

PETROLEUM WATCH

CALIFORNIA ENERGY COMMISSION

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PETROLEUM NEWS

PRICES

- **Crude Oil Prices:** On May 31, Brent and West Texas Intermediate (WTI) crude prices closed at \$66.78 and \$53.49, respectively. The Brent crude price is \$9.67 lower than one year ago, and the WTI price is \$13.49 lower than one year ago (**page 2**).
- **California Retail Gasoline Prices:** On May 27, prices reached \$3.88, a decrease of \$0.10 since the end of April. Through May, California prices averaged \$1.09 higher than the national average (**page 4**).
- **California Retail Diesel Prices:** On May 27, prices reached \$4.13. This was an increase of \$0.09 from the end of April. Through May, California prices averaged \$0.97 higher than the national average (**page 5**).

REFINING NEWS

- **Valero Benicia:** On March 24, the refinery shut down because it was emitting petroleum coke dust. By May 8, the refinery had restarted the crude pipestill unit, hydrocracker unit, naphtha hydrofiner unit, reformer unit, and utilities. On May 9, the refinery brought several more units back on-line including the

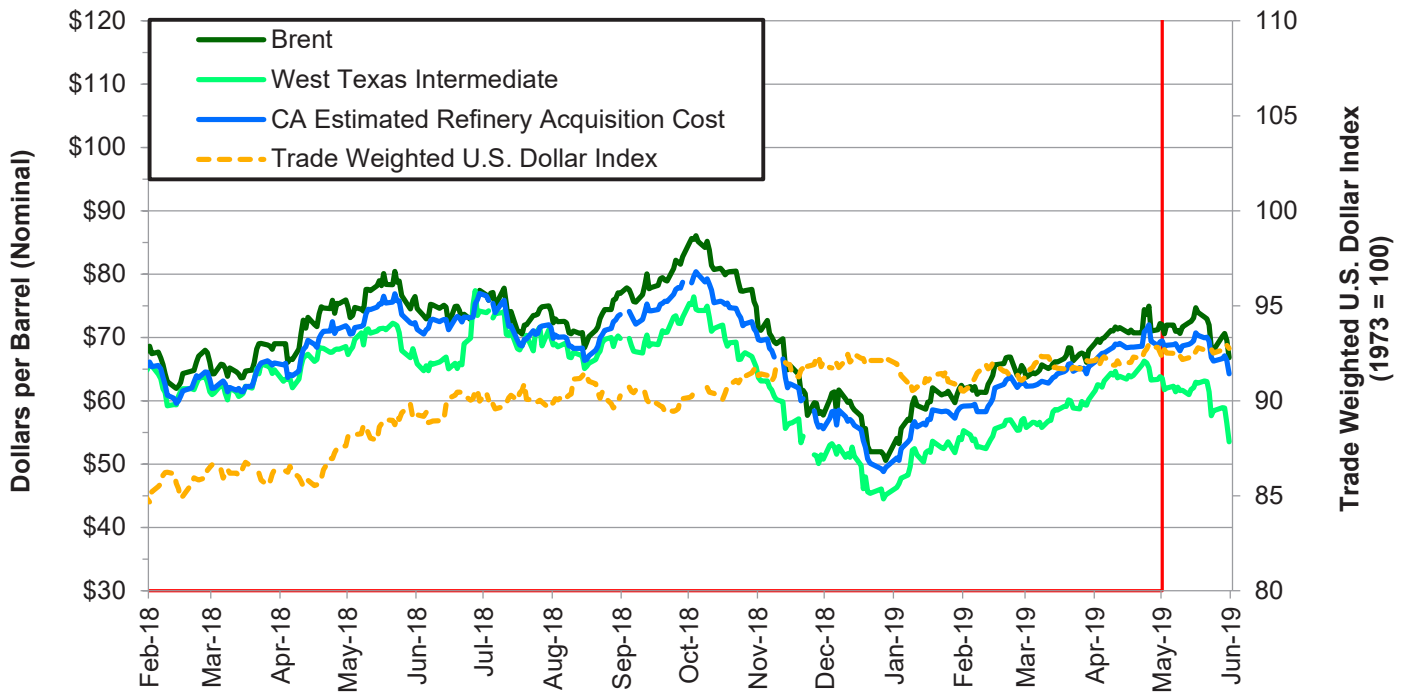
fluid catalytic cracking unit, catalytic feed hydrofiner unit, sulfuric acid alkylation unit, and diesel hydrotreater unit. The refinery expected to complete repairs and accelerated maintenance on the coker unit by May 15.

- **Marathon Golden Eagle:** On April 25, the refinery was forced to shut down the diesel hydrotreater unit for unplanned repairs. The unit was restarted on May 6.
- **Shell Martinez:** On April 26, the refinery shut down the delayed coker unit followed by the hydrocracker on April 28, for planned maintenance, which was expected to be completed by June 4.
- **Marathon Wilmington:** On May 2, the refinery shut down the hydrocracker unit for unplanned maintenance. The unit was restarted the next day.
- **Phillips 66 Wilmington:** On May 3, the refinery was forced to shut down the delayed coker unit because of a pump fire the previous evening. The same unit had been offline from March 16 to April 21 because of a fire.
- **Chevron Richmond:** On May 4, the refinery was forced to reduce operational rates on the distillate hydrocracker units because of unknown issues. The unit was returned to normal operation on May 7.



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

May 2019 vs 2018

(Percentage Change)

| | |
|--------|-----------|
| Brent | 7% lower |
| WTI | 13% lower |
| CA-RAC | 7% lower |

May 2019 Averages

| | |
|--------|---------|
| Brent | \$71.32 |
| WTI | \$60.83 |
| CA-RAC | \$68.41 |

May 31, 2018

| | |
|--------|---------|
| Brent | \$66.78 |
| WTI | \$53.49 |
| CA-RAC | \$64.24 |

Spot prices for Brent and California Refinery Acquisition Cost (CA-RAC) continued to rally reaching maximums of \$74.70 and \$70.72, respectively, on May 16 (**Figure 1**).¹ WTI, however, experienced an overall downward trend, starting the month at its monthly high of \$63.55 and finishing at a low of \$53.49. In fact, all indexes ended May at their monthly lows, with Brent closing the month at \$66.78 and CA-RAC at \$64.24.

