



The Fuel and Vehicle Trends Report

April 29, 2016

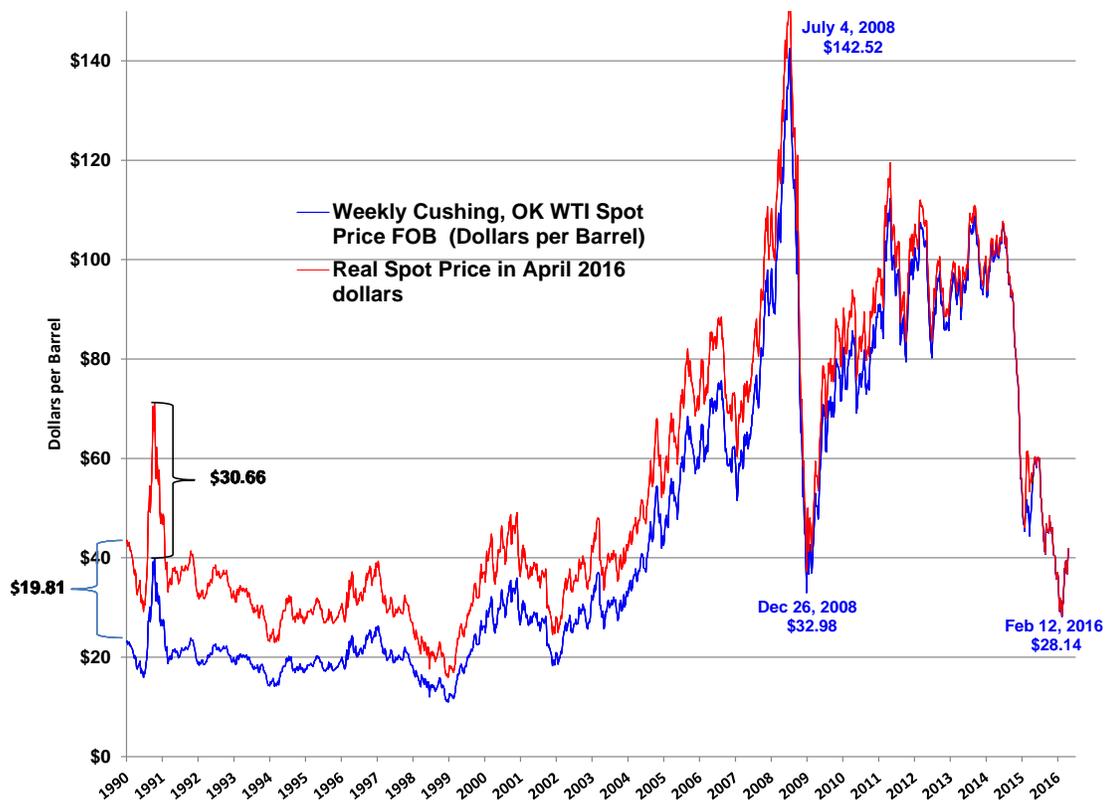
This report is a summary of the latest fuel prices and other oil industry key statistics. In addition, this report provides the latest trends in vehicle registrations and transportation tax collections for the state of Washington. It also summarizes articles appearing in popular, business, and technical 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 Brian L. Calkins, M.S. Agricultural Economics, Lizbeth Martin-Mahar, Ph. D., and Thomas L. R. Smith, Ph. D., Economic Analysis Section, Budget and Financial Analysis Office of the Washington State Department of Transportation. Contact the editors by email at brian.calkins@wsdot.wa.gov or martinli@wsdot.wa.gov or smithtm@wsdot.wa.gov by telephone at (360) 705-7991 or (360) 705-7942 or (360) 705-7941.

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FUEL PRICE TRENDS: Crude, Gasoline and Diesel Markets Analysis by Brian L. Calkins, M.S.

Figure 1: Weekly Cushing, Oklahoma WTI Spot Price FOB (Dollars Per Barrel) January 1990 to April 2016.



Source: Energy Information Administration (EIA), 2016a

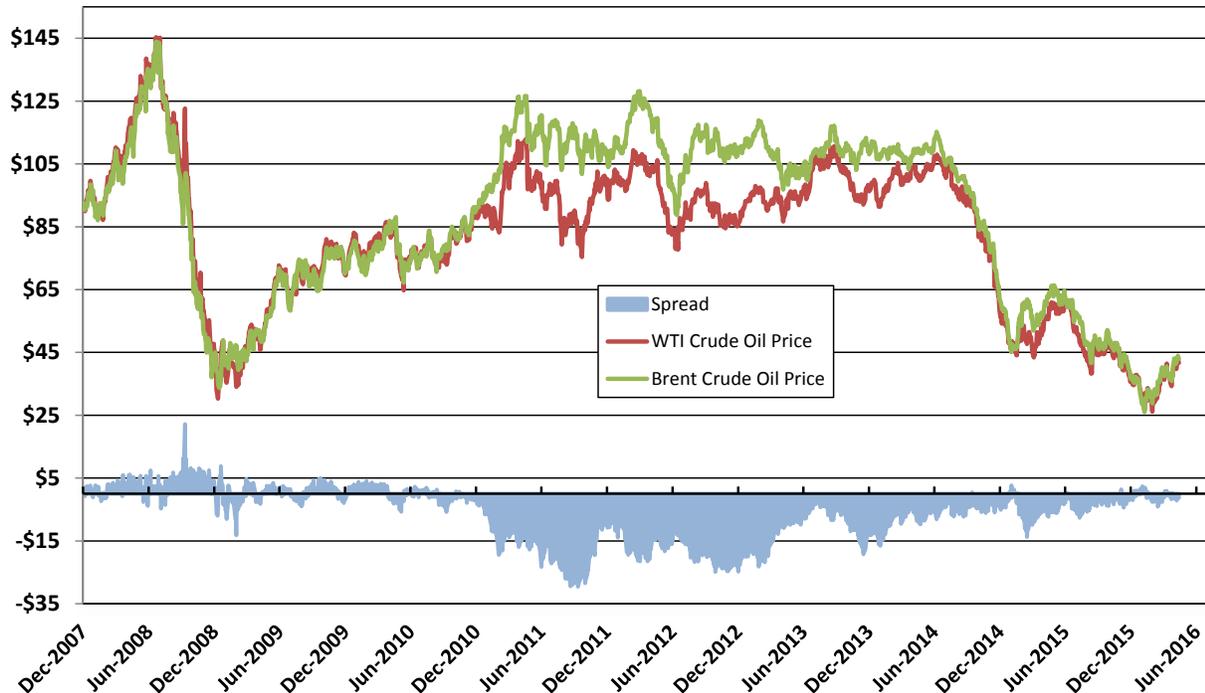
Crude oil prices have risen a little in recent months but the prices are still unusually low. April 2016's West Texas Intermediate (WTI) crude oil price rose to an average price of \$39.16 per barrel through the week ending April 22. A year ago in April 2015 WTI prices were \$12.59 higher at \$54.45 per barrel.

