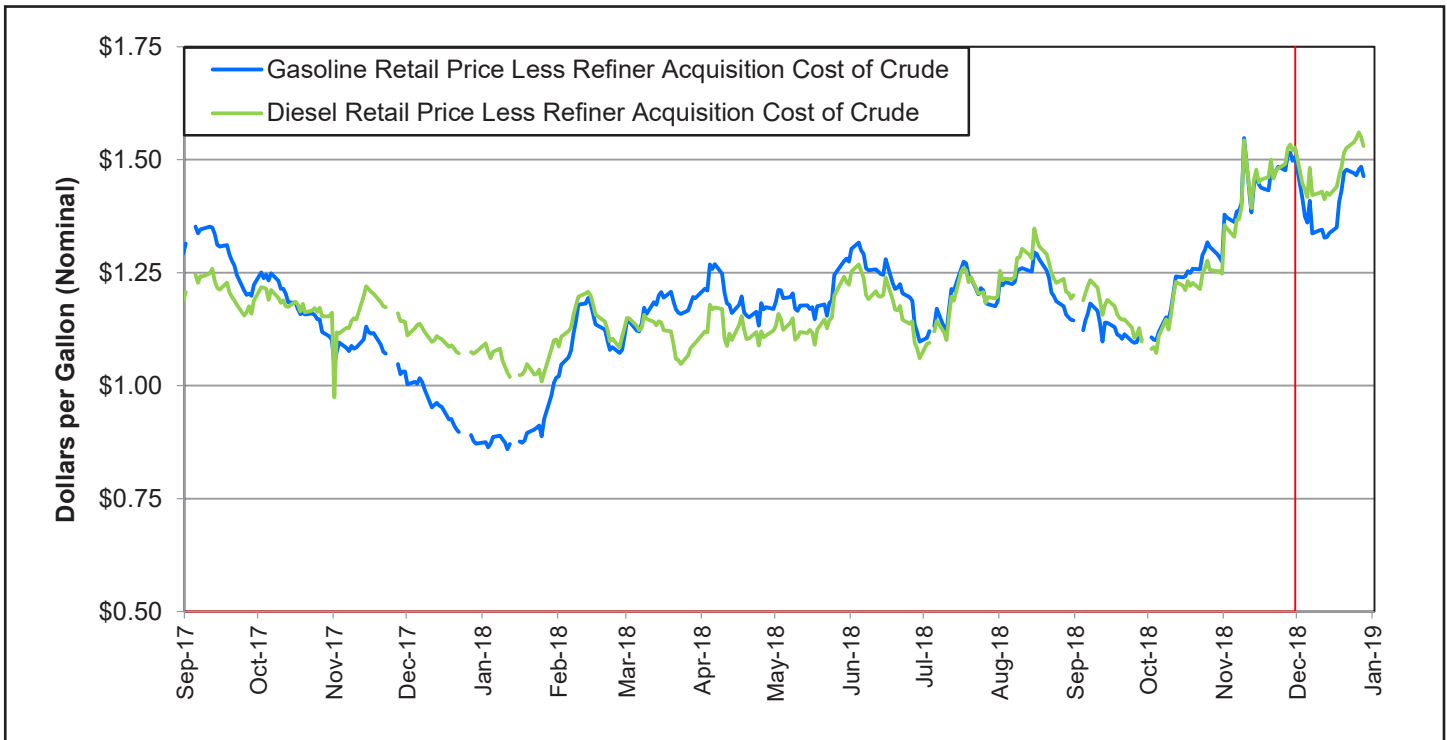
Figure 8: Diesel Production and Inventories



Source: California Energy Commission PIIRA data

GROSS MARGINS

Figure 9: Gross California Gasoline and Diesel Margins



Source: U.S. Energy Information Administration and OPIS

CRUDE TO RETAIL MARGINS

December 2018 vs 2017

| | |
|----------|------------|
| Gasoline | 48% higher |
| Diesel | 34% higher |

December 2018 Averages

| | |
|----------|--------|
| Gasoline | \$1.40 |
| Diesel | \$1.47 |

December 30, 2018

| | |
|----------|--------|
| Gasoline | \$1.46 |
| Diesel | \$1.43 |

Gross margins remained high in December, compared to the rest of 2018 (**Figure 9**). December started with a decline in both margins, as retail gasoline and diesel price declines caught up with stabilizing crude oil prices. As retail gasoline and diesel prices began to stabilize in the middle of the month, crude oil prices began to fall again, increasing the margins back to start of the month values. With the brief decline in margins, December averages were 3 percent lower for gasoline and 1.6 percent lower for diesel in comparison to November.

While December margins declined compared to last month, both December and November represent a roughly 30 percent increase over the start of 2018. A large portion of this is because of the near 40 percent drop in crude oil prices that started mid-October. Another portion may come from increases in Low Carbon Fuel Standard (LCFS) credit prices. Per the Air Resource Board, the average LCFS credit price was \$128 in the first quarter of 2018.⁵ By November 2018, the average price had increased to \$177.

⁵ California Air Resources Board November Monthly LCFS Credit Transfer Activity Report: https://www.arb.ca.gov/fuels/lcfs/credit/20181211_novcreditreport.pdf.