The Brent-WTI differential for May averaged \$10.49, \$3.12 higher than in April. The spreads ranged from \$8.46 to \$13.29 in May, a significant jump from April's range of \$5.05 to \$9.71. While both indexes suffered from price drops, WTI prices had a steeper decrease that widened the gap behind Brent.

Unexpected rises in U.S. crude stocks (**Figure 2**) coupled with lower refinery

outputs attributed to the sharp declines in both Brent and WTI prices starting May 22. EIA reported a 4.7 million barrel increase in crude inventories for the week of May 17, a surprising change from the projected decrease of 599,000 barrels.²

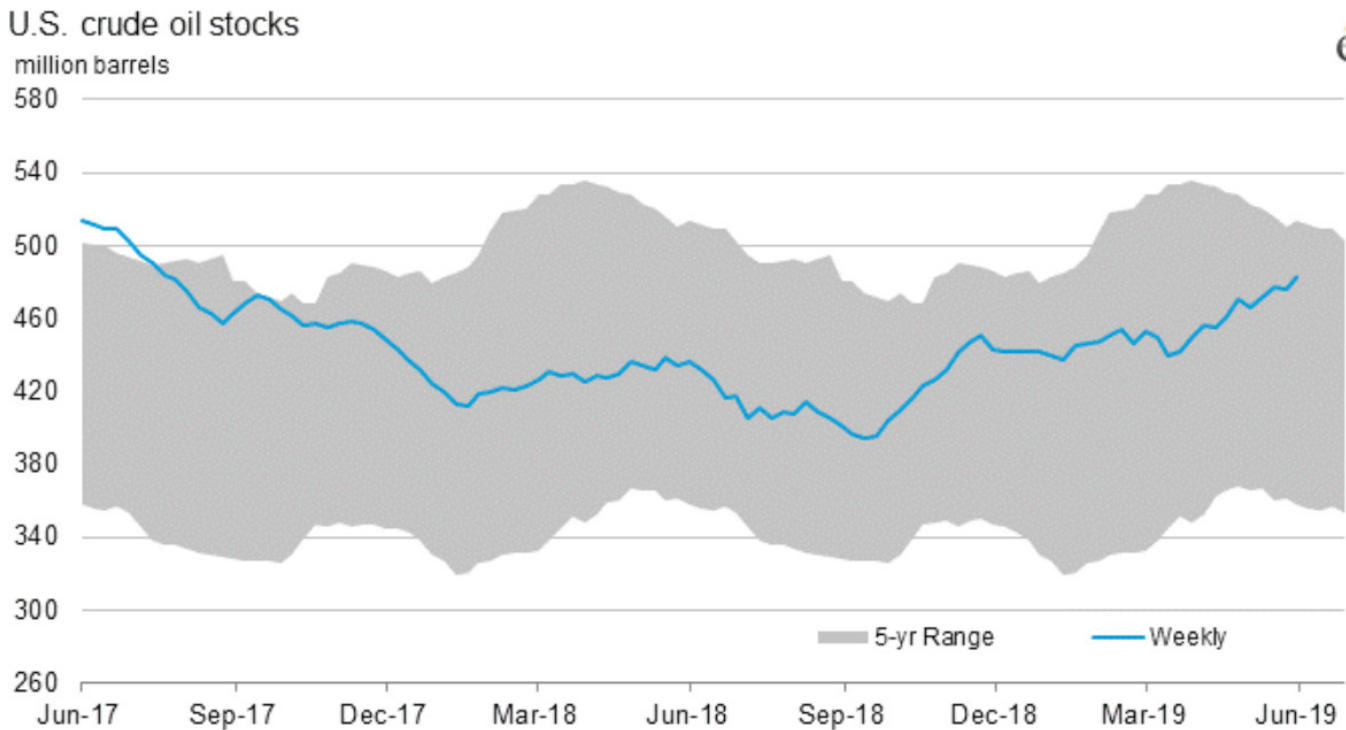
Increases in the Brent-WTI differential suggest that global trade tensions affected WTI based crudes more than Brent international crudes. For example, trade disputes between the United States and China continued to escalate through May with no clear resolution in sight. Global trade tensions rose even further when President Donald Trump threatened tariffs on Mexican imports on May 30, causing another swift decline in crude spot prices. The proposed tariffs would start at 5 percent on June 10 and increase to 25 percent through October unless certain immigration issues are addressed.³

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

2 "U.S. crude stocks highest since July 2017 on weak refining demand: EIA," Reuters, May 22, 2019. <https://www.reuters.com/article/us-usa-oil-eia-milestones/u-s-crude-stocks-highest-since-july-2017-on-weak-refining-demand-eia-idUSKCN1SS1XN>.

3 "U.S. oil falls 5.5% to \$53.50 per barrel on fresh trade worries," CNBC, May 31, 2019. <https://www.cnbc.com/2019/05/31/oil-market-us-tariffs-on-mexico-iranian-oil-sanctions-in-focus.html>.