EIA's April 2016 Short-term Energy Outlook (STEO) lists an average WTI price of \$48.66 per barrel for calendar year 2015 and forecasts \$34.55 per barrel for 2016 and \$40.48 per barrel for 2017 (EIA, 2016b), compared to \$38.55 per barrel for 2016 and \$47 per barrel for 2017 from crude oil prices projected in the January 2016 *Trends Report*. IHS Global Insight's April 2016 forecast for WTI crude oil projects \$40.24 per barrel in 2016, and \$46.78 per barrel in 2017. Consensus Economics projects WTI prices of \$39.38 per barrel for 2016 and \$50.52 a barrel in 2017 (Consensus Economics Inc., April 2016).

The Brent spot crude oil price averaged \$39.98 per barrel in April 2016 through the week ending April 22. Brent is projected by EIA at \$35 per barrel for May 2016. The daily WTI-Brent crude oil spot price difference increased from \$-0.98 per barrel in January 2016 to \$1.05 in April 2016 (Figure 2). The negative \$0.98 per barrel differential in January reflected a lower per barrel price for Brent crude oil than the price for WTI crude oil. Now in April, the average WTI discount from Brent crude oil price has flipped back to a positive discount of \$1.05 per barrel. The WTI price discount to the Brent crude oil price averaged \$3.66 per barrel in 2015 and is projected to decline to nearly nothing, \$0.13 per barrel in calendar year 2016, and break-even at \$0 per barrel in calendar year 2017. Due to the new exports of crude oil out of the US to world markets, that can be one reason why there is very little price differential between WTI and Brent crude oil prices.

EIA reported in calendar year 2015, U.S. oil production averaged 9.4 million barrels per day (b/d) and they project an average 8.6 million b/d in calendar year 2016 and 8.0 million b/d in 2017. EIA's reported monthly U.S. crude oil production declined by 90,000 b/d in March compared to February 2016. This is in contrast to the past month to month continued escalation of domestic crude oil production from fracking.

Figure 2: WTI - Brent Crude Oil Spot Price Spreads from January 2008 to April 25, 2016



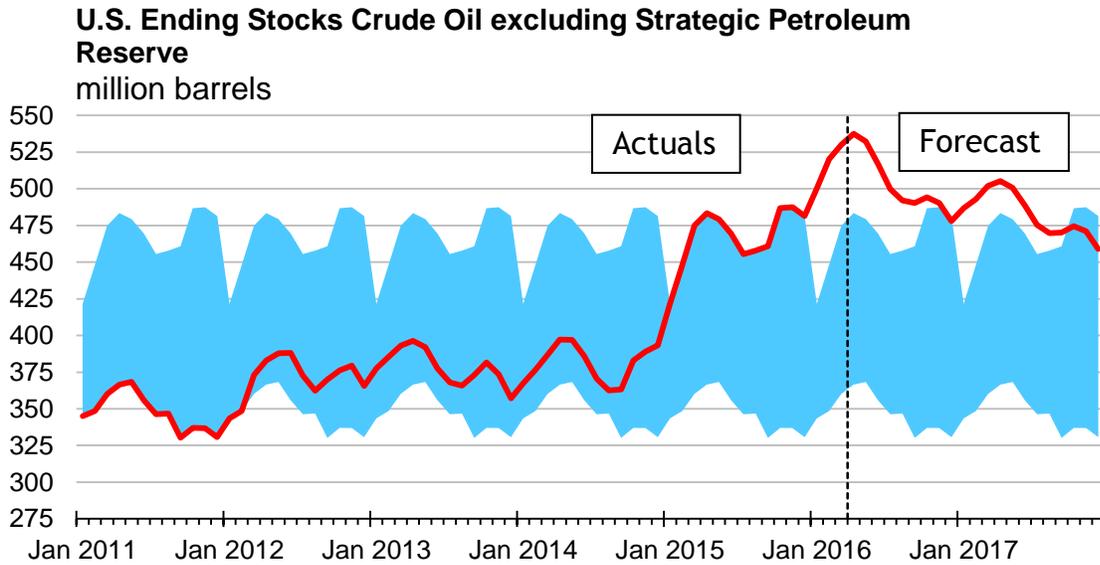
Source: EIA 2016a Daily WTI and Brent crude oil spot prices

Inventories

Current crude oil inventories are still remarkably high. This April 2016 Short-term Energy Outlook (STEO) report provides actual monthly data through March 2016 with a short-term monthly forecast through December 2017 (Figure 3). The inventory graph includes a band of historical crude oil inventory levels for the past 5 years (2011-2015). The current storage level of 529.9 million barrels (excluding Strategic Petroleum Reserves), is 55.1 million barrels or 11.6 percent higher than a year ago in March 2015. The April 2015 STEO forecast predicts a peak inventory level of 537.5 million barrels in April 2016.

Figure 4 shows a chart of gasoline inventories that includes monthly inventories with a short-term forecast for gasoline inventories, similar to the crude oil inventories. The STEO for April 2016 is again the source reference for inventories of the West Coast Petroleum Administration for Defense District (PADD5). The current March 2016 storage level is 30.3 million gallons, 1.1 million gallons higher (3.6 percent) than a year ago in March 2015. The 356.8 million gallon forecast for calendar 2017 is 1.1 percent lower than calendar 2016's 360.9 million gallons.

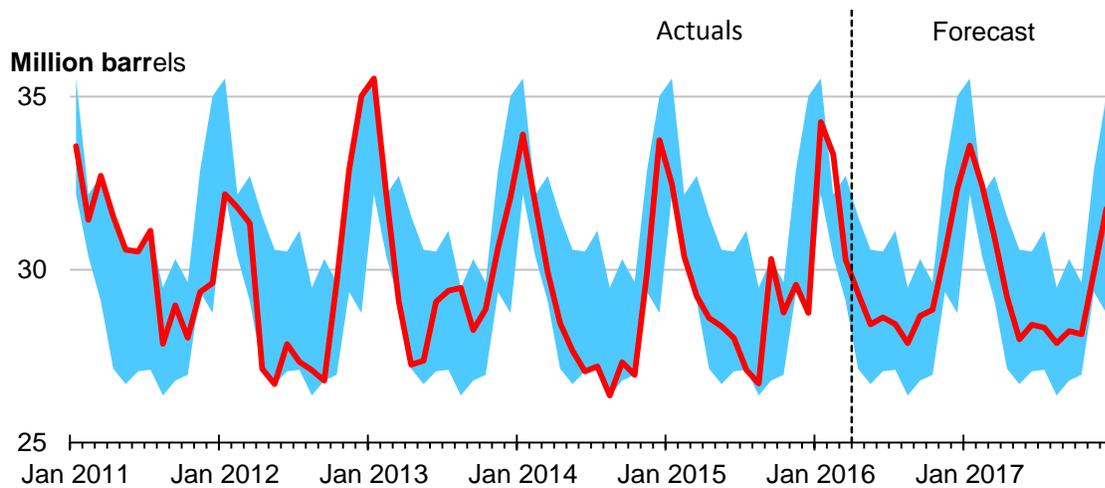
Figure 3: Comparison of Monthly Crude Oil Actual Inventories since January 2011 and EIA’s Short-term Forecast of Inventories.



