



The Fuel and Vehicle Trends Report

April 30, 2019

This report is a summary of the latest fuel prices and other oil industry key statistics. In addition, this report provides the latest trends in vehicle registrations and transportation tax collections for the state of Washington. It also summarizes articles appearing in popular, business, and technical media referring to fuel price, production and supplies as well as vehicle sales and registration trends. At the end of the report is a listing of all articles summarized, with hyperlinks to internet sources where available. Some hyperlinks may require free registration or paid subscriptions to access. The appearance of articles, products, opinions, and links in this summary does not constitute an endorsement by the Washington State Department of Transportation. Photos and other artwork included in the report are either included with permission or are in the public domain. *The Fuel and Vehicle Trends Report* (ISSN 1948-2388) is compiled by Scott, Smith, Lizbeth Martin-Mahar, Ph. D., and David Ding, Ph. D., Economic Analysis Section, Budget and Financial Analysis Office of the Washington State Department of Transportation. Contact the editors by email at smithsc@wsdot.wa.gov martinli@wsdot.wa.gov or DingDav@wsdot.wa.gov by telephone at (360) 705-7(360) 705-7942 or (360) 705-7502.

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FUEL PRICE TRENDS: Crude, Gasoline and Diesel Markets

Analysis by Scott Smith

National Crude Oil Prices

Oil production from the Permian basin in Texas and New Mexico is the balancing factor which drives U.S. and world prices. Figure 1 shows the recent price history for the U.S. benchmark crude, West Texas Intermediate (WTI) in dollars per barrel (bbl).

Figure 1: Weekly Cushing, Oklahoma WTI Spot Price: January 2006 to April 2019

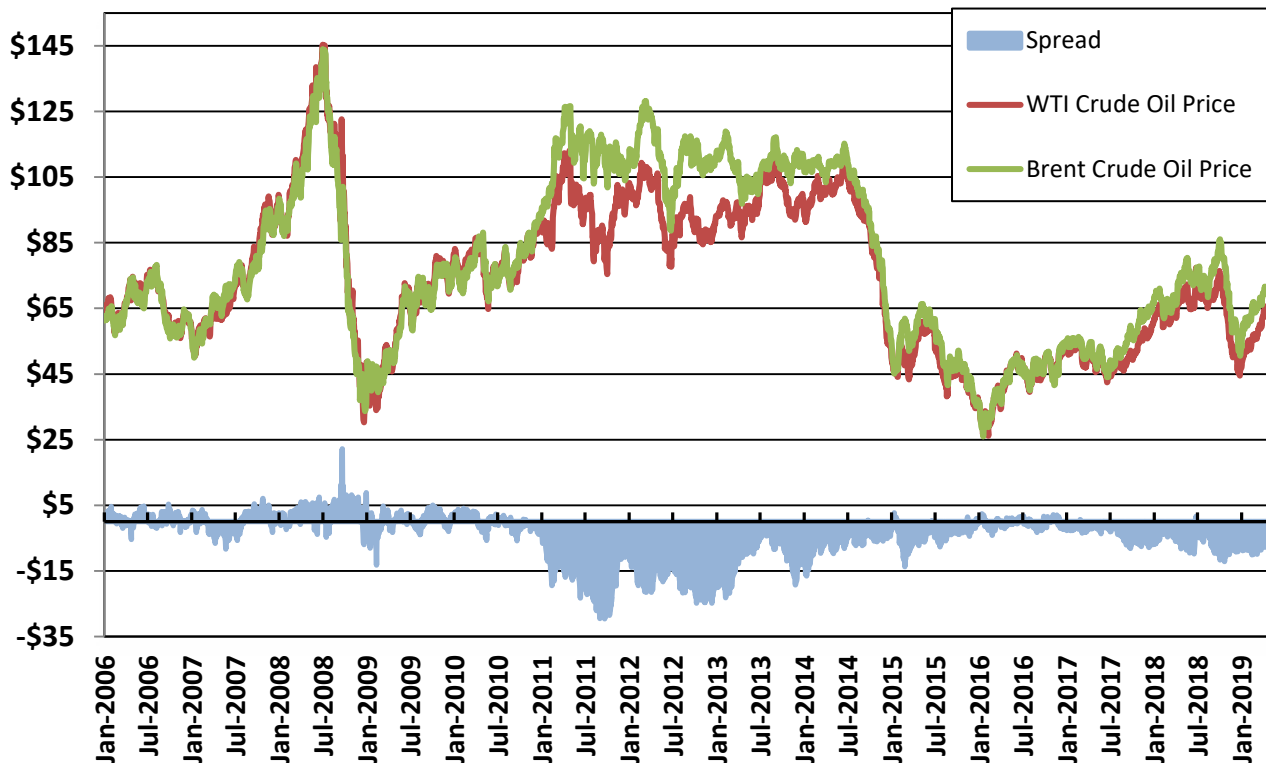


Source: Energy Information Administration

WTI crude spot prices averaged \$63.54 per barrel (bbl) in April 2019. This is somewhat lower than the April 2018 average price of \$66.25/bbl. However, the latest monthly average WTI price is significantly higher than in prior months of 2019. January 2019 WTI crude price was reported as \$51.37/bbl in the last *Trends* report. Prices have climbed steadily throughout the last three months.

Likewise, the crude oil price of the world benchmark, Brent, has followed a similar trajectory; spot oil prices have climbed from \$59.40 per barrel in January to \$73.5 per barrel by the last week in April. Winter oil prices were originally rocked by the nosedive in financial and commodity markets in December 2018. Their general recovery can partially be explained by renewed optimism about the oil world economy. Adding to the price momentum is the effect of US sanctions on Iranian oil and unrest in other exporting countries. In general, the WTI-Brent price spread in recent months has declined. Figure 2 shows prices and spreads between WTI and the world benchmark, Brent, which is produced in the North Sea. Prior to 2007, U.S. production could not legally be exported and was therefore a separate internal market. The premium to discount pattern shown in Figure 2 coincides with the linking of the U.S. market to the world market and the emergence of U.S. exports of crude oil. The spread between these two commodities can be thought of as a basin and quality differential for WTI compared to Brent. Changes in the WTI –Brent spread reflect the relative ability to transport the products to market and refineries' demand for different qualities of oil.

Figure 2: WTI - Brent Crude Oil Spot Price Spreads: January 2008 to April 2019

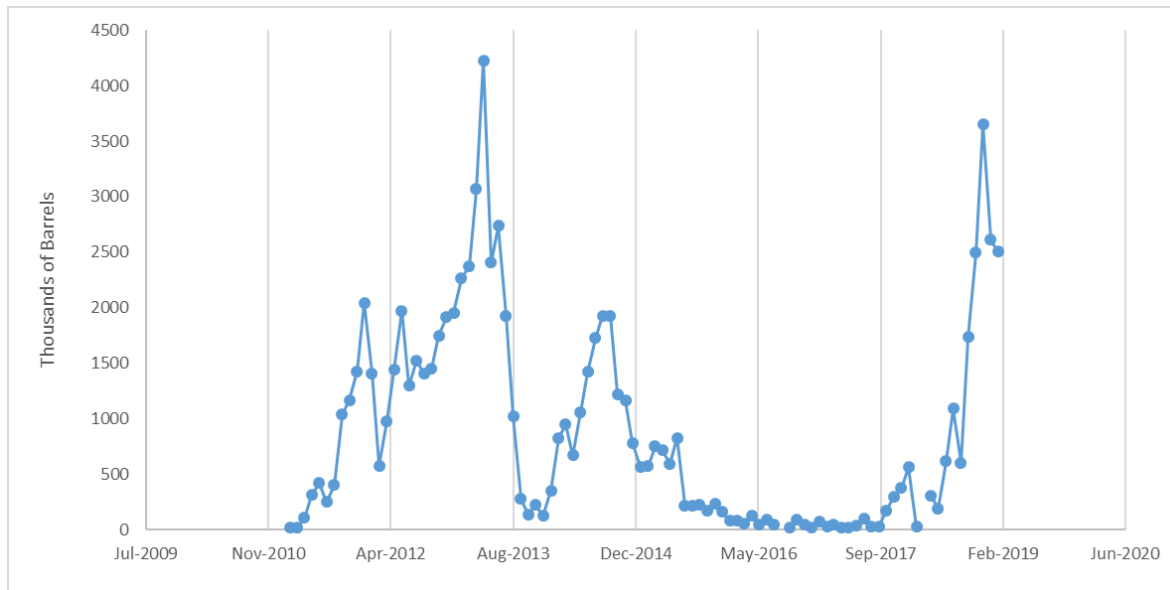


Source: Energy Information Administration

The spread between WTI and Brent in calendar year 2018 averaged about \$6.10 per barrel, and due to logistical constraints, the spread at times hit more than \$12 per barrel. In the first 4 months of calendar year 2019, the WTI Brent spread has grown to average \$8 per barrel. In April 2019, the WTI – Brent spread averaged \$7 per barrel. There is simply not enough pipeline capacity to carry oil from the Permian Basin. As a consequence, the U.S. is shipping more oil via expensive rail transport. Figure 3 shows internal rail traffic history in PADD3, the region containing the Permian Basin and the Gulf coast refineries.