Figure 2: U.S. Crude Oil Inventories



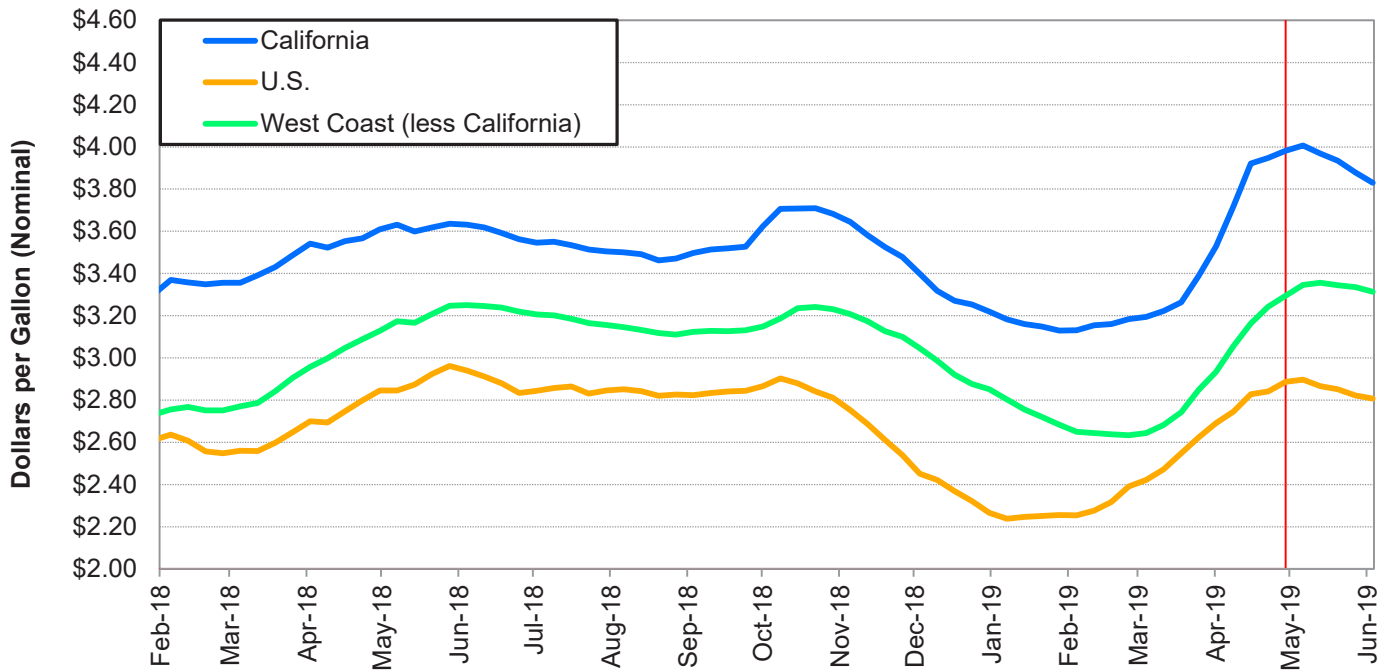
Source: U.S. Energy Information Administration

- U.S. crude oil production for May averaged 12.25 million barrels per day (bpd). This amount is only 50,000 bpd lower than the April average of 12.2 million bpd. This is a 1.50 million bpd increase from May 2018, when production averaged 10.75 million bpd.
 - Crude oil imports increased from April's average by 550,000 bpd to 7.3 million bpd in May. Compared to May 2018 imports, this is a decrease of 600,000 bpd.
 - U.S. crude oil refinery inputs had an increase of 440,000 bpd since April, finishing May at a four-week average of 16.7 million bpd. Refinery inputs are 200,000 bpd lower than a year ago.
 - U.S. crude oil inventory in May rose by 12.7 million barrels to 483.3 million barrels. Current inventories are 46.7 million barrels higher than May 2018 inventories.
 - According to the Organization of the Petroleum Exporting Countries' (OPEC) May Monthly Oil Market Report, total April OPEC production was relatively unchanged, with an increase of 10,000 bpd to 30.03 million bpd.⁴ Their global demand forecast for 2019 also increased slightly from 99.91 million bpd to 99.94 million bpd.
- Crude stocks were expected to be lower and refinery outputs were expected to be higher to match the seasonal increase in gasoline demand for summer. However, crude inventories increased to levels not seen since July 2017 and refinery utilization has yet to ramp up, suggesting that national demand has slowed. Worries of a slowdown in global economic growth because of the ongoing trade conflicts could also cut into oil demand at the international level.

⁴ OPEC May Monthly Oil Market Report, page iii, page 43: 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

May 2019 vs 2018

(Percentage Change)

| | |
|------------|-----------|
| California | 9% higher |
| U.S. | 1% lower |
| West Coast | 5% lower |

May 2019 Averages

| | |
|------------|--------|
| California | \$3.95 |
| U.S. | \$2.86 |
| West Coast | \$3.35 |

Week of May 27, 2019

| | |
|------------|--------|
| California | \$3.88 |
| U.S. | \$2.82 |
| West Coast | \$3.35 |

California retail gasoline price increased to \$4.01 on May 6, resulting in a new high gasoline price since \$4.03 on July 21, 2014. The sharp upward price increase of \$0.66 was between March 18 and April 15 where gasoline increased from \$3.26 to \$3.92, respectively. While the March 2019 monthly average was 4 percent less than the March 2018 monthly average, April and May averages were 7 percent and 9 percent higher, respectively, compared to 2018 (sidebar).