Note: Colored band around storage levels represents the range between the minimum and maximum from Jan. 2011 - Dec. 2015.

Source: Short-Term Energy Outlook, April 2016.

Figure 4: Comparison of Actual Monthly Total Gasoline Inventories (West Coast PADD5) Since January 2011 and EIA’s Short-term Forecast of Inventories.

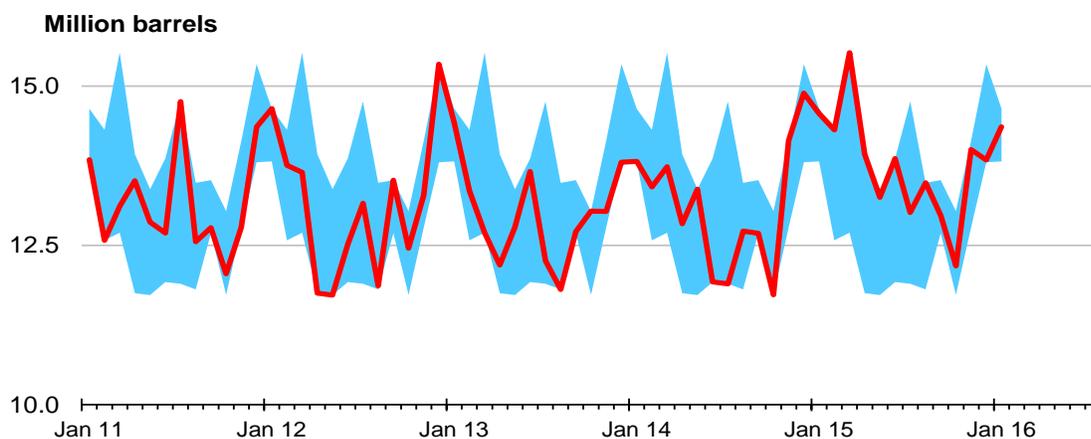


Note: Colored band around storage levels represents the range between the minimum and maximum from Jan. 2011 - Dec. 2017.

Source: Short-Term Energy Outlook, April 2016.

Figure 5 shows the updated chart for distillate inventories which reveals similar changes as seen in the crude oil and gasoline inventories. The latest month for PADD5 distillate inventories is January 2016. There is a lag due to collecting and publishing this series as it is not included in the STEO publication. The storage level in January 2016 was 14.4 million gallons, 0.2 million gallons or 1.5 percent lower than a year ago in 2014. Distillate inventories for the last 12 months from February 2015 through January 2016 totaled 164.7 million gallons, 6.8 million gallons or 4.3 percent greater than the 12 months from February 2014 through January 2015.

Figure 5: Comparison of Monthly Distillate Inventories (West Coast PADD5) from January 2011 to January 2016



Note: Colored band around storage levels represents the range between the minimum and maximum from Jan. 2011 - Jan. 2016.

Source: EIA 2015e, Stocks of Distillate Fuel Oil by PADD, January 2016.

Washington Retail Gasoline and Diesel Prices

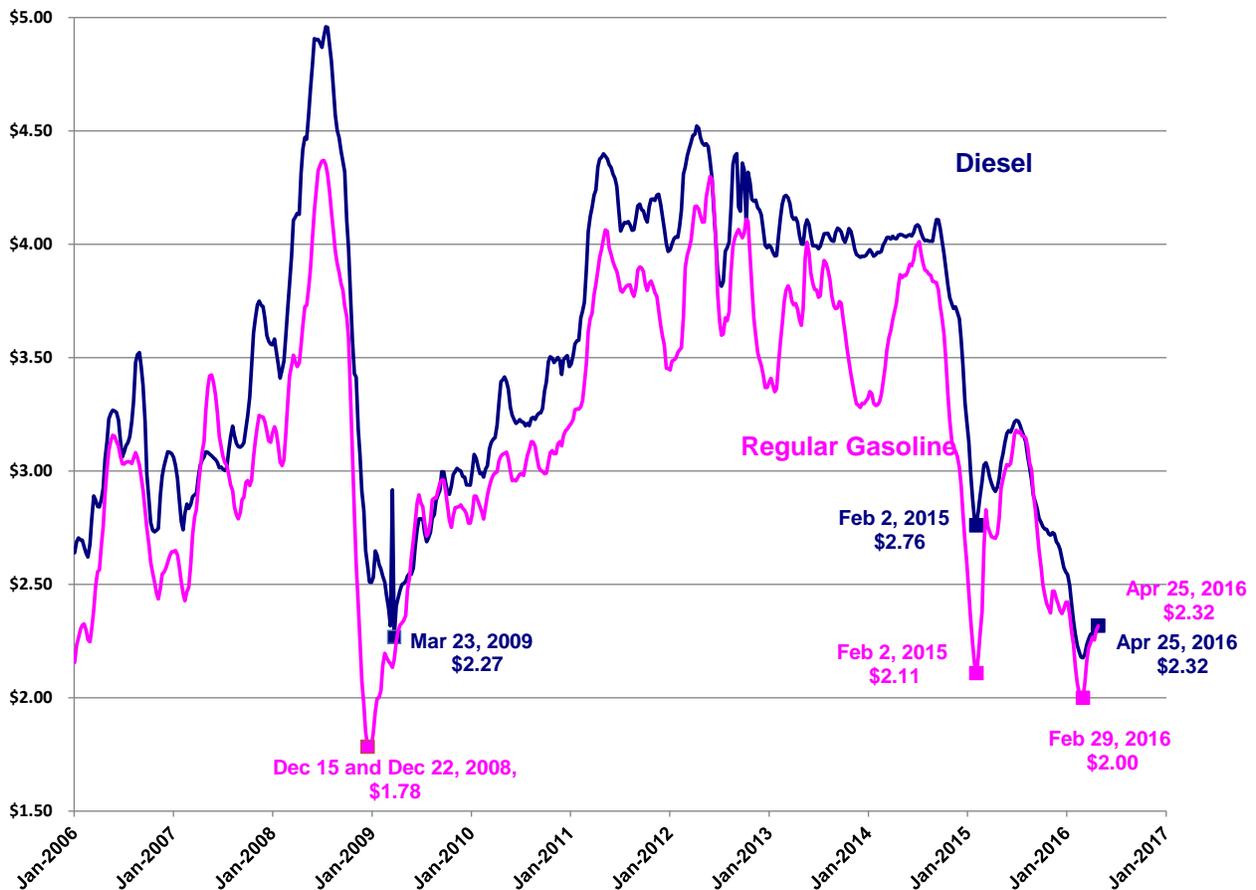
Washington’s weekly regular gasoline price dropped annually 45 cents per gallon or 16.4 percent from \$2.73 per gallon in April 2015 to \$2.28 per gallon in April 2016 (Figure 6). In recent months, Washington’s weekly regular gasoline price has been slowly rising 12 percent from an average of \$2.04 per gallon in February to the \$2.28 per gallon in April. Nationally, the monthly regular retail gasoline price was \$1.76 per gallon in February 2016 before climbing nearly 20 percent to \$2.11 per gallon in April (EIA, 2016d). EIA expects national regular gasoline prices in 2016 to peak at \$2.07 per gallon in June 2016 and then decline monthly to \$1.73 per gallon by December 2016. The regional price variation showed the West Coast (PADD 5) again having the highest price in April 2016 at \$2.58 per gallon of regular gasoline compared to the lowest average price in Gulf Coast (PADD 3) at \$1.88 per gallon. The West Coast (PADD5) less California price came in at \$2.26 per gallon, 32 cents lower than the average price of all PADD5 states (EIA, 2016d). EIA’s April 2016 STEO forecasts a national average retail regular gasoline price of \$1.94 per gallon in calendar year 2016 and \$2 per gallon in calendar year 2017 (EIA, 2016b).