The data shows a marked increase in rail oil traffic for the last three reported months and coincides with the growth in Brent-WTI spreads. This matters to oil consumers because it effects the wellhead price accruing to the producer. Lower wellhead prices mean less drilling and therefore lower supply. The 2018 average difference between Brent-WTI should decrease in late calendar year 2019 due to the addition of pipeline capacity from the Permian Basin that ramps up in the later part of the year. EIA forecasts an average Brent-WTI price spread of \$6.37/bbl for 2019 and only \$4/bbl in 2020.

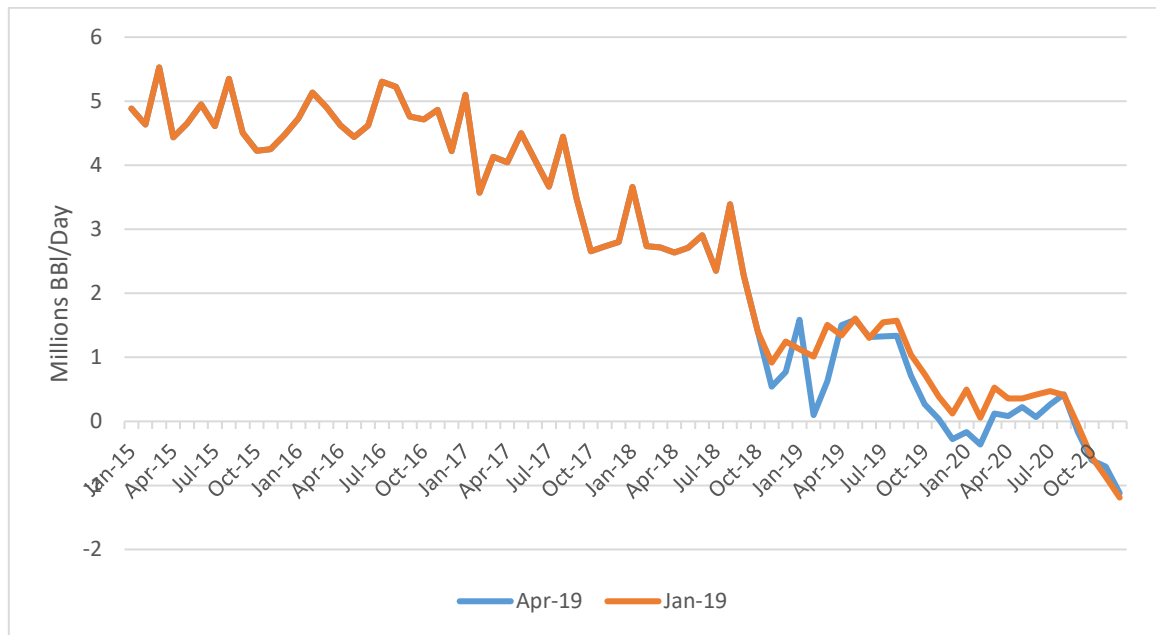
Figure 3: PADD 3 Internal Rail Traffic



Source: Energy Information Administration

Figure 4 shows the recent U.S. import / export history and compares EIA's January and April 2019 forecasts. The April 2019 EIA forecast of U.S. net imports is slightly stronger for calendar year 2019 and beginning months of 2020 due to the U.S. having both lower oil imports and higher liquid fuel exports. Both forecasts adhere to the theses that the U.S. will become a true net exporter in 2020. The recent forecast shows a minor difference as the U.S. becomes a net exporter of fuel sooner at the end of calendar year 2019 and 2020 in this current forecast versus prior forecasts.

Figure 4: EIA History and Forecasts of U.S. Net Imports of Crude Oil and Liquid Fuels

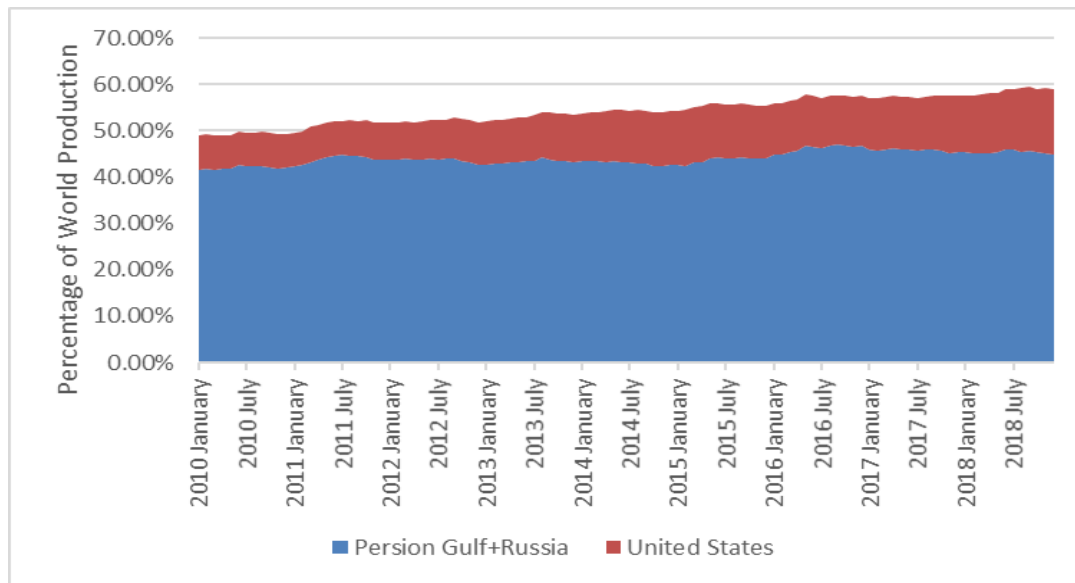


World and US Oil Production

The long run tension in world oil markets can best be described as the competitive interplay between the OPEC+ Russia (known as OPEC+) cartel and shale oil (fracking) producers in the Permian Basin. Figure 5 shows Persian Gulf (an EIA distinction) + Russia and US production as a share of the world total. Note that this graph excludes non – Gulf OPEC production.

What is striking about Figure 5 is the gain in U.S. production in barrels per day and market share; it almost doubled over nine years. Further, production increased from 10 million barrels per day (bbd) in December 2017 to 11.8 million (bbd) in December 2018. This is due to a technological innovation known as hydraulic fracturing or “fracking”. Hydraulic fracturing is the process of injecting liquid and materials at high pressure to create small fractures within tight shale formations to extract energy from an underground well after the drilling has ended and the rig and derrick are removed from the site. This technology has transformed the productivity of sedimentary basins once considered mature like the Permian Basin. Fracking has allowed U.S. producers to respond efficiently to market manipulations caused by OPEC+. U.S. producers have quickly responded to higher prices and are so capital efficient that the cartel has been unable to bankrupt them by cratering prices. In short, every effort by OPEC+ to raise prices has been met with increased U.S. production.

Figure 5: Cartel and U.S. Shares of Total World Crude Oil Production 2010:2018



Source: Energy Information Administration

U.S. crude oil production averaged 10.96 million (bbd) in 2018. EIA forecasts 12.39 million (bbd) in calendar year 2019 and even higher in 2020 averaging 13.10 million barrels per day. As Figure 6 shows, the vast majority of the production increase originates from the lower 48 excluding the Gulf of Mexico. Production in the lower 48 states grew by 29.5 percent from 6.74 million barrels per day in 2016 to 8.74 million barrels per day in 2018. This trend is expected to continue through 2020 by EIA. The largest amount of U.S production by far comes from the Permian Basin in West Texas and Eastern New Mexico. The Permian basin produced roughly 3 million barrels per day in 2018 and if the Permian basin were an OPEC country, it would rank number 4 behind Saudi Arabia, Iran, and Iraq.

Figure 6: U.S Crude Oil Production By Source 2017-2020 (million barrels per day)

Sources of US production	U.S. crude oil production				
	2016	2017	2018	2019	2020
Alaska	0.49	0.49	0.48	0.49	0.49
Federal Gulf of Mexico	1.60	1.68	1.74	1.94	2.10
Lower 48 States (excl GOM)	6.74	7.18	8.74	9.96	10.50
total U.S. production	8.83	9.35	10.96	12.39	13.10

Source: Short-Term Energy Outlook, April 2019

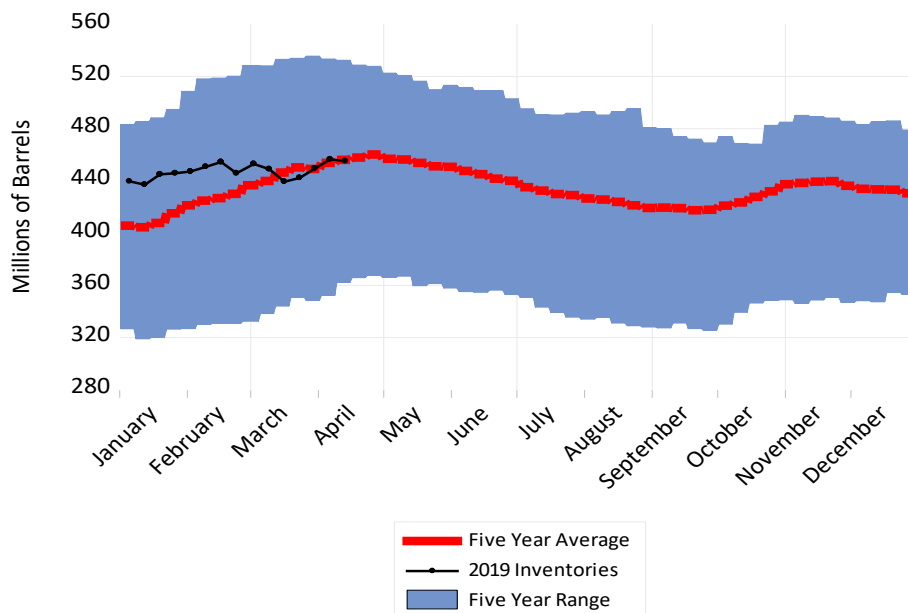
As usual there are significant risks to this EIA forecast. Investment capital for new activity has been substantially financed by private equity partnerships. There have been reports that these wells are not meeting their investment metrics. An individual fracking project's production declines by as much as 15 percent annually so new investments are constantly needed to sustain output. It is

by no means a certainty that investors are willing to invest at the scale experienced in the last few years.