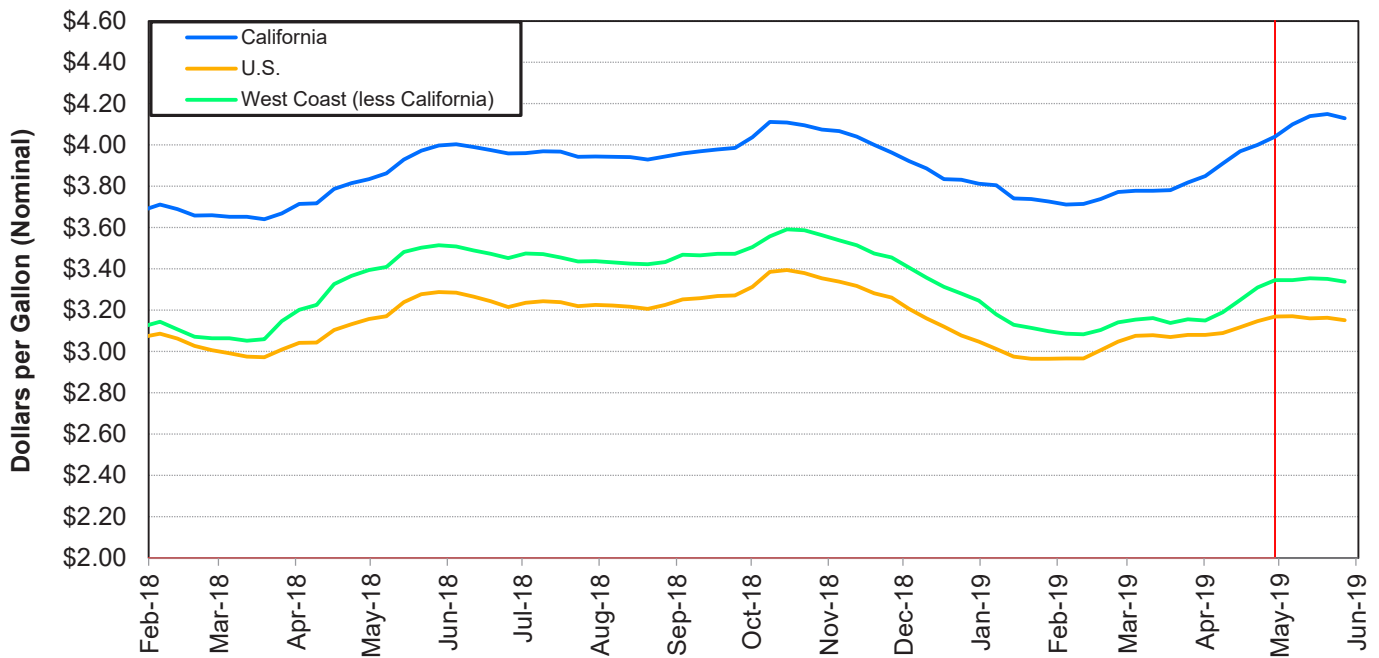
Gasoline prices across the United States followed the same trend, increasing a total of \$0.35 from \$2.55 on March 18 to \$2.90 on May 6. After a price increase to a new 2019 high on May 6, the price decreased by an average of \$0.02 per week

to \$2.82 on May 27 (Figure 3). The West Coast (less California) price also increased from March 18 at \$2.74 to \$3.35 on May 6 then decreased to \$3.34 on May 27.

When gasoline prices increased between January 2, and April 25, crude oil prices had increased by as much as \$20.88 per barrel for Brent crude, \$18.05 for Alaska North Slope crude, and \$18.92 per barrel for WTI crude. Also contributing to high prices in California were gasoline production and inventories below the five-year low for the majority of April and May (Figure 6). For the last two weeks of May, gasoline production and inventories increased back within the five-year-band.

GASOLINE AND DIESEL RETAIL PRICES

Figure 4: Diesel Retail Prices



Source: U.S. Energy Information Administration

DIESEL PRICES

May 2019 vs 2018

(Percentage Change)

| | |
|------------|-----------|
| California | 5% higher |
| U.S. | 3% lower |
| West Coast | 4% lower |

May 2019 Averages

| | |
|------------|--------|
| California | \$4.13 |
| U.S. | \$3.16 |
| West Coast | \$3.35 |

Week of May 27, 2019

| | |
|------------|--------|
| California | \$4.13 |
| U.S. | \$3.15 |
| West Coast | \$3.34 |

Diesel retail prices are slowly dropping across the country while California prices increased over May. The U.S. diesel price opened at \$3.17 on May 6 and slowly dropped \$0.02 ending May 27 at \$3.15. The West Coast (less California) price followed a similar pattern but its price peaked on May 13 at \$3.36 before ending at \$3.34 on May 27, a \$0.02 drop. The California diesel retail price started at \$4.10 on May 6 and hit a monthly peak on May 20 at \$4.15. Despite a price drop on May 27, the California diesel price increased \$0.03 over the month to end at \$4.13.

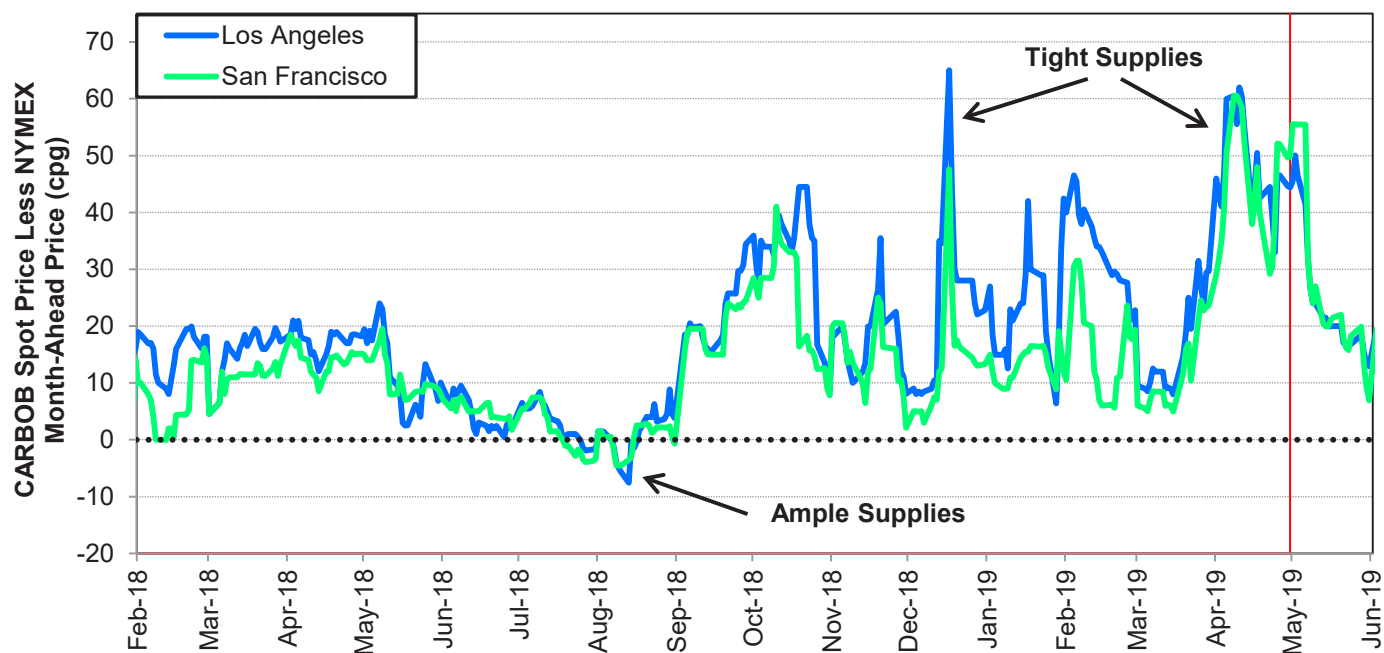
Since California has experienced refinery operating issues since April, the California to U.S. diesel price difference has continued to increase (page 1). The difference averaged \$0.73 from the November 2017 excise tax increase until the end of