One year ago in April 2015 the price for regular gasoline in California was \$3.21 per gallon. California’s regular gasoline price for April 2016 is \$2.77 per gallon, 49 cents per gallon higher than Washington’s \$2.28 per gallon for April 2016.

Washington average retail diesel prices fell from \$2.45 per gallon in January to \$2.21 per gallon in February before rising to \$2.29 per gallon in April 2016. The Washington retail diesel price in April 2016 was 64 cents lower than the April 2015 price of \$2.93 per gallon (Figure 6). Nationally, April 2016’s retail diesel price averaged \$2.15 per gallon, compared to \$2.93 per gallon in January 2015, a 64 cent decline. EIA forecasts a national average retail diesel price of \$2.11 per gallon for calendar year 2016 and \$2.33 per gallon for calendar year 2017 (EIA, 2016b).

California’s on-road diesel price declined 44 cents to \$2.77 per gallon in April 2016 from April 2015’s \$3.21 per gallon. Washington’s April 2016 diesel price is 48 cents lower at \$2.29 per gallon than California’s price for the same month.

Figure 6: Washington Retail Regular Gasoline and Diesel Prices (\$ per gallon): January 2, 2006 to April 25, 2016.



Source: AAA Fuel Gauge Report for Washington Retail Diesel Prices and EIA 2016d Weekly Retail Gasoline Prices

BIODIESEL PRICE PREMIUM TRENDS

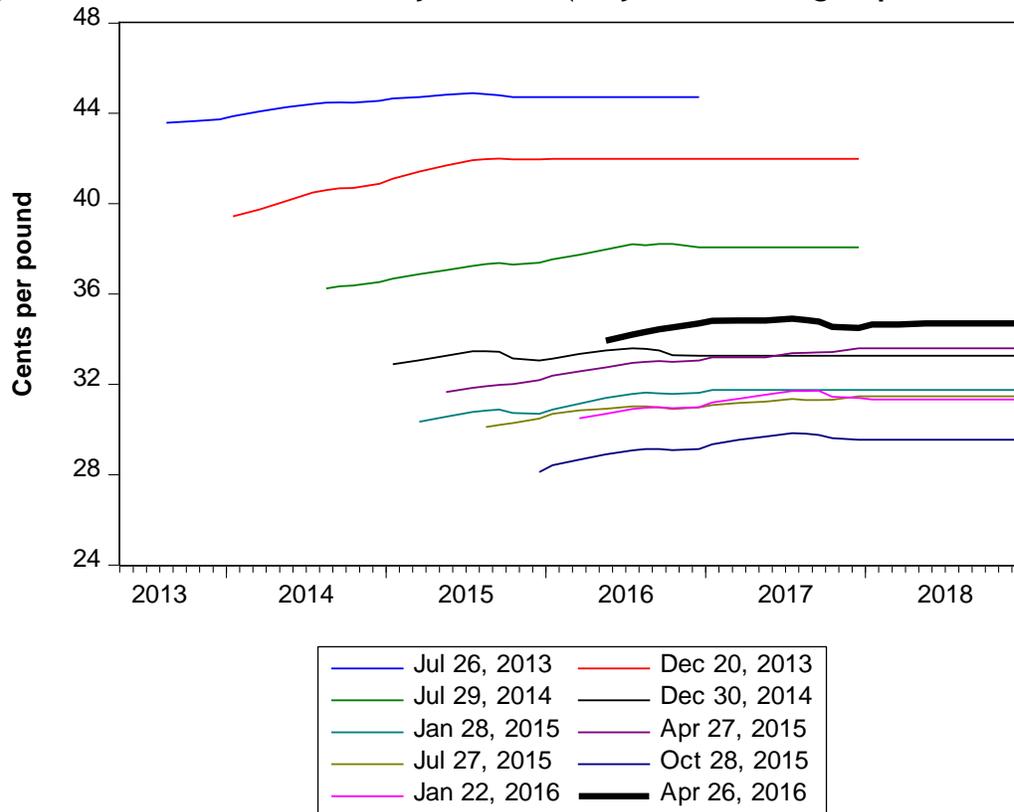
Analysis by Lizbeth Martin-Mahar, Ph.D.

Soybean Oil Futures and Biodiesel Prices

Soybean Oil Futures

Biodiesel prices are dependent in a large part on the cost of the feedstock used in producing biodiesel. Since soybean oil is the predominant feedstock for biodiesel, the futures for soybean oil have been examined in past *Fuel and Vehicle Trends Reports*. Figure 7 reveals the latest futures for soybean oil beginning at the end of July 2013 through April 2016. Futures have ranged from nearly 44 cents per pound in May 2013 to 28 cents per pound recently in October 2015. The October 2015 soybean futures represent the lowest futures since we started tracking soybean futures three years ago. This April 2016 futures start at 34 cents per pound for soybean oil. Over time, the latest futures are anticipated to slowly rise minimally to nearly 34.9 cents per pound in July 2017 and then it levels out a little lower for the future years at 34.7 cents per pound. Figure 7 reveals that the latest futures is only slightly higher than prior futures. The futures slowly grow in price per pound for a couple months and then they start to flatten.