US Crude Inventories

Our *Fuel Trends Report* uses historical five-year averages for inventories to compare to current inventory levels. Weekly inventories for crude oil, gasoline, and distillate span five years from 2013 to the April 2019. Inventories have traditionally been used as a measure of over/undersupply and includes all of the U.S. crude oil and lease condensate (mixture of heavy hydrocarbons and pentanes) currently held at refineries, within pipelines, and at pipeline terminals. During the first two months of 2019, the weekly inventories in 2019 were higher than the 5 year average. In March and April 2019, weekly inventories are now tracking five-year averages. Weekly U.S. stocks of crude oil were 439.8 million bbl as of the first week in January 2019. The latest April inventories shows little changed at 437.1 million bbl. Right now, the inventory levels for crude oil appear to be having little effect on current crude prices.

**Figure 7: 2019 Weekly U.S. Ending Inventories of Crude Oil
(Excluding Strategic Petroleum Reserve)**



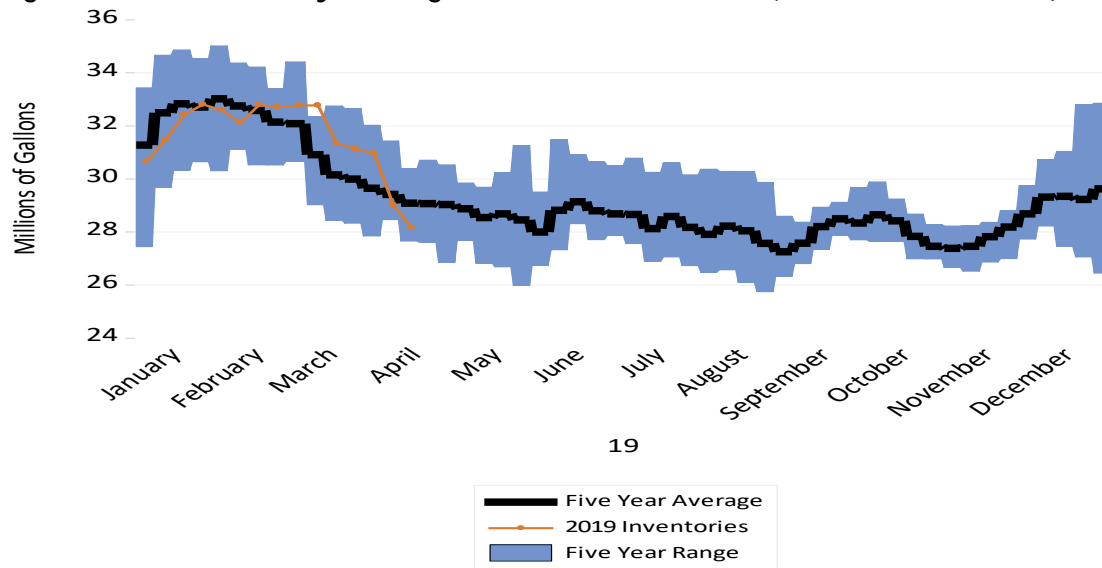
Source: Energy Information Administration

Inventories: The West Coast Oil Market

The Energy Information Administration organizes the country into five Petroleum Administration for Defense Districts (PADD5) and Washington is located within PADD 5. Figure 7 shows gasoline inventories for the west coast, PADD5. As noted in our last *Trends Report*, 2018 year-ending gasoline inventories were well below five year averages. 2019 inventories recovered rapidly until April which is the traditional time for refiners to retool production for summer's low volatility

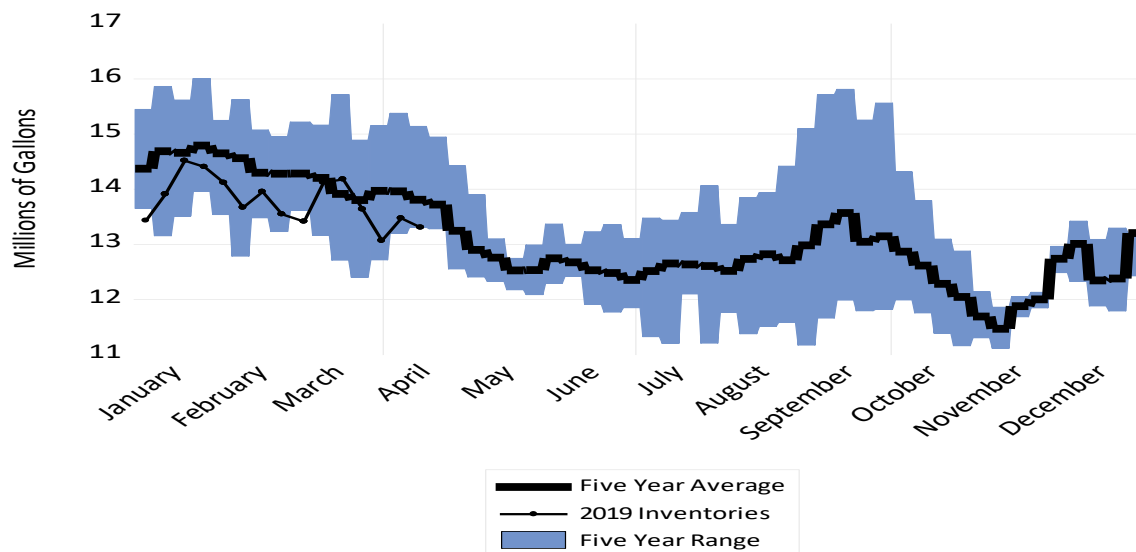
fuels. It is unclear whether current low inventories are temporary or reflect production factors that could lead to higher prices. Weekly west coast (PADD 5) ending stocks of gasoline were 30.7 million bbl as of the first week of January, 2019. The latest April figure is slightly down at 28.2 million bbl for gasoline inventories which is slightly below the 5 year inventory average for gasoline.

Figure 8: 2019 Weekly Ending Gasoline Inventories (West Coast PADD5)



Source: Energy Information Administration

Figure 9: 2019 Weekly Ending Distillate Inventories (West Coast PADD5)



Source: Energy Information Administration

Figure 9 shows west coast (PADD 5) distillate inventories. Since few west coast structures use home heating oil, the vast majority of this production consists of diesel used as transportation fuels. As of the end of the 2018, distillate inventories tracked lower portion of the 5 year range. That pattern has continued through the first few months of the current year. Weekly west coast ending stocks of distillate fuel oil were 13.4 million bbl as of the first week of 2019. The latest April figure is little changed at 13.3 million bbl. In April, the distillate inventories are at the bottom of the inventories 5-year average range. Inventories for the second week of April were 13.3 million bbl. This is 500 thousand barrels under the five-year average and roughly equal to the five-year low. It is not yet clear whether these data shows a true shortage of product or some other production related factor.

The Washington Oil Market

Washington crude oil prices are a function of where and how the state receives crude oil. Figure 10 reveals the mode of transportation and the percentage each mode represents of all Washington's crude oil. Those weights are used to construct an average cost for crude oil refined in Washington. As mentioned before, Washington refineries supply western Washington, the Portland, Oregon metropolitan area, and the California market. The transportation estimates in Figure 10 are the latest figures provided by the Washington Department of Ecology. The benchmark prices were obtained from Oilprice.com and the Alaska department of Revenue. Figure 10 calculations are qualified by the following caveats: transportation figures are for the quarter ending December 2018; the product mix for rail transport is not exact, and shipping costs are not included.

Figure 10: Calculated Composite Washington Crude Oil Average Prices

		Forecasts (\$ /bbl)	
Method of Transport	Percent of Total	1-Jan ¹	26-Apr
Vessel (Alaska North Slope)	45%	\$55.66	\$73.71
Pipeline (Western Canadian Select)	27%	\$37.41	\$49.80
Rail (Williston Sweet)	28%	\$32.75	\$52.25
Total (Calculated Composite)	100%	\$44.39	\$61.34
Actual WTI		\$45.41	\$63.30
% Difference Between Actual WTI & Composite Price		2%	3%

Source: Oilprice.com, Alaska Department of Revenue

¹ Note that the reported 1st quarter crude oil prices are for a later date than those reported in the prior January 2019 *Trends Report*. The crude oil prices used were as of January 1, 2019.