March 2018. By the end of May 2019, the average difference increased to \$0.97.

It is hard to see why California prices would increase by \$0.24. There has been a great deal of refinery operating issues over the past two months, but diesel inventories and production has remained healthy. Diesel inventories above the five-year band should have created downward pressure on prices, but prices continued to rise. Upward pressure on prices may be coming from other aspects of the market. Increases in the diesel spot price could explain the increases in retail prices (page 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

May 2019 vs 2018

Los Angeles \$0.13 higher

San Francisco \$0.15 higher

May 2019 Averages

Los Angeles \$0.25

San Francisco \$0.26

May 31, 2019

Los Angeles \$0.13

San Francisco \$0.07

The Los Angeles (LA) and San Francisco (SF) gasoline spot less New York Mercantile Exchanges (NYMEX) futures spreads were \$0.46 and \$0.56, respectively, on May 1 (Figure 5). The spreads increased to reach monthly highs of \$0.50 and \$0.56 for LA and SF, respectively, on May 2. The spreads then decreased to monthly lows of \$0.13 for LA and \$0.07 for SF on May 31.

Production and inventories at or below the five-year-band for much of April and part of May kept upward pressure on the spreads. The lower than normal production and inventories are attributed to equipment breakdowns at refineries that started in mid-March and continued through early May (page 1). As refineries brought equipment back on-line, production and inventories began to recover, leading to a drop in the May spreads.

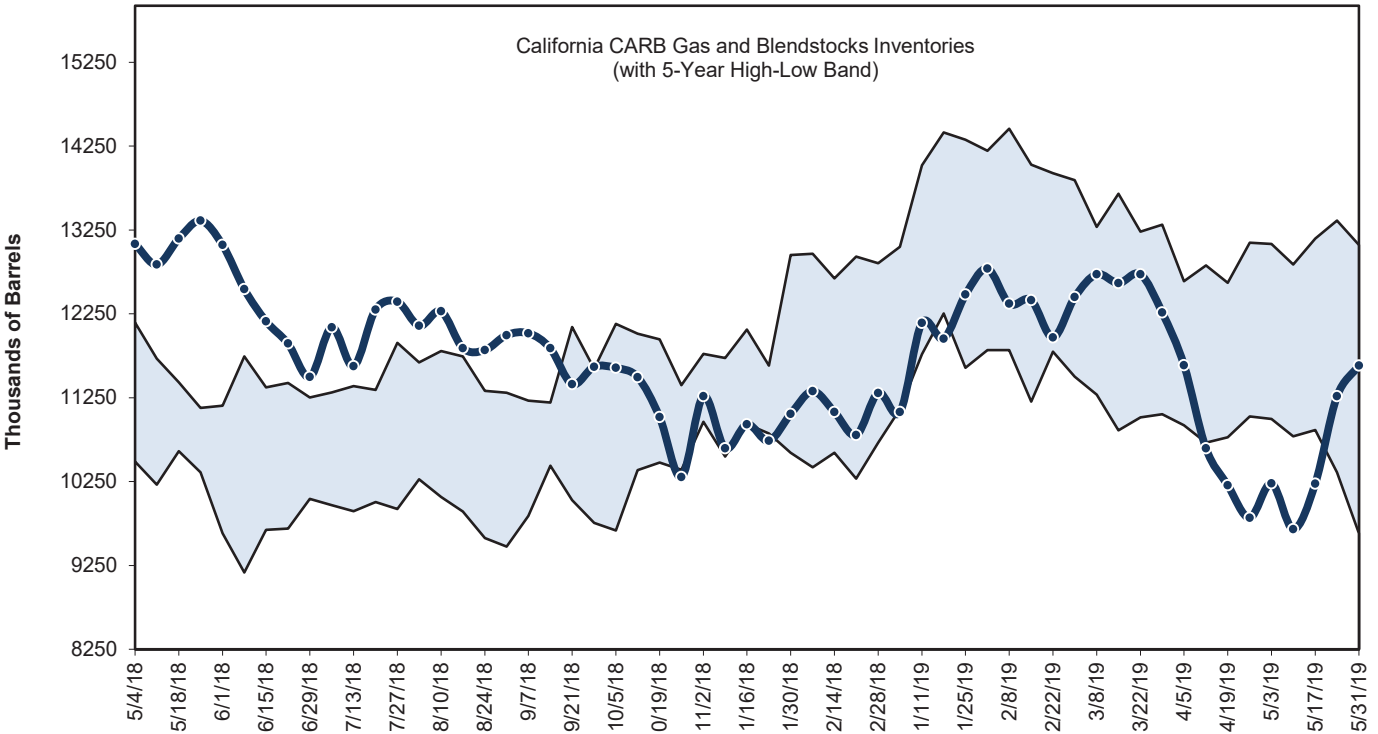
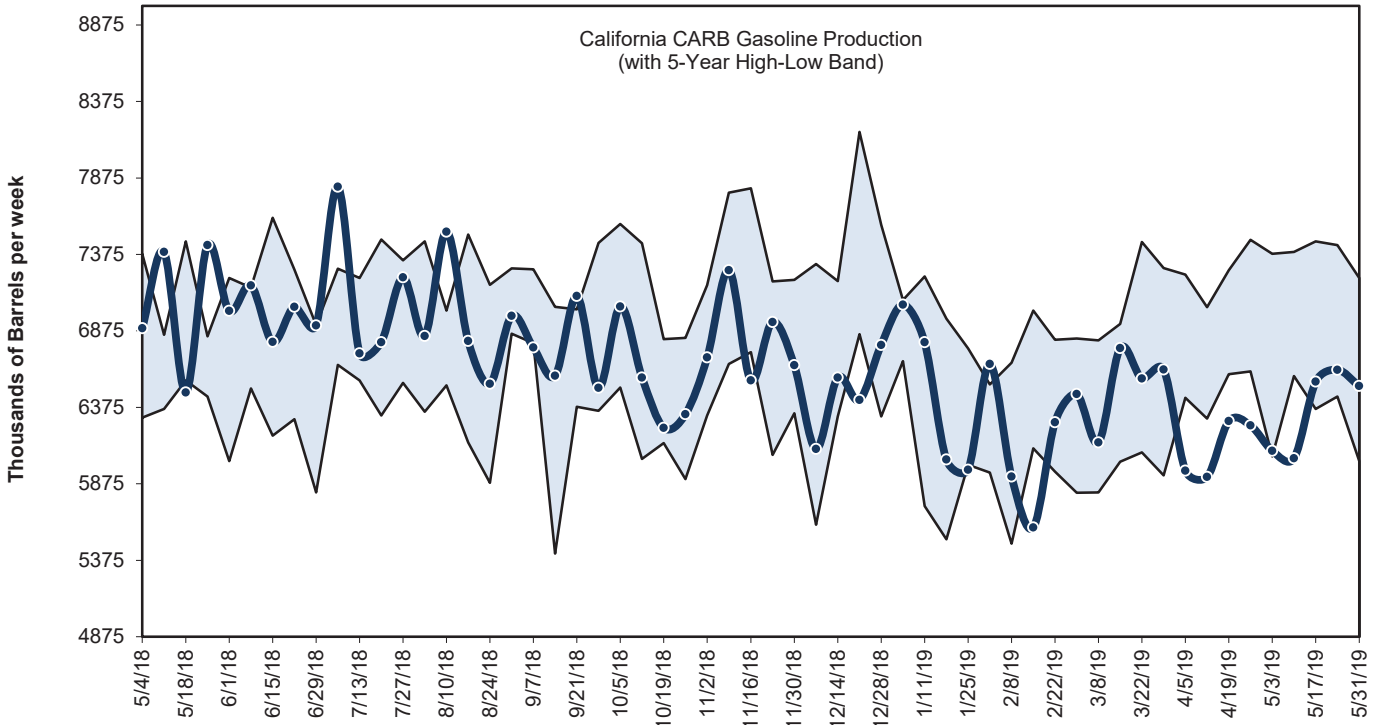
California gasoline production was within the five-year band except for the week of May 10 when production was below the five-year-low.