Figure 7: Futures Prices for Soybean-oil (July 2013 through April 2016)



Biodiesel Prices: Comparison of Historical B99 Biodiesel Prices for Tacoma and Portland

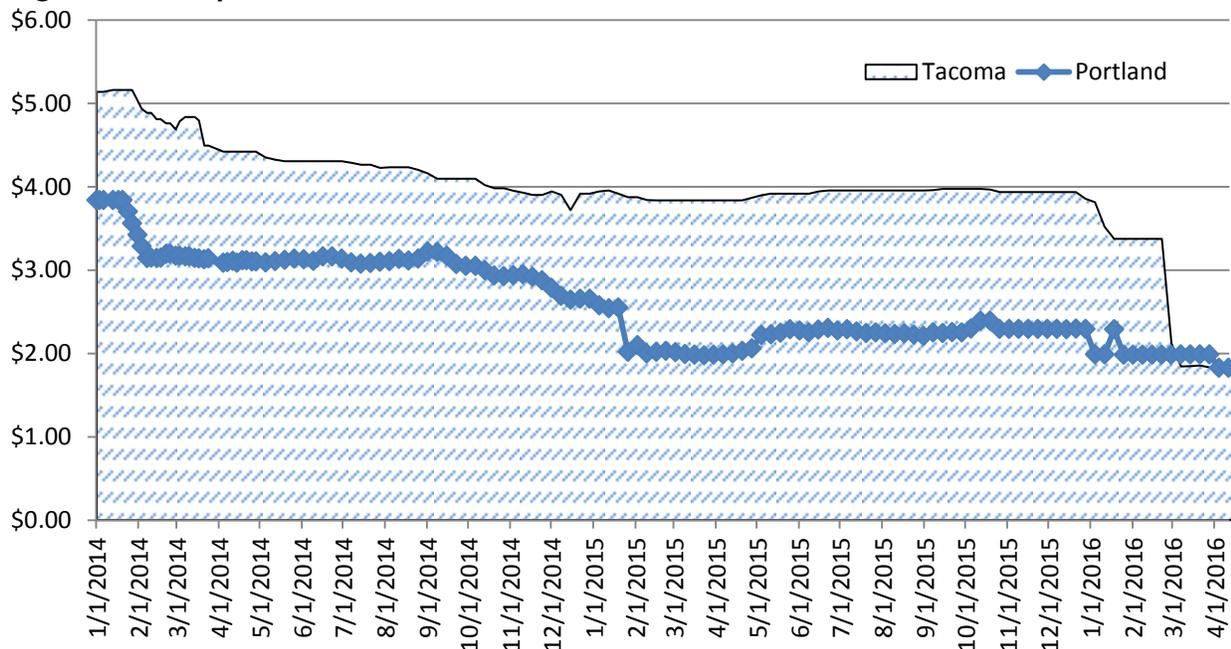
Recent Trends Washington B100 Biodiesel Prices

At the beginning of the year, January's B100 biodiesel price started at \$5.12 per gallon. Since then, B100 prices in Tacoma have fallen 27 percent over the next four months. The B100 price was \$4.79 per gallon in February and then it fell further to \$3.94 per gallon in March and now \$3.72 per gallon average in April. This April 2016 B100 price represents the lowest price since November 2010 when we first starting tracking B100. Since B100 biodiesel prices are more expensive than regular diesel prices, the difference between the biodiesel and regular diesel price represents a B100 price premium. With the fall in B100 prices recently, the B100 premium has also fallen to \$2.95 per gallon in February and down further to \$1.80 per gallon by April. This low B100 premium in April has also never been seen since we started tracking B100 prices. We have seen two other times when the B100 premium was as low as \$1.81 per gallon in November 2014 and June 2014. This is a new trend for Washington to have lower B100 prices because we have not seen significant reductions in B100 prices with oil prices plummeting so much in the last year.

Biodiesel Prices: Comparison of Historical B99 Biodiesel Prices for Tacoma and Portland

In January 2016, the average monthly Tacoma B99 price was \$3.58 per gallon. In February, the B99 price was a little lower at \$3.372 per gallon but then in March the B99 price plummeted to \$1.85 per gallon and fell even a little more in April to \$1.84 per gallon. Given that oil and retail gas and diesel prices have fallen significantly for well over 9 months now, it is not surprising that B99 prices should eventually fall more than they have. The surprising part of the B99 price decline was just the timing of the decline being in March 2016.

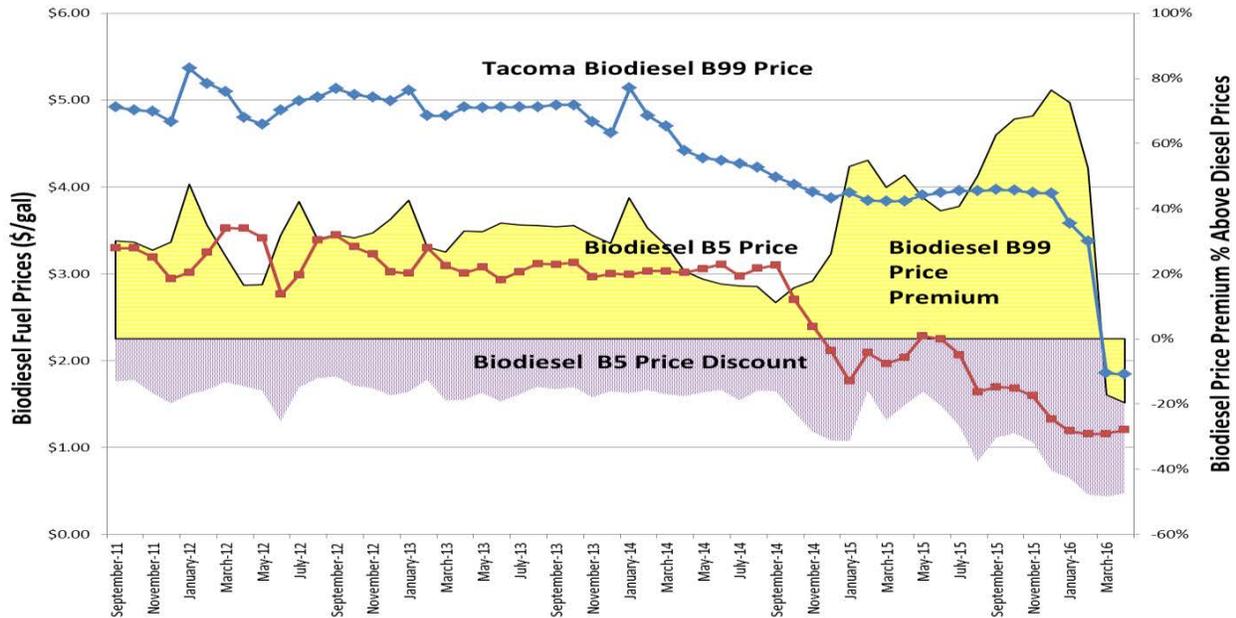
Figure 8: Comparison of Tacoma B99 and Portland B99 Biodiesel Prices



As Figure 8 reveals, Tacoma and Portland B99 prices are now very close since Tacoma B99 price dropped significantly. This is the first time the two prices have been nearly the same. This recent decline has made Tacoma B99 prices fall below regular retail diesel prices which has never occurred since we started tracking biodiesel prices nearly 5 years ago. As a result, the B99 price premium is no longer a premium but a discount. In March, the B99 discount was \$0.39 per gallon or 17% and in April, the B99 discount was \$0.45 per gallon or nearly 20% below regular diesel. Given the sharp decline in B99 prices, the B99 prices and discounts in March and April 2016 are now significantly less than last year's prices and premium level. The B99 prices in March and April 2016 are more than \$2 per gallon lower than a year ago.