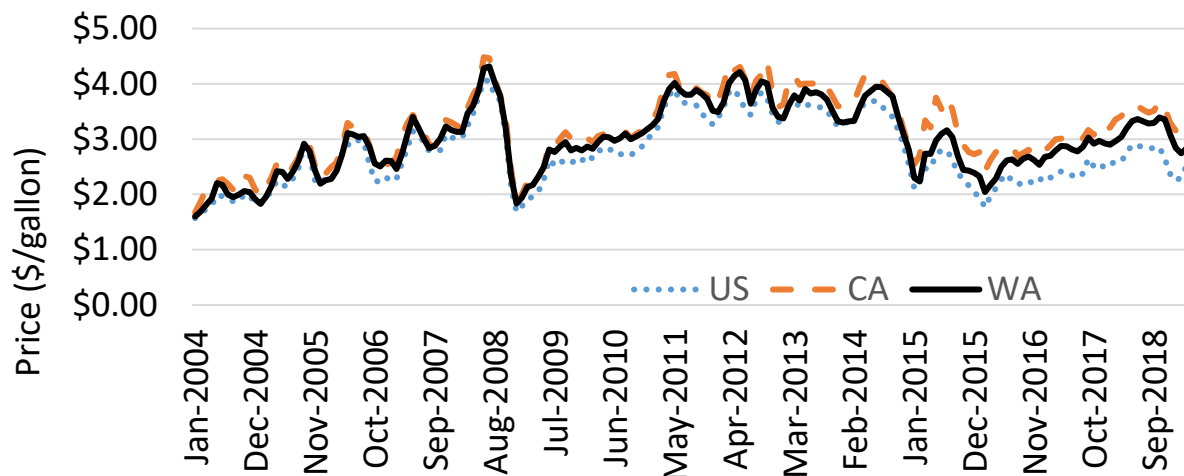
Multiplying these crude oil prices by their shares yields a weighted average crude oil price for Washington which increased by roughly 38% between January to April 2019. Further the difference between the calculated “Washington composite” and the analogous WTI price increased from 2 to 3 percent over the last 3 months.

Washington Retail Gasoline and Diesel Prices

Washington’s fuel market is integrated into the California the market. Figure 11 shows the history of the monthly *ex tax* gasoline prices for the Washington, California and the national market since 2010. Both California and Washington follow the inflections in national price trends. This makes sense since the major determinant of the national price trends are mirroring the trends in rising crude oil prices. The movement of national retail gas prices can be explained by world events. In January gas prices were quite low given uncertainty about the world economy and tepid demand. The recovery in prices was accelerated by the upcoming expiration of sanctions waivers granted to importers of oil from Iran, a major OPEC member.

West coast prices are higher than the national average. This is because the majority of crude oil production and especially refining capacity is east of the Rockies. Washington and the U.S. gas price spread has been \$0.28 per gallon between January 2010 and December 2018. Recently, the Washington and U.S. price differential has grown from that longer term average. In calendar year 2018, the Washington to U.S. gas price spread rose to \$0.49 per gallon but in the first 4 months of 2019, the Washington to U.S. spread declined a little to \$0.45 per gallon. Washington gasoline prices are consistently lower than California prices. The basic reason for this is transportation costs; California has insufficient refining capacity. The price spread between California and the U.S. regular gasoline prices has averaged \$0.50 per gallon between 2010 and the 2018. In recent years, the spread between California and U.S. regular gas prices has grown significantly. In April, the California to U.S. gas price spread grew to more than \$1 per gallon.

Figure 11: Retail Gasoline Prices: WA, CA & the U.S. January 2010- April 2019

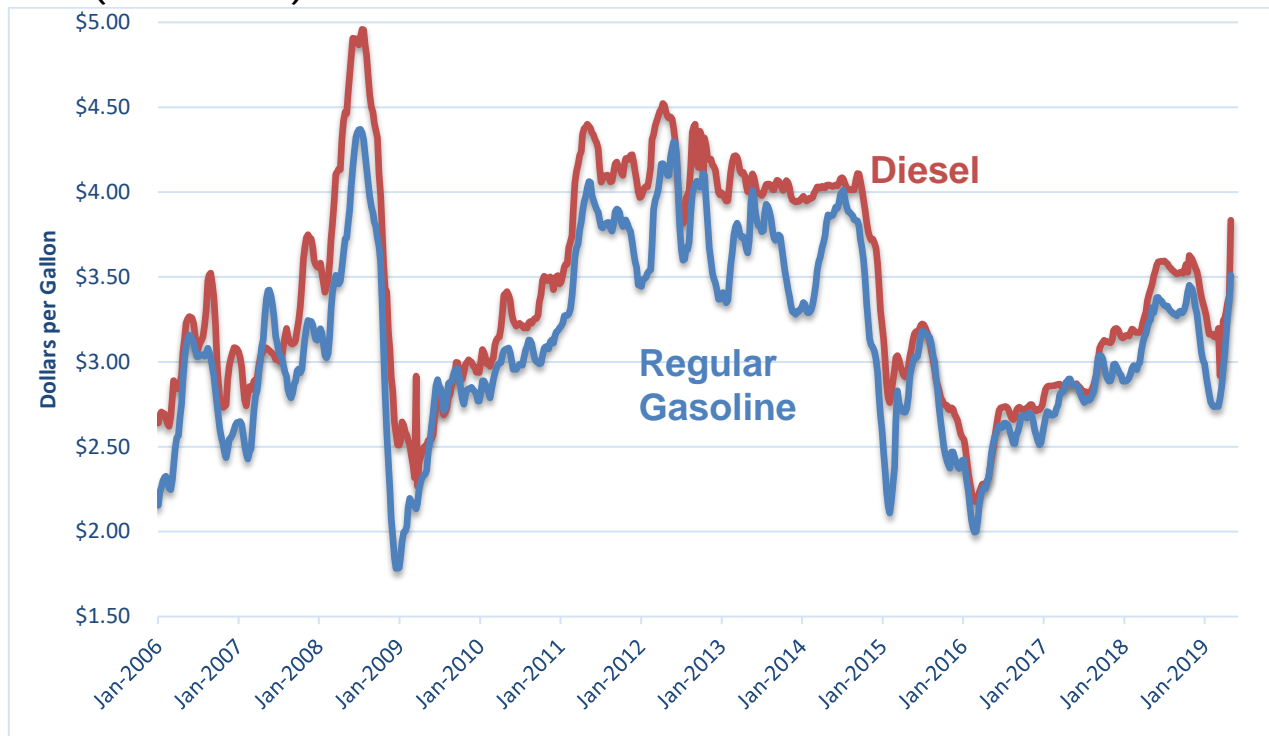


Source: Energy Information Administration

The average spread between California and Washington gasoline prices between 2010 and 2018 was \$0.22 per gallon. Recently, that spread has grown. In 2018, the California and Washington gas price spread increased to \$0.28 per gallon. The 2019 year-to-date-average is now up to \$0.44 per gallon. This spike is most likely a result of outages at California refineries. Gas prices in California and the Bay Area have jumped following the temporary shutdown of the Valero refinery in Benicia. A fire in early April at the Phillips 66 refinery in Los Angeles has forced the shutdown of one of the plant's processing units. Earlier in March, a power outage forced the Chevron refinery in Richmond, to flare (burn off) methane in order to relieve pressure in the refining units. Planned shutdowns for maintenance at other refineries in the state also have worked to reduce supply. To make up the losses, California wholesalers import more gasoline from Washington refineries.

Figure 12 shows Washington regular gasoline and diesel prices since January 2006, as reported by AAA. From beginning of the current year through April, Washington gasoline and diesel prices have fallen from their high point in December 2018 at \$3.08 per gallon to much lower prices in January and February 2019 of \$2.84 and \$2.74 per gallon, respectively. Since then, Washington gas prices rose in both months to an average of \$3.25 per gallon in April. During the last week of April, retail gas prices increased to \$3.40 per gallon, the highest price so far in calendar year 2019. April retail gas prices have climbed recently due to Iran sanctions developments.

Figure 12: Washington Retail Regular Gasoline and Diesel Prices January 2006-April 2019 (Includes Tax)



Source: AAA

Washington diesel prices have followed a slightly different trend from gasoline prices but they haven't risen as fast as gas prices recently. Between October 2018 and March 2019, Washington diesel prices fell month over month to a low point of \$3.08 per gallon by March. Then in April, retail diesel price spiked back up by \$0.26 per gallon in one month to a monthly average of \$3.34 per gallon. The last week of April saw the highest Washington retail diesel price of \$3.43 per gallon, which was \$0.16 per gallon higher than in the first week of April. Unlike the 4th quarter of 2018, there have been no unplanned refinery outages in Washington year-to-date in 2019. April retail diesel prices have climbed dramatically on Iran sanctions news.