Production increased from 6.1 million barrels per week (bpw) on May 3 to 6.5 million bpw on May 31 (Figure 6). Production in Northern California started below the five-year low and then peaked just above the five-year high on May 24 and ended within the five-year-band on May 31.⁵ Production in Southern California was within the five-year band for the month of May.

California gasoline inventories increased from 10.2 million barrels to 11.6 million barrels between May 3 and May 31, respectively. Since mid-April, inventories were below the five-year low until inventories increased to within the five-year-band during the last two weeks of May. Inventories in Northern California increased back into the five-year band after a brief fall below the band at the end of April. Inventories in Southern California were below the five-year low for the month of May. Since the beginning of 2019, inventories in Southern California have been consistently low, falling below the five-year low for 17 of the 22 weeks reported.

SPOT MARKET SPREADS

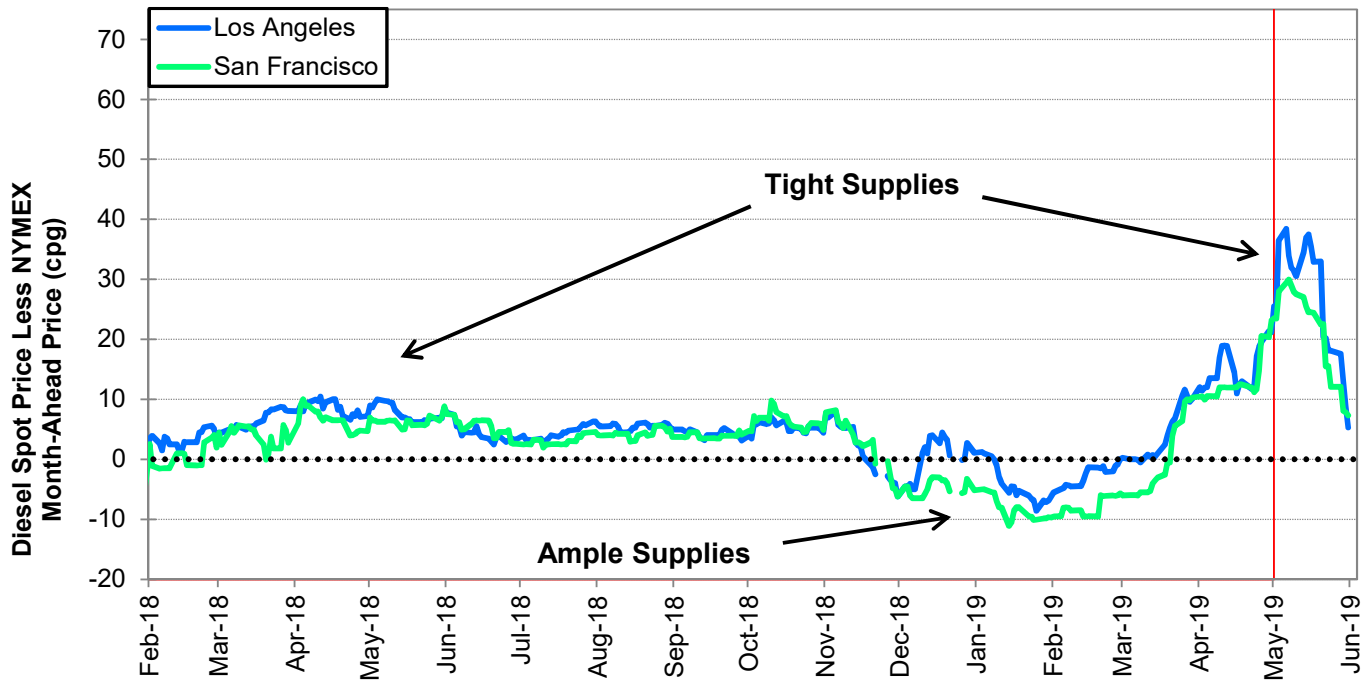
Figure 6: Gasoline Production and Inventories