Figure 9: Washington OPIS B99 and B5 Biodiesel Prices in Tacoma

Monthly Average Price	B99 (Combined Feedstock Biodiesel)			B5 SME Biodiesel		
	Price (\$/gal)	\$ Diff from State Avg Diesel Price	% Change from State Avg Diesel Price	Price (\$/gal)	\$ Diff from State Avg Diesel Price	% Change from State Avg Diesel Price
February 2015	\$3.846	\$1.36	54.8%	\$2.090	-\$0.39	-15.9%
February 2016	\$3.372	\$1.16	52.3%	\$1.154	-\$1.06	-47.9%
March 2015	\$3.834	\$1.22	46.6%	\$1.964	-\$0.65	-24.9%
March 2016	\$1.854	-\$0.39	-17.3%	\$1.158	-\$1.08	-48.3%
April 2015	\$3.839	\$1.28	50.2%	\$2.033	-\$0.52	-20.4%
April 2016	\$1.842	-\$0.45	-19.7%	\$1.205	-\$1.09	-47.5%



Source: B99 and B5 biodiesel price data - OPIS Fuel Price Survey for various locations in Washington State.

Recent Trends in Washington B5 Biodiesel Prices

In the last *Fuel and Vehicle Trends Report*, we noted that since we started tracking B5 biodiesel prices in 2011, we have never seen such a low price for B5 biodiesel at \$1.19 per gallon as we did at the start of this year. Since then, the monthly average B5 biodiesel price in Tacoma had hovered around \$1.15 and \$1.20 per gallon through April 2016. These prices are significantly lower B5 prices than a year ago when they were around \$2 per gallon.

The low B5 prices have remained fairly constant in the last few months while regular diesel prices have risen slightly. As a result, the B5 biodiesel discount has grown a little from \$1.06 per gallon to \$1.09 per gallon but on a percentage basis, the B5 discount is still remarkably high at around 48 percent. April's B5 price discount of 47 percent is now more than double last year's discount of 20.4 percent for that month.

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.

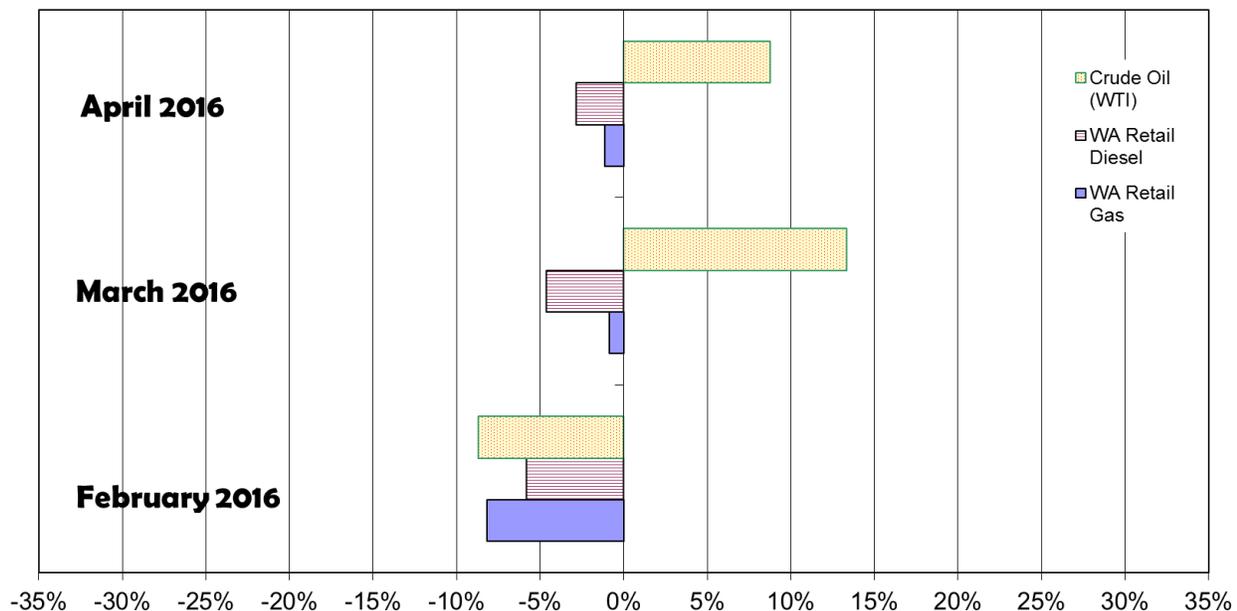
In the last couple editions of the *Fuel and Vehicle Trends Report*, we discussed the continuing low crude oil prices. In the last three months, February through April, crude oil prices have increased month to month nearly 30 percent from an average of \$30.2 per barrel in February to \$39.2 per barrel in April. The WTI crude oil price rise is projected to continue throughout the remainder of CY 2016. The WTI prices in February came in more than 8 percent or \$3 per barrel below the first quarter of 2016 February price forecast of \$33.1 per barrel. In March, the WTI price came in 13 percent above the first quarter average price forecast. In April, the WTI price came in again above forecast by nearly 9 percent from the second quarter projection of \$36 per barrel from the February forecast. See Figure 10 for more detail.

Counter to the recent trend in WTI crude oil prices being above forecast, Washington retail gasoline prices came in slightly lower than the first and second quarter projections of \$2.19 and \$2.31 per gallon respectively. In February, retail gas prices were low at \$2 per gallon which was 8 percent below the first quarter of 2016 projection in February. In March 2016, retail gas prices came in at an average of \$2.17 per gallon and 0.9 percent below the first quarter February forecast. In April, retail gas prices came in at \$2.28 per gallon which was below, 1.1 percent, from the February second quarter forecast for 2016.

The recent trends for retail diesel have seen smaller increases in diesel prices than gasoline prices in recent months but diesel prices have also come in consistently below the last forecast. During the last three months, retail diesel prices have risen slightly each month from \$2.21 per gallon in February to \$2.29 per gallon in April. In February, retail diesel prices came in below, 5.8 percent, from the first quarter February forecast of \$2.35 per gallon. In March, retail diesel prices increased a little so the difference was 4.6 percent below the forecast. Finally in April, retail diesel prices rose a little more and the difference from the last forecast narrowed again to being 2.8 percent below the February second quarter 2016 forecasted price.

In the last three months we have seen the difference between retail gas and diesel prices narrow again and by April 2016 the average price for retail diesel was only \$0.01 per gallon higher for the month than retail gas prices. This is in contrast to February when retail diesel prices were \$0.20 per gallon higher than retail gas prices. This trend is the result of diesel prices rising slower than retail gas prices in the last three months.