BIODIESEL PRICE PREMIUM TRENDS

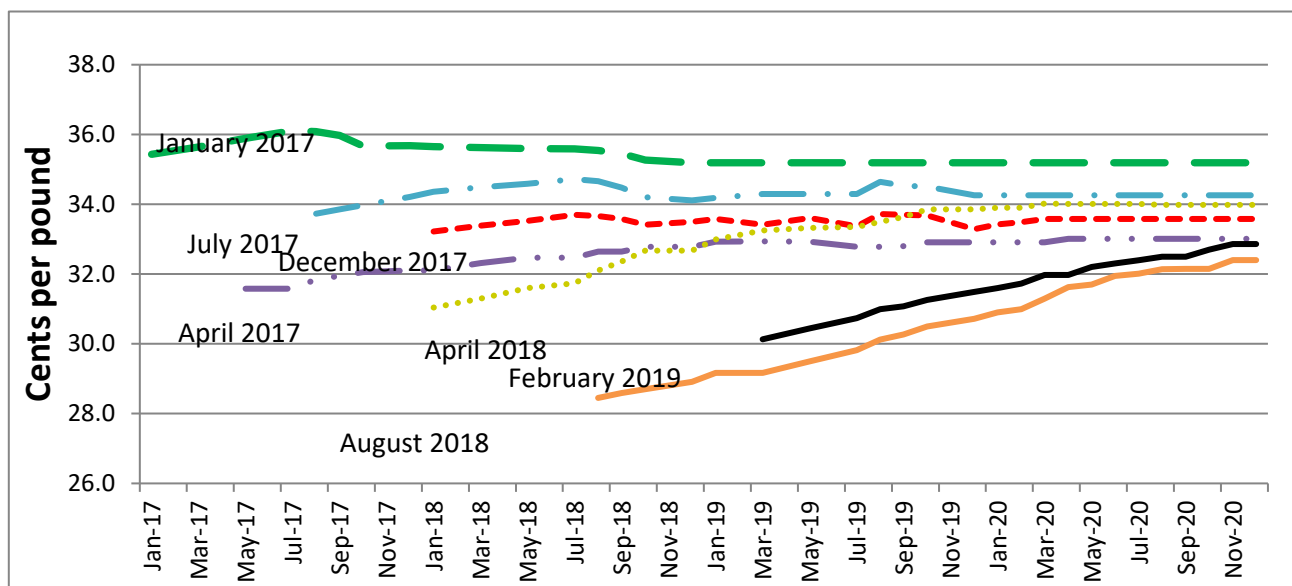
Analysis by Lizbeth Martin-Mahar, Ph.D.

Soybean Oil Futures and Biodiesel Prices

Soybean Oil Futures

Biodiesel prices are dependent in large part on the cost of the feedstock used in producing biodiesel. Since soybean oil is the predominant feedstock for biodiesel, an examination of the futures prices for soybean oil was completed. Figure 13 shows the latest futures for soybean oil for the past beginning in January 2017 through February 2019. In the past, futures have ranged from a low of 28.9 cents per pound for August 2018 future prices to 36 cents per pound projected in January 2017. Now in February 2019, the soybean oil future prices have increased a little to starting at about 30 cents and rising to nearly 32.9 cents by January 2021. These latest February 2019 soybean oil futures are higher than in August but lower than any other period in 2017 and 2018. The future increases of the current futures prices is steeper than in prior forecasts. Given the recent tariffs put on US soybeans from China in 2018, the current soybean oil future prices have fallen 10 percent since the beginning of the year for future in March 2019.

Figure 13: Futures Prices for Soybean-oil (January 2017 through April 2019)

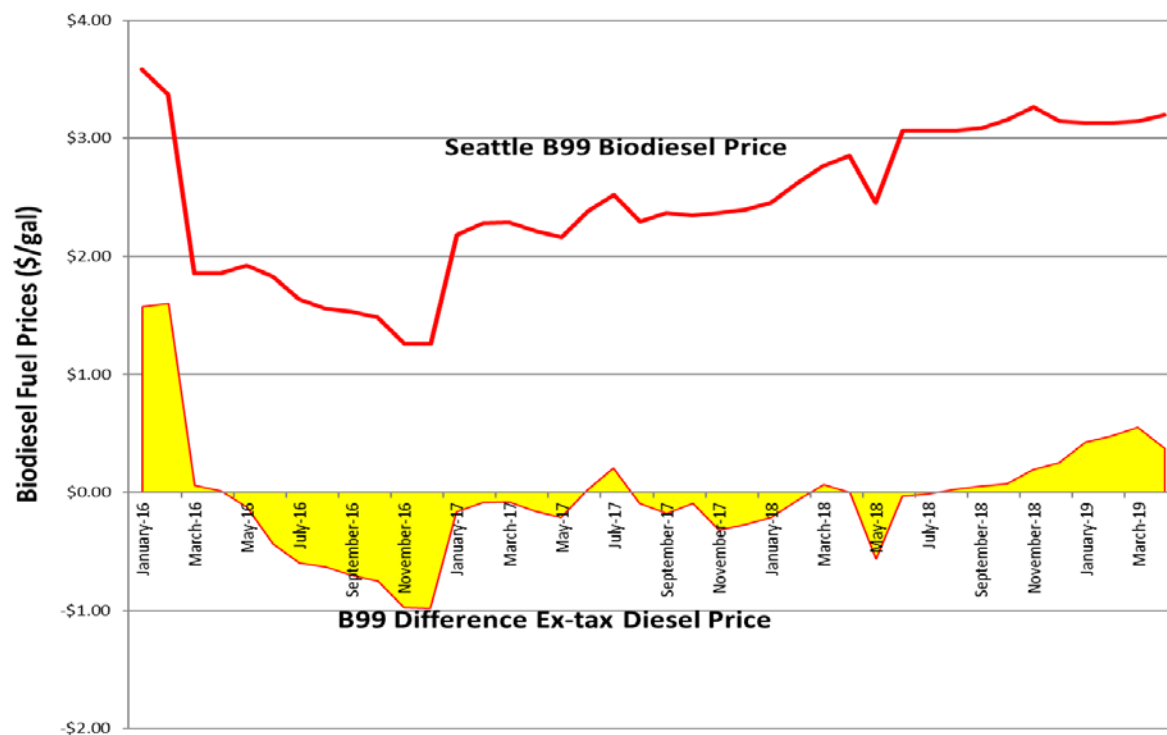


Biodiesel Prices: Comparison of Historical and Recent Prices

Recent Trends: Washington B99 Biodiesel Prices

Since October 2018, the B99 price in Seattle has had very little change. In October the average price was \$3.16 per gallon. It increased slightly in November to \$3.26 per gallon but dropped down again in December to \$3.15 per gallon. Since January 2019, the B99 price has remained at an average price of \$3.13 per gallon. In April, the B99 biodiesel price did increase slightly to \$3.20 per gallon. Figure 14 shows the B99 price and the price premium since January 2016. This chart reveals a negative trend through calendar year 2016. During calendar year 2017 and 2018, B99 biodiesel prices rose for the most part except for a slight drop in May 2018. Now in calendar year 2019, the B99 price premiums above the regular diesel prices have remained fairly stable at around \$0.40 to \$0.50 per gallon. In April, the B99 price premium fell a little to \$0.37 per gallon due to retail diesel prices rising faster in April than B99 prices.

Figure 14: Monthly B99 Biodiesel Prices since January 2016



Source: B99, Seattle biodiesel price data - OPIS Fuel Price Survey.

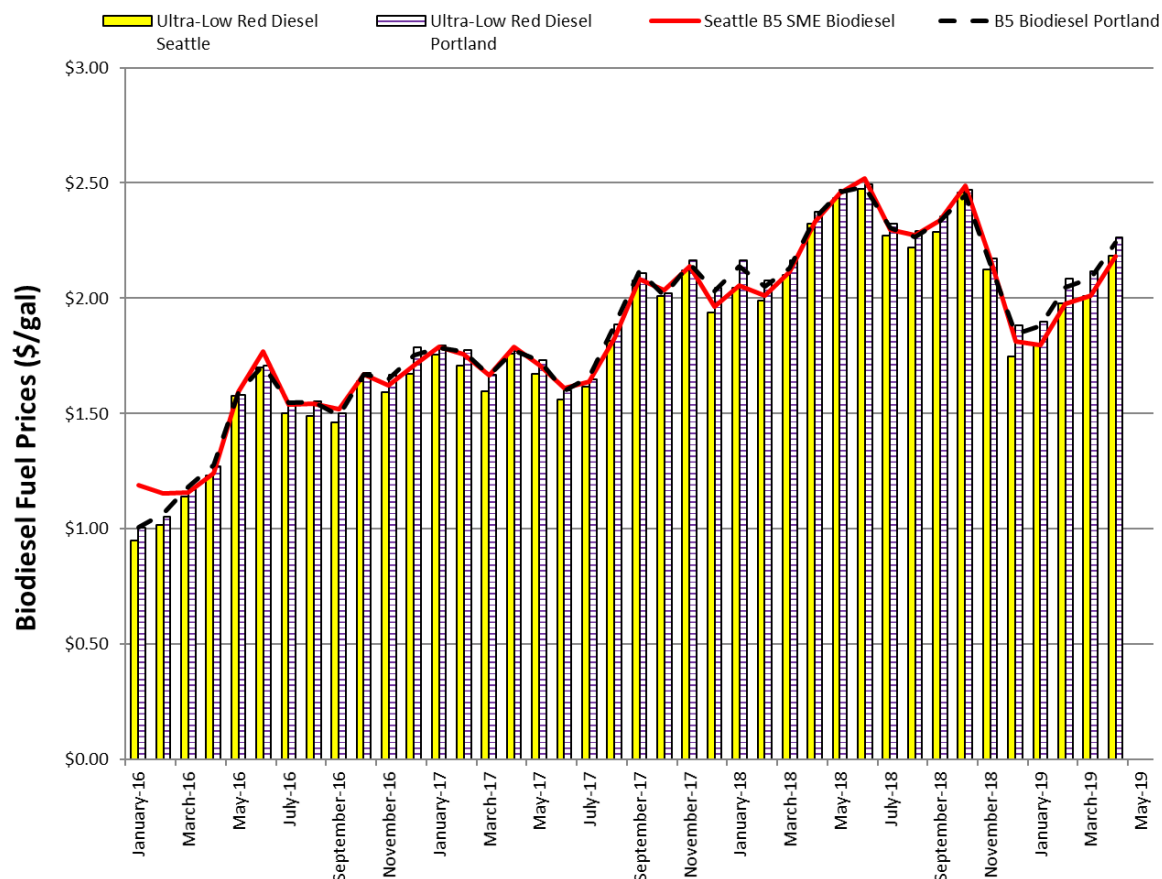
Recent Trends: Seattle and Portland B5 Biodiesel Prices