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 OPIIS

DIESEL SPOT - FUTURES SPREAD

May 2019 vs 2018

| | |
|---------------|---------------|
| Los Angeles | \$0.19 higher |
| San Francisco | \$0.15 higher |

May 2019 Averages

| | |
|---------------|--------|
| Los Angeles | \$0.27 |
| San Francisco | \$0.21 |

May 31, 2019

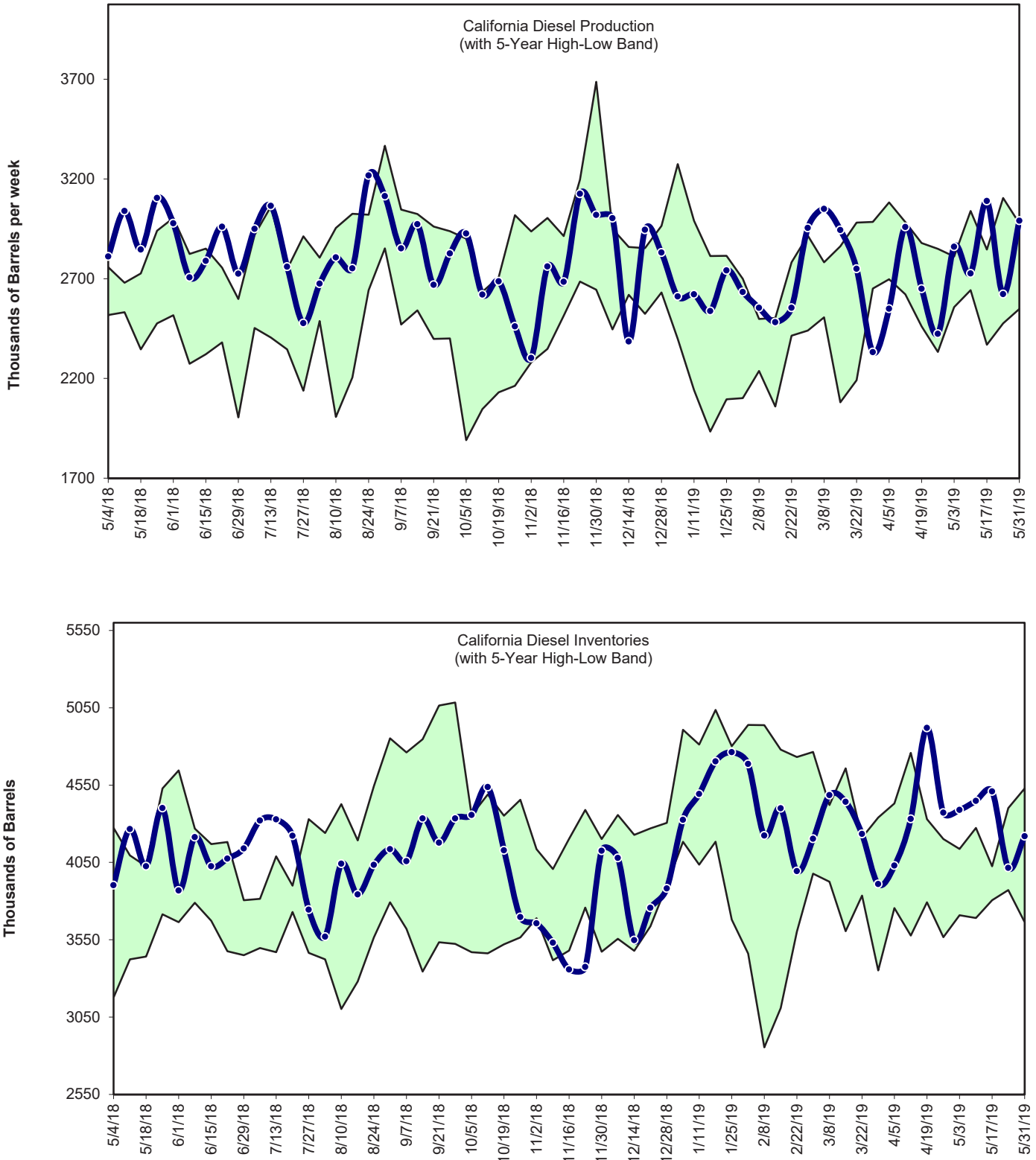
| | |
|---------------|--------|
| Los Angeles | \$0.05 |
| San Francisco | \$0.07 |

May represented a volatile month for California diesel spot prices. The start of May saw price spreads continue an increasing trend that began in March. The LA to NYMEX spread peaked on May 6 at \$0.38 above NYMEX, the largest LA price spread since 2008 (**Figure 7**). The LA spread then fell briefly before increasing again on May 15 at \$0.37 above NYMEX, followed by a steep decline the remainder of the month. On May 31, the LA spread hit a low of \$0.05 above NYMEX, totaling a \$0.33 price decline throughout May. The SF spread peaked on May 7 at \$0.30 above NYMEX, the largest SF spread since 2013. SF spread then decreased hitting a low of \$0.07 above NYMEX on May 31, totaling a \$0.23 drop throughout May. LA's monthly average price spread of \$0.27, is the highest since 2009, and SF's average of \$0.21 is the highest since 2012 (**sidebar**).