Figure 10: Percent Change in November through January 2016 Average Fuel Prices Compared to the February 2016 Price Forecast



Source: Washington Transportation Revenue Forecast Council February 2016 Forecast, EIA and AAA weekly fuel prices

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

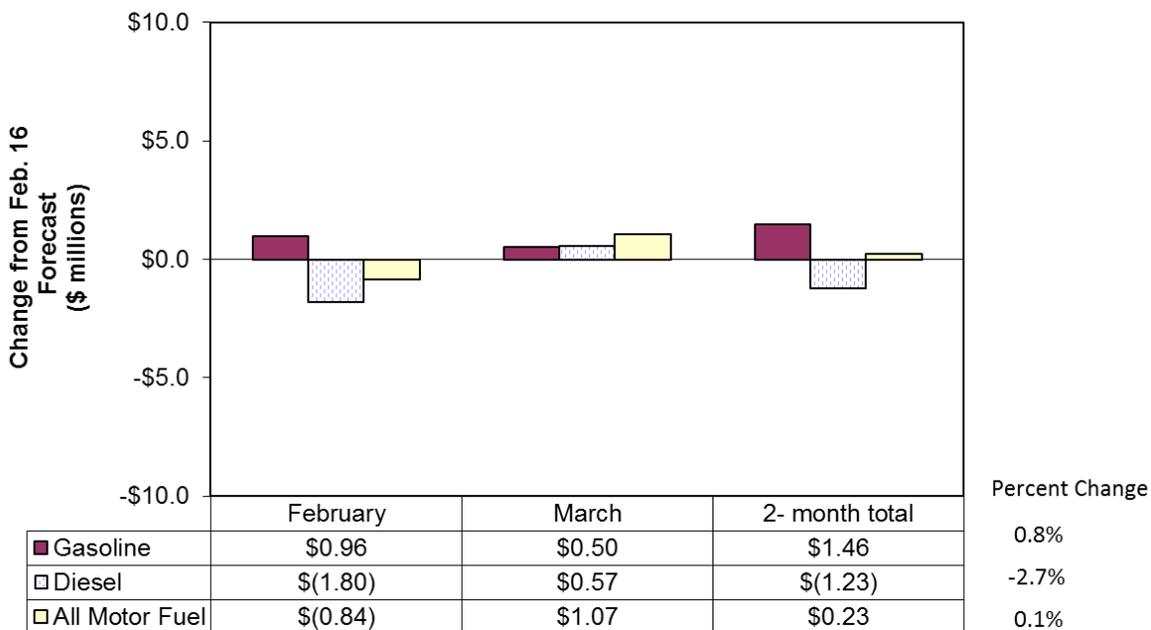
Analysis by Lizbeth Martin-Mahar, Ph.D.

Since the adoption of the February 2016 forecast, two months of fuel tax collections have been reported. Overall fuel tax collections came in at \$120.15 and \$118.9 million in February and March, respectively, which was nearly dead on with the February forecast (Figure 11) overall. In February, gas tax collections came in at \$98.4 million, which was \$0.96 million or 1 percent, higher than the forecast of \$97.4 million. Diesel tax collections came in 7.6 percent below the forecast that same month at \$21.8 million which was \$1.8 million, below the February forecast of \$23.6 million.

In March, gas tax collections came in at \$96.14 million, which was \$0.5 million or 0.5 percent, higher than the forecast of \$95.6 million. Diesel tax collections came in slightly above the forecast at \$22.8 million which was \$0.57 million, above the February forecast of \$22.2 million.

Overall for both months, gas tax collections came in \$1.46 million ahead of the February forecast and diesel tax collections came in under forecast by \$1.23 million. Total fuel tax collections are up only minimally \$0.23 million (0.1 percent) above the last forecast. We are tracking our last forecast very well.

Figure 11: Motor Vehicle Fuel Tax Collections in February and March 2016 Compared to the February 2016 Revenue Forecast.



Source: Washington Transportation Revenue Forecast Council February 2016 Forecast and State Treasurer’s Office monthly fuel reports

VEHICLE TRENDS

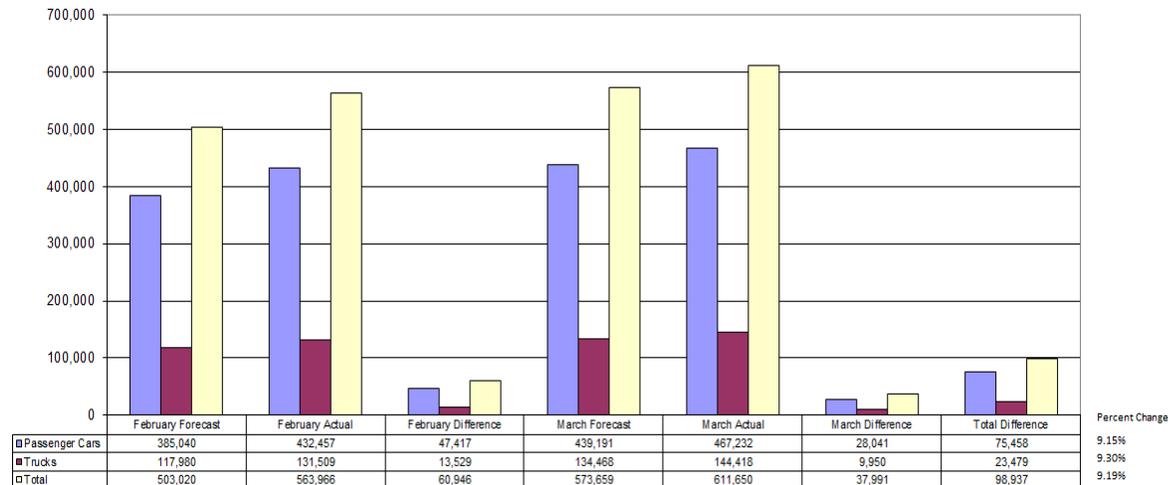
Analysis by Thomas L. R. Smith, Ph.D.

Vehicle Registrations and Revenue

Our last report covered the last two months of calendar year 2015. For those two months, actual vehicle registrations led us to be conservative when we revised the forecast in February 2016. It appears we were too conservative. For February, we forecasted that 385,040 passenger cars would register. We were off by 47,417, when 432,457 registered. Normally, February is dependably low in vehicle registrations and we worry about just making the forecast. Vehicle registrations typically do better in March. We forecasted 439,191 passenger cars but we exceeded that with actual registrations coming in at 467,232. For the two months, combined, we exceeded the forecast by 9.15%. This is unusually high positive two month variance for passenger vehicles.