Seattle and Portland B5 red dyed biodiesel prices are tracked because the Washington State Ferries new contract for fuel purchases is based on the Portland B5 red dyed biodiesel prices. We have also compared the B5 red dyed biodiesel price with red dyed diesel as well. Figure 15 reveals that B5 prices in Portland and Seattle are typically pretty close in price. Recently B5 prices in

Portland are slightly higher than Seattle B5 prices and the difference has grown to 4.5% by January 2019 at \$0.08 per gallon. In recent months, the B5 price differences has fallen to 2.8% or \$0.06 per gallon by April 2019. In February 2019, Portland B5 red dyed biodiesel price was \$2.05 per gallon which was the same price as the prior year. Portland B5 red dyed biodiesel prices rose to \$2.09 per gallon and the \$2.24 per gallon by April. April's Portland B5 red dyed biodiesel price is \$0.11 lower than a year ago. The same trends appear for the Seattle B5 red dyed biodiesel prices in recent months. By April, the average Seattle B5 red dyed biodiesel price was \$2.18 per gallon which was \$0.15 lower than a year ago, see Figure 16.

In addition, the changes in the B5 red dyed biodiesel prices can also be seen in the changes in the red dyed diesel prices as well. The difference in red dyed diesel prices in recent months mirrors the difference in biodiesel and diesel trends. In January 2019, the difference between Portland and Seattle dyed diesel was \$0.10 or 5% and now by April, it declined to \$0.08 or 3.6%. This same trend is seen in the differences between Portland and Seattle B5 dyed biodiesel prices.

Figure 15: Seattle and Portland OPIS Red Dyed Diesel and B5 Biodiesel Prices: Since January 2016



Source: Seattle and Portland red dyed diesel and B5 biodiesel price data - OPIS Fuel Price Survey.

Figure 16: Seattle and Portland OPIS B5 Biodiesel Prices: February - April 2019

Monthly Average Price	B5 Prices		
	Portland Price (\$/gal)	Seattle Price (\$/gal)	% Difference Portland vs Seattle Prices
February 2018	\$2.05	\$2.05	1.9%
February 2019	\$2.05	\$1.98	3.5%
March 2018	\$2.13	\$2.11	0.8%
March 2019	\$2.09	\$2.01	3.8%
April 2018	\$2.35	\$2.33	0.7%
April 2019	\$2.24	\$2.18	2.8%

Source: B5, Seattle and Portland biodiesel price data - OPIS Fuel Price Survey.

FUEL PRICES AND CRUDE OIL PRICE TRENDS COMPARED TO RECENT FORECASTS: US crude oil prices, Washington retail prices of gasoline and diesel Analysis by Lizbeth Martin-Mahar, Ph.D.

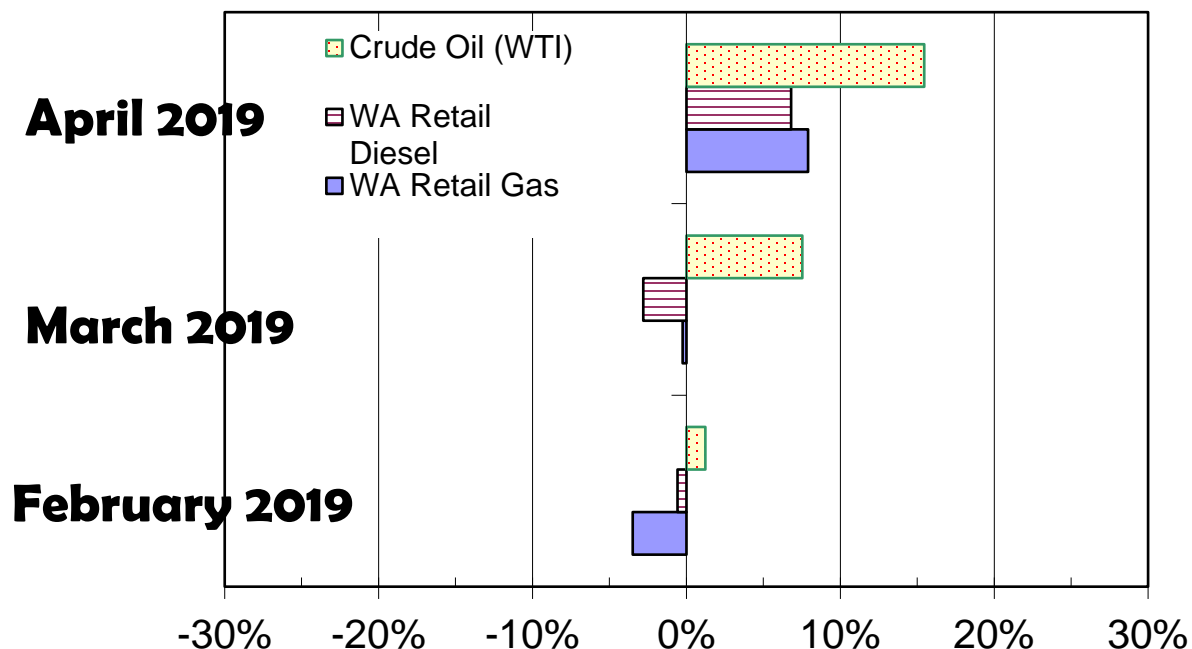
In this edition of the *Fuel and Vehicle Trends Report*, we have seen West Texas Intermediate (WTI) crude oil prices rise well above our last projections in April 2019 for that month. In February and March actual crude oil prices for WTI came in at \$54 and \$57 per barrel respectively. In February 2019, WTI crude oil price averaged \$54.5 per barrel which was 1.2 percent above the last forecast. The WTI price increased a little, \$3.5 per barrel, in March over the prior month and was 7.5 percent above the first quarter 2019 projection in March. Then in April, WTI crude oil prices increased again by \$6 per barrel month over month to \$63.9 per barrel. This increase was not anticipated in the last forecast so actual WTI prices in April are now 15.5 percent above the second quarter 2019 crude oil price average. See Figure 17 for more detail.

Consistent with the recent trend in WTI crude oil prices going up month over month between February and April 2019, Washington retail gasoline prices grew from \$2.74 to \$3.25 per gallon. In February and March, the retail gas prices were slightly below the first quarter, 2019 average price of \$2.84 per gallon. In February, retail gas prices were 3.5 percent below the first quarter 2019 and March's actual retail gas prices were 0.2% below the first quarter, 2019 projections. In April, retail gas prices rose a lot by \$0.42 per gallon month over month to \$3.25 per gallon and was 7.9 percent above the second quarter 2019 projected average price of \$3.01 per gallon.

The recent trends in retail diesel prices were not exactly the same as the retail gas price trends. In the month of February, retail diesel prices averaged \$3.15 per gallon, which was close to forecast by -0.6 percent below the March forecast for first quarter 2019. Then in March, retail diesel prices fell month over month to \$3.08 per gallon which put the actual diesel price 2.8 percent below the first quarter 2019 projection. In April 2019, retail diesel prices rose up a lot by \$0.26 per gallon to \$3.34 per gallon which was 6.8 percent higher than the forecast for the second quarter of 2019 in March.

In the past three months (February through April), we have seen the difference between retail gas and diesel prices fall from \$0.41 per gallon to \$0.09 per gallon in April. Retail diesel prices continue to show a little price premium per gallon over gasoline prices but that could change soon given how close the two prices are ending up in April. The price premium for diesel has been decreasing rapidly over the past three months. This trend is the result of gasoline prices rising much faster than diesel prices over this time period.