The high California diesel price spreads typically indicate tightening supplies. A long list of refinery outages that began in March caused the diesel spreads to rise over the past few months. May was no exception with a fire breaking out the evening of May 2 at Phillips 66 Wilmington (**page 1**). This news created further stress on an already strained market and LA price spreads shot up beginning May 3. Despite refinery issues, CARB diesel production and inventory levels throughout May were above or within ranges of the past five years. On May 3, May 17, and May 31, CARB diesel production surpassed five-year highs, averaging 100 thousand more barrels per week (**Figure 8**). Similarly, CARB diesel inventories remained above the five-year maximum for three weeks in May, averaging 300 thousand more bpw. Although diesel production and inventories were healthy in May, refinery issues raised supply fears causing price spreads to reach record highs.

SPOT MARKET SPREADS

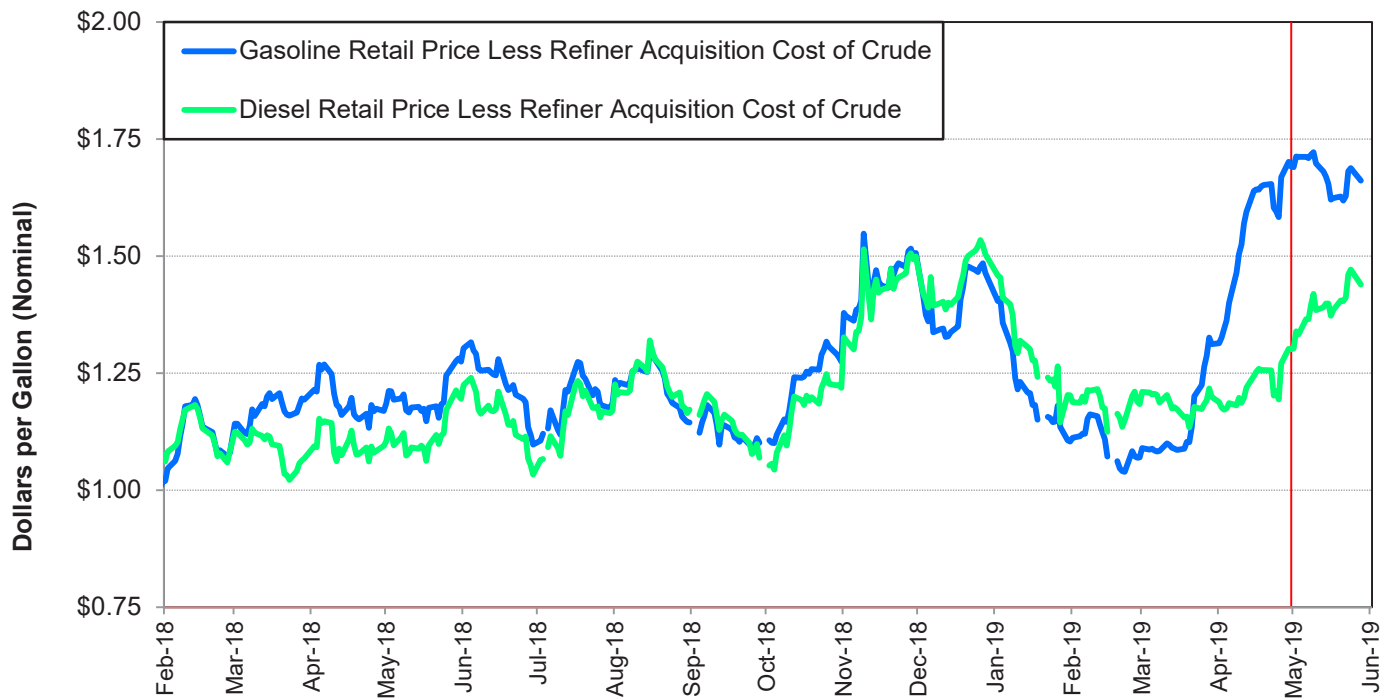
Figure 8: Diesel Production and Inventories



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

May 2019 vs 2018

| | |
|----------|------------|
| Gasoline | 40% higher |
| Diesel | 21% higher |

May 2019 Averages

| | |
|----------|--------|
| Gasoline | \$1.68 |
| Diesel | \$1.39 |

May 28, 2019

| | |
|----------|--------|
| Gasoline | \$1.66 |
| Diesel | \$1.44 |

Gross gasoline margin appears to be leveling off after a strong increase that started in the middle of March (Figure 9). The increase began on March 20 at \$1.10. By May 1, the margin reached \$1.69 and continued to rise until it peaked at \$1.72 on May 8, the highest margin seen since August 2015. The increase in the spread matches with the increase in the LA and SF gasoline spot market spreads (Figure 5) which were a result of several refinery operating issues in Northern and Southern California. California gasoline production and inventories were low at the beginning of May causing the margins to remain high despite the gasoline spreads dropping. Production and inventories increased to finish the

month within the five-year-band (Figure 6) supporting the leveling off of the margin, which finished the month at \$1.66 on May 28.

Similar to the increase in the gasoline margin, the diesel margin increased also starting on March 20. The margin started at \$1.13 on March 20 and rose to \$1.30 by May 1. The margin continued to rise reaching a monthly high of \$1.47 on May 24. While the increase in the diesel margin also matches the increase in the LA and SF diesel spot market spreads (Figure 7), the refinery issues did not affect the diesel margin as much as the gasoline margin. The slower increase in the diesel margin is likely because of strong diesel inventories that were within or above the five-year-band (Figure 8).



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