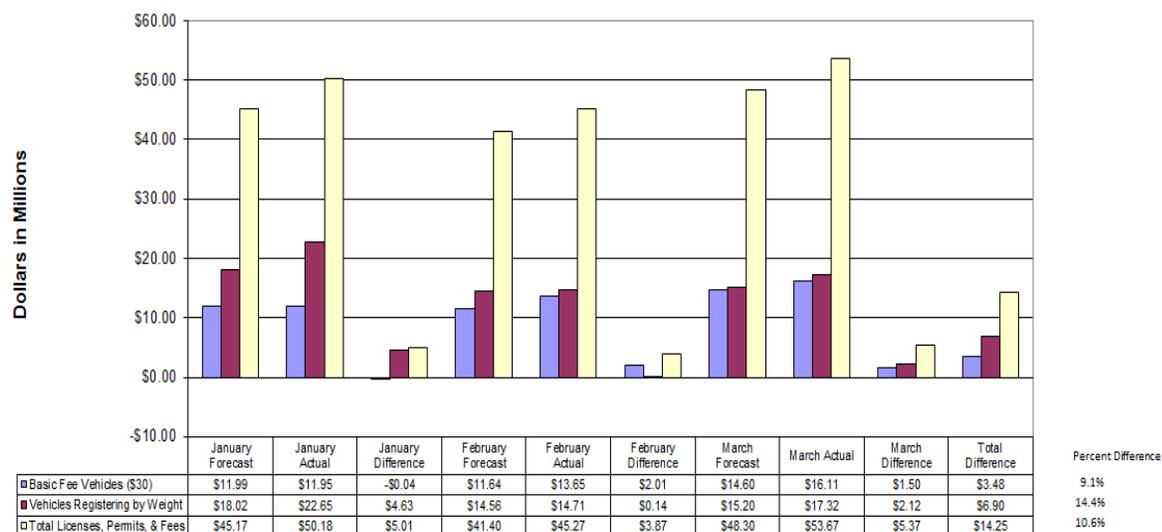
We were also conservative with our truck forecast. Like passenger cars, trucks did not cooperate and came in much higher than we had expected. We believed that 117,980 trucks would register, instead, 131,509 showed up. For March, we expected registrations to climb to 134,468. Again, with a lack of cooperation, 144,418 trucks registered. For February and March, actual truck registrations also exceeded our last forecast by 9.3% (Figure 12).

Figure 12: Vehicle registrations, February and March 2016, Forecast vs. Actual.



Source: Washington Transportation Revenue Forecast Council February 2016 Forecast and Department of Licensing Reports 7, February and March 2016.

Figure 13: Vehicle revenue for January, February, and March 2016, Forecast vs. Actual.



Source: Washington Transportation Revenue Forecast Council February 2016 Forecast and Department of Licensing Balance Forward, January, February, and March 2016.

While we discussed registrations for just February and March, because of the lag of processing accounting data, we will discuss three months of revenue data, January, February, and March. Regular readers of this *Report* will recall that we begin most of our reports with a statement that revenue does not always (rarely) aligns with vehicle registrations. This month's *Report* is the exception to the rule. For basic fee vehicles (which includes passenger cars, motorcycles, motor homes, and various trailers), January revenue was just \$39,000 (0.3%) below February's forecast of \$11.99 million. In February, \$30 basic license fee revenue collections were off from the forecast by \$2 million (17%) above the forecast of \$11.64 million. March was \$1.5 million (10%) over the forecast of \$14.6 million. For the three month period, registration revenue for \$30 basic license fee vehicles was 9.1% above forecast.

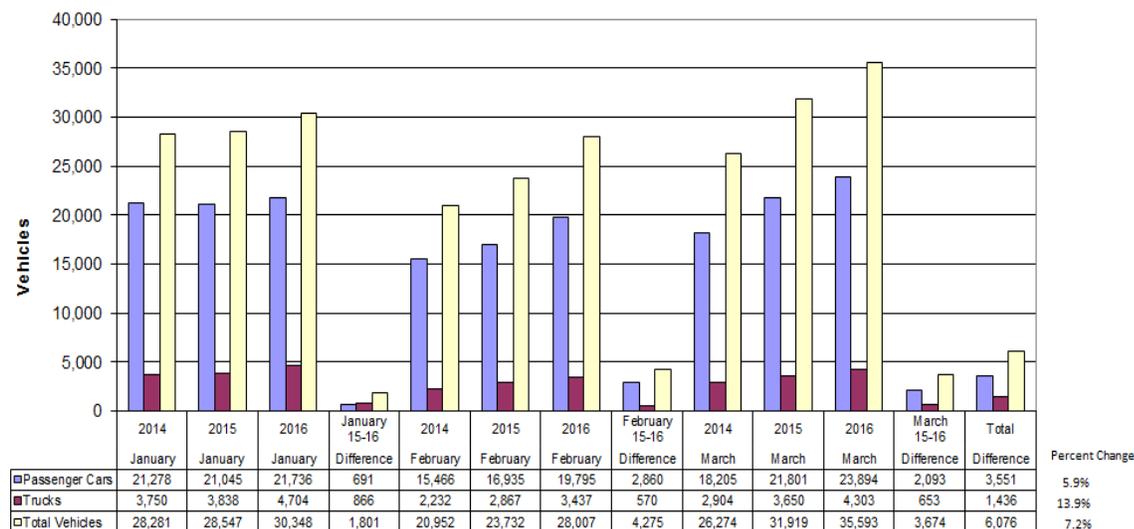
Truck revenue behaved similarly to \$30 basic license fee vehicles, ending 14.4% above forecast for this same three month period. In January, trucks came in at \$4.63 million (25.7%) over forecast but was almost on the nose in February, only \$14,000 over the \$14.56 million (1%) forecasted. March revenue was up \$2.12 million (14%) over the forecast of \$15.2 million.

Finally, total License, Permit, and Fee (LPF) revenue was well above forecast by 10.6% for the last three months. We forecasted \$45.17 million in January, but received \$50.18 million. For February, we forecasted \$41.4 million, while realizing \$45.27 million; and for March, we forecasted \$48.3 million while raking in \$53.67 million.

New Car and Truck Registrations from Sales

New vehicle registrations showed strong gains in the first quarter of 2016. The sales for each month were significantly higher than the corresponding month in the previous year. For the quarter, passenger cars sales were 5.9% higher in 2016 than in 2015, while trucks were 13.9% higher.

Figure 14: New vehicle registrations Comparisons



Source: Department of Licensing Report 14.

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ARTICLES REFERENCED

Transportation Revenue Forecast Council. February 2016 Transportation and Revenue Forecasts.

Fuel Trends:

AAA. <http://fuelgaugereport.opisnet.com/WAavg.asp>

CME group.2016a. Soybean Futures Prices.

http://www.cmegroup.com/trading/agricultural/grain-and-oilseed/soybean-oil_quotes_settlements_futures.html

Consensus Economics Inc. April 18, 2016. *Energy & Metals Consensus Forecasts*.

Energy Information Administration. 2016a. April 2016. *Spot Prices for Crude Oil and Petroleum Products*. http://www.eia.gov/dnav/pet/pet_pri_spt_s1_d.htm

Energy Information Administration. 2016b. April 2016. *Short-Term Energy Outlook*. <http://www.eia.doe.gov/emeu/steo/pub/contents.html>

Energy Information Administration. 2016c. April 22, 2016. *Weekly Petroleum Status Report*. <http://www.eia.gov/petroleum/supply/weekly/>

Energy Information Administration. 2016d. April 2016. *Weekly Retail Gasoline and Diesel Prices* http://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_nus_w.htm

Energy Information Administration. 2015e. April 4, 2016. *Monthly Stocks of Distillate Fuel Oil* http://www.eia.gov/dnav/pet/pet_stoc_wstk_a_epd0_sae_mbb1_m.htm

IHS Global Insight. 2016. April, 2016. U.S. Economy – Models and Databanks

Vehicle trends:

Washington State Department of Licensing. February and March 2016. State of Washington Vehicle Registration Reports 7 and 14.

Washington State Department of Licensing. January, February, and March 2016. Balance Forward Report