Figure 17: Percent Change in February - April 2019 Average Fuel Prices Compared to the March 2019 Price Forecast



Source: Washington Transportation Revenue Forecast Council March 2019 Forecast, EIA and AAA weekly fuel prices

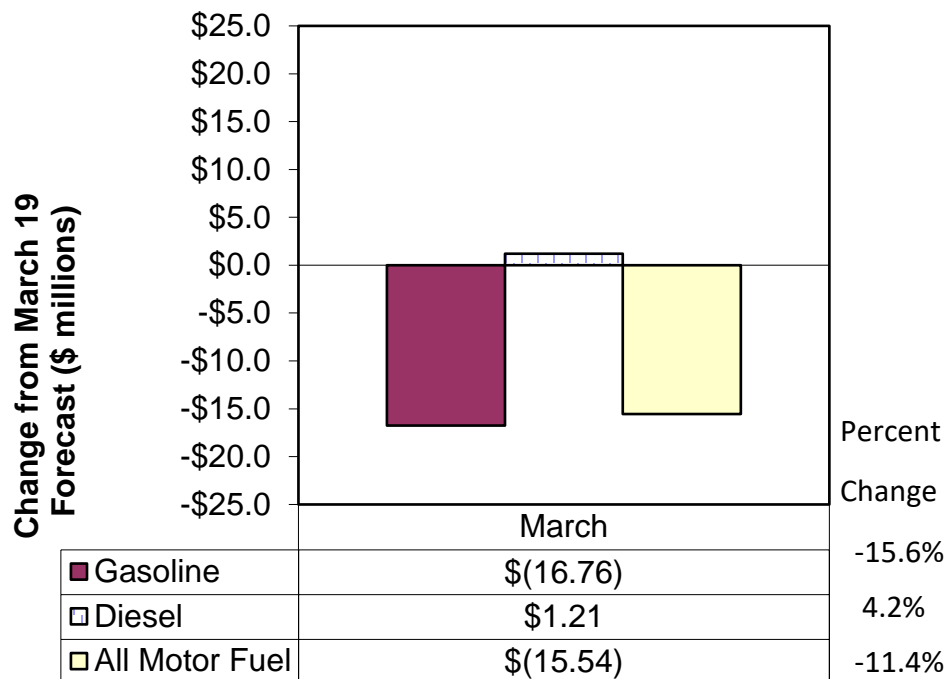
WA MOTOR VEHICLE FUEL TAX COLLECTION TRENDS COMPARED TO RECENT FORECASTS: Gasoline and Diesel Tax Collections

Analysis by Lizbeth Martin-Mahar, Ph.D.

Since the adoption of the March 2019 forecast, one month of fuel tax collections have been reported. The March fuel tax collection report from the Department of Licensing have shown less revenue than forecasted in March for both fuel types. In March, gasoline tax collections came in at \$90.54 million which was down from projections by nearly \$17 million from the forecast. Diesel tax collections came in at \$29.9 million which was slightly up by \$1.21 million from the March forecast. For all motor fuel, March fuel tax collections came in at \$120.46 million, down \$15.54 million overall. Figure 18 reveals the March results. We know that March collections represents

February fuel sales in the state. We had such a bad snow storm in mid-February that restricted a lot of people from going out on the roads for almost a week that this significantly reduced fuel consumption during this month. The March forecast tried to anticipate the reduction in both gasoline and diesel tax collections but for gasoline, we underestimated the impact of the snow storms on fuel consumption. The end result was overall fuel tax collections came in \$15.5 million or 11% below the March forecast due to lower than usual fuel consumption activities.

Figure 18: Motor Vehicle Fuel Tax Collections in March 2019 Compared to the March 2019 Revenue Forecast



* Collections in the month of March were lower than usual due to severe snow conditions in February 2019

Source: Washington Transportation Revenue Forecast Council March 2019 Forecast and State Treasurer's Office monthly fuel reports

VEHICLE TRENDS

Analysis by David Ding, Ph.D.

Vehicle Registrations and Revenue

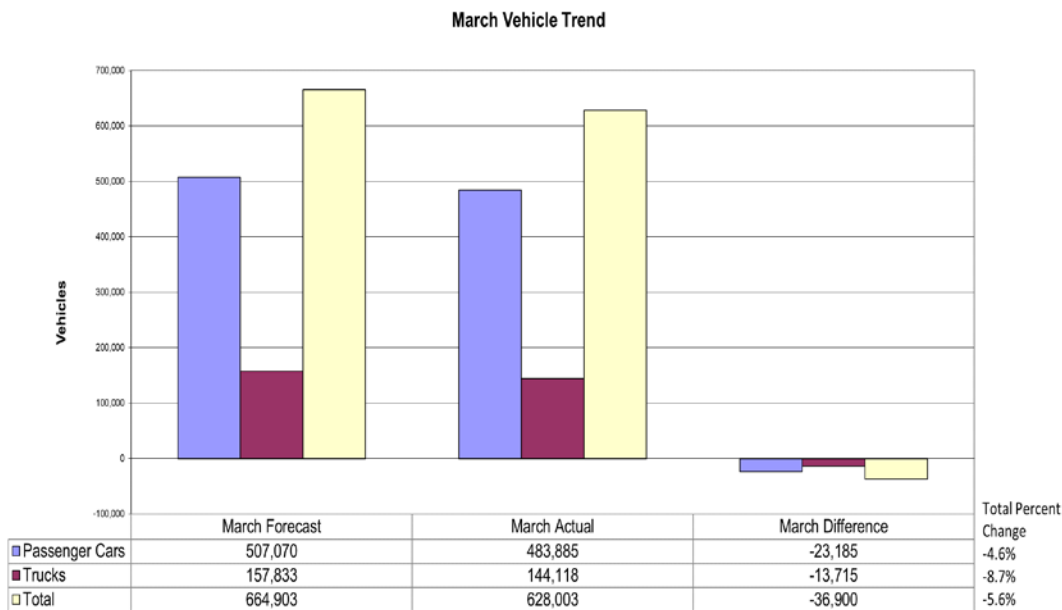
Since the March 2019 forecast, we have received one month of licensing registrations. For the month of March, vehicle registrations have been down, see Figure 19. Passenger car registrations came in at 483,885. The actual was 4.6 percent or 23,185 vehicles below the projection

in March. We have checked with the Department of Licensing (DOL) to see if there were an unusual processing issues or large transfers of funds but they have not yet identified any unusual circumstances in March. It is possible that the lower registrations will be picked up in April or it could be sign of slowing of registrations.

Truck registrations have a similar pattern to passenger cars but more dramatic. The truck registrations were reported as 144,118 vehicles in March. It was down for 8.7 percent or 13,715 vehicles. Like passenger cars, we have checked with DOL to see if there were any unusual circumstances but they have not identified any. Given the size of the loss of truck registrations in March, the later months of the fiscal year may pick up some registrations but not all the missed ones.

For both passenger cars and trucks combined in March, vehicle registrations came in 36,900 vehicles below the March forecast or 5.5 percent below the last projections. These lower March registrations are following the really low February 2019 registrations which included the snow impacts from DOL offices being closed for several days. It was expected that those lost transactions in February from DOL office closures would be made up in future months but they do not seem to have appeared yet in the March vehicle registrations.

Figure 19: Vehicle registrations, March 2019, Forecast vs. Actual.



Source: Washington Transportation Revenue Forecast Council March 2019 Forecast and Department of Licensing Reports 13, March 2019.

We also have one month of revenue to discuss in this report, Figure 20. For \$30 basic license fees, the revenue came in at \$15.4 million in March, 3.1 percent lower or \$0.5 million shy of the \$15.9 million forecasted. Given that \$16.6 million revenue was collected in the same month last year, the \$30 basic license fee revenue is down by \$1.2 million or 7 percent from the prior year. As

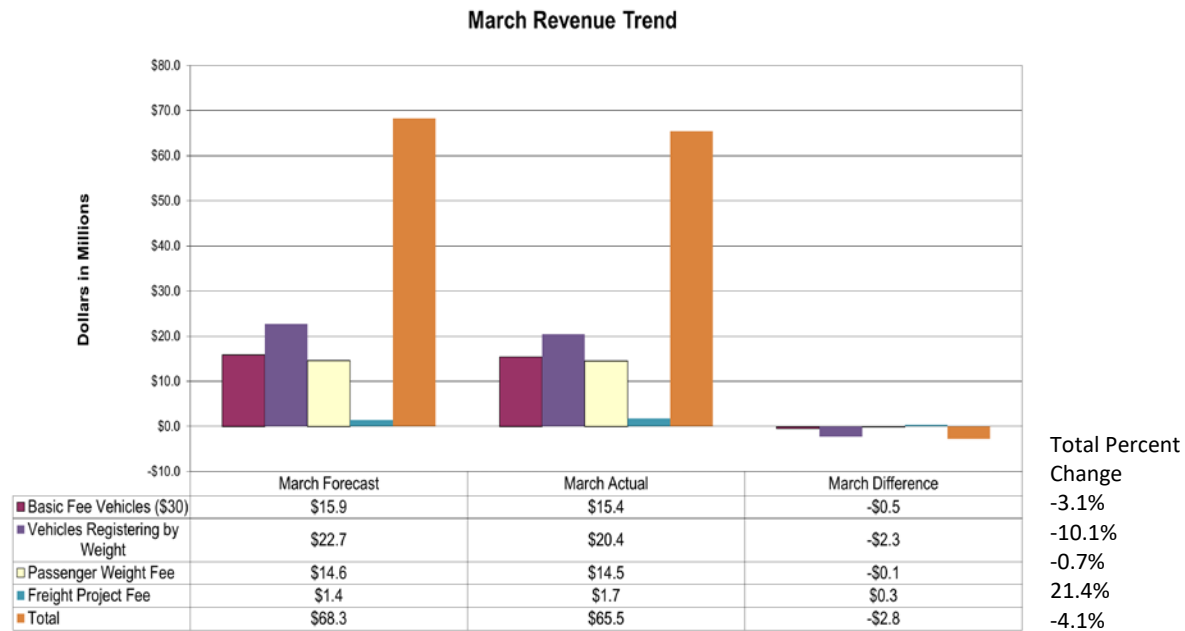
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to the truck weight fee revenue, they came in at \$20.4 million. It was lower than expected by \$2.3 million, which was 10.1 percent less than the March forecast. Comparing with \$21.7 million revenue in March last year, the truck weight fees is down by \$1.3 million. We don't know why this happened and have addressed this issue with DOL.

Figure 20 also reveals that the revenue from the passenger weight fee came in nearly right on with the forecast for March. The passenger weight fee in March came in at \$14.5 million which was \$0.1 million shy of the forecast. The freight project fee in March came in at \$1.7 million which was \$0.3 million or 21.4% more than the projection. The trend of freight project fee revenue is not consistent with the trend of truck weight fee revenue.

Figure 20: Vehicle revenue (\$ millions), March 2019, Forecast vs. Actual.



Source: Washington Transportation Revenue Forecast Council March 2019 Forecast and Department of Licensing ARFS Revenue Reports, March 2019.

Finally, total License, Permit, and Fee (LPF) revenues were 4.1 percent or \$2.8 million lower than the March forecast. We forecasted \$68.3 million for the month of March, but received \$65.5 million instead. Comparing the recent March 2019 actuals with the March 2018 revenue, it was found that there was a loss in revenue in March 2019 compared to the prior year by \$4.2 million.

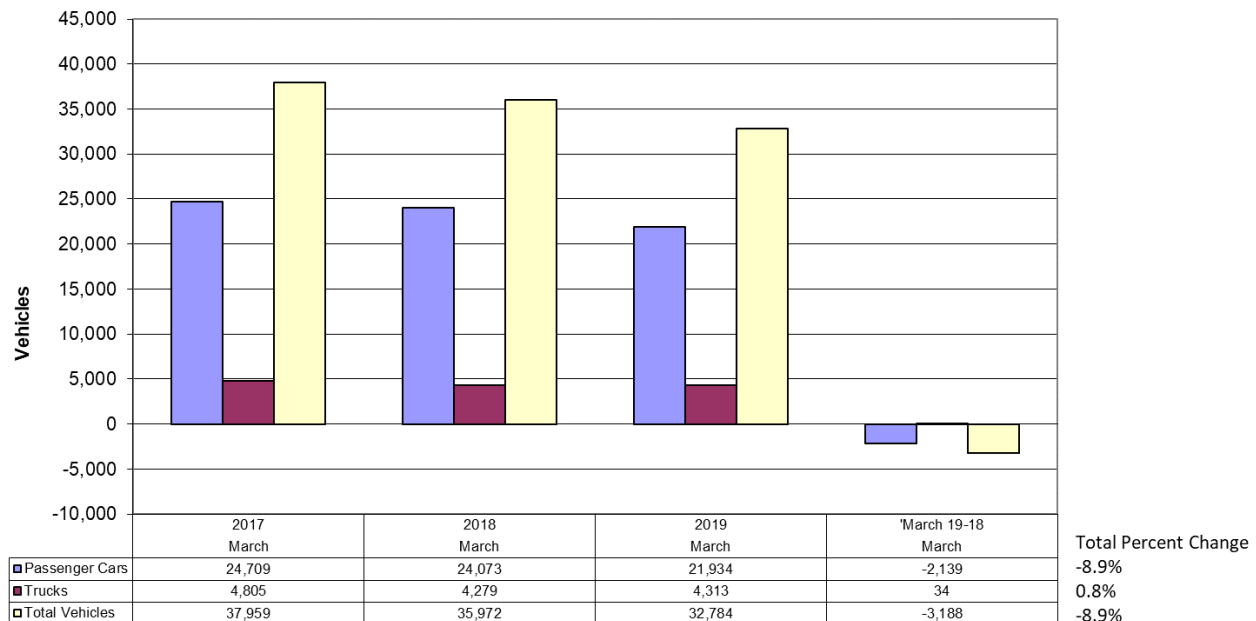
New Car and Truck Registrations from Sales

New car registrations for March 2019 were 2,139 vehicles or 8.9 percent less than the registrations for the same period a year ago. This is a little unusual since passenger car registration year over year typically grow, annually, not decline. The March 2019 registration level for passenger cars was also below the car registrations in that month two years ago as well. See Figure 21.

New truck registrations in Washington State showed a slightly increase in March 2019. The registrations went up by 34 trucks compared with the previous year monthly total, which represents a 0.8 percent increase over last year. This result indicates that the new truck registrations are increasing year over year and may reflect the increased demand Washington residents have for new trucks.

Overall, total new vehicle registrations decreased by 3,188 vehicles or 8.9 percent, year over year.

Figure 21: New vehicle registrations Comparisons



Source: Department of Licensing Report 14 for various months and years.

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ARTICLES REFERENCED

Transportation Revenue Forecast Council March 2019 Transportation and Revenue Forecasts.

Fuel Trends:

AAA - <https://gasprices.aaa.com/>

Association of Oil Pipe Lines - <http://www.aopl.org/resources/pipeline-basics/about-pipelines/>

Blas, Javier, *The U.S. Just Became a Net Oil Exporter for the First Time in 75 Years*, Bloomberg news December 6, 2018.
<https://www.bloomberg.com/news/articles/2018-12-06/u-s-becomes-a-net-oil-exporter-for-the-first-time-in-75-years>

BP Corporation *Olympic Pipeline* - https://www.bp.com/en_us/bp-us/what-we-do/bp-pipelines/our-pipelines-and-terminals/olympic-pipeline.html

CME Group. May 1, 2019. Soybean Oil Futures Prices.
http://www.cmegroup.com/trading/agricultural/grain-and-oilseed/soybean-oil_quotes_settlements_futures.html

CNBC.com *Oil surges 2.7% to nearly 6-month high, settling at \$65.70, after Trump cracks down on Iran exports*
<https://www.cnbc.com/2019/04/22/energy-prices-up-on-reported-end-to-sanctions-waiver-for-iranian-oil.html>

Energy Information Administration *Short Term Energy Outlook* April 2019

Energy Information Administration. 2018a. April 2019. *Spot Prices for Crude Oil and Petroleum Products*. http://www.eia.gov/dnav/pet/pet_pri_spt_s1_d.htm

Energy Information Administration. 2018c. April 2019. *Weekly Petroleum Status Report*.
<http://www.eia.gov/petroleum/supply/weekly/>

Energy Information Administration. 2019a April 2019. *Weekly Retail Gasoline and Diesel Prices* http://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_nus_w.htm

Energy Information Administration April 2019 *Net Receipts by Pipeline, Tanker, Barge and Rail between PAD Districts*

Energy Information Administration *West Coast Transportation Fuels Markets* September 2015

Washington Department of Ecology *Crude Oil Movement by Rail and Pipeline* January 2019

Oil Price Information Service *Oil Market Outlook* January 2019

Oilprice.com- <https://oilprice.com/oil-price-charts>

Oilprice.com *Is The Cushing Oil Hub Still Relevant?* December 2018

RBN LLC - *Sweet Dreams Are Made Of This - Cheap Crude And Captive Market Boost PNW Refineries*

<https://rbnenergy.com/sweet-dreams-are-made-of-this-cheap-crude-and-captive-market-boost-pnw-refineries>

RBN LLC – *Crude Loves Rock’n’Rail – West Coast Destinations*

<https://rbnenergy.com/crude-loves-rock-n-rail-west-coast-destinations>

San Francisco Chronicle *California gas prices spike after refinery problems*

<https://www.sfchronicle.com/business/article/California-gas-prices-spike-after-refinery-13720606.php>

Wall Street Journal *OPEC vs. Shale: the Battle for Oil Price Supremacy*

<https://www.wsj.com/articles/opec-vs-shale-the-battle-for-oil-price-supremacy-11555588826?mod=searchresults&page=6&pos=3>

Wall Street Journal *Fracking’s Secret Problem—Oil Wells Aren’t Producing as Much as Forecast*

<https://www.wsj.com/articles/frackings-secret-problem-oil-wells-arent-producing-as-much-as-forecast-11546450162>

Vehicle trends:

Washington State Department of Licensing. March 2019. State of Washington Vehicle Registration Reports 7, 13 and 14.

Washington State Department of Licensing. March 2019. ARFS Revenue Report and PRFT Revenue Report.