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# December 2021 Fuel Price and Vehicle Trends Report

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December 31, 2021

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](mailto:smithsc@wsdot.wa.gov), [martinli@wsdot.wa.gov](mailto:martinli@wsdot.wa.gov) or [DingDav@wsdot.wa.gov](mailto:DingDav@wsdot.wa.gov) by telephone at (360) 705-7991 (360) 705-7942 or (360) 705-7502.

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# FUEL PRICE TRENDS: Crude, Gasoline and Diesel Markets

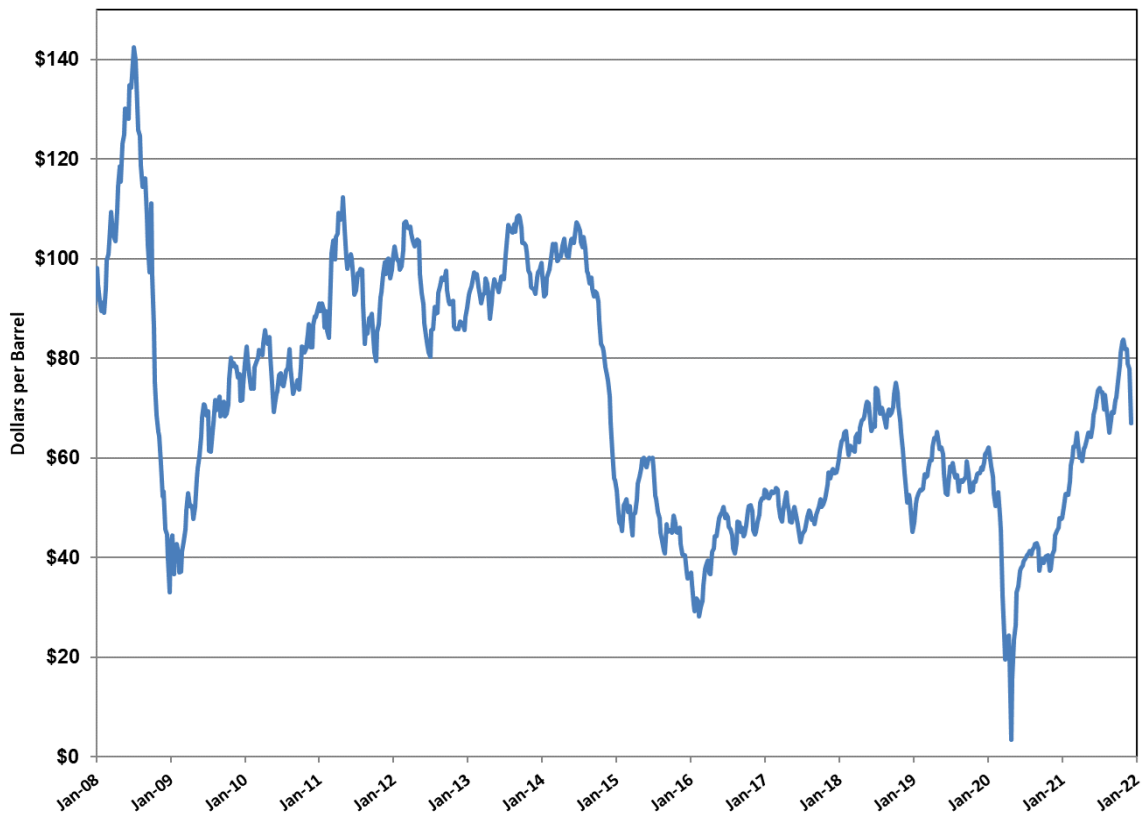
## Analysis by Scott Smith

### Oil Prices and Demand

Figure 1 shows the recent average weekly price history for the U.S. benchmark crude, West Texas Intermediate (WTI) in dollars per barrel (bbl) through the week of December 24, 2021. Spot prices are currently trading in the mid \$75/bbl range. Concerns about the Omicron variant are suppressing an otherwise bullish market as described in the last *October Fuel Price and Vehicle Trends Report*.

The U.S. Energy Information Administration (EIA) has decreased its 2022 average WTI crude oil price forecast. The current forecast of WTI published in its December Short Term Economic Outlook (STEO) for CY 2022 is \$66.46/bbl, \$1.86/bbl less than the average published in October 2021, the date of the last *Fuel Price and Vehicle Trends Report*. Consensus Economics (a collection of investment bank and boutique forecasters) expects an average WTI price of \$71.15/bbl in 2022.

**Figure 1: Weekly WTI Spot Price: January 2008 to December 2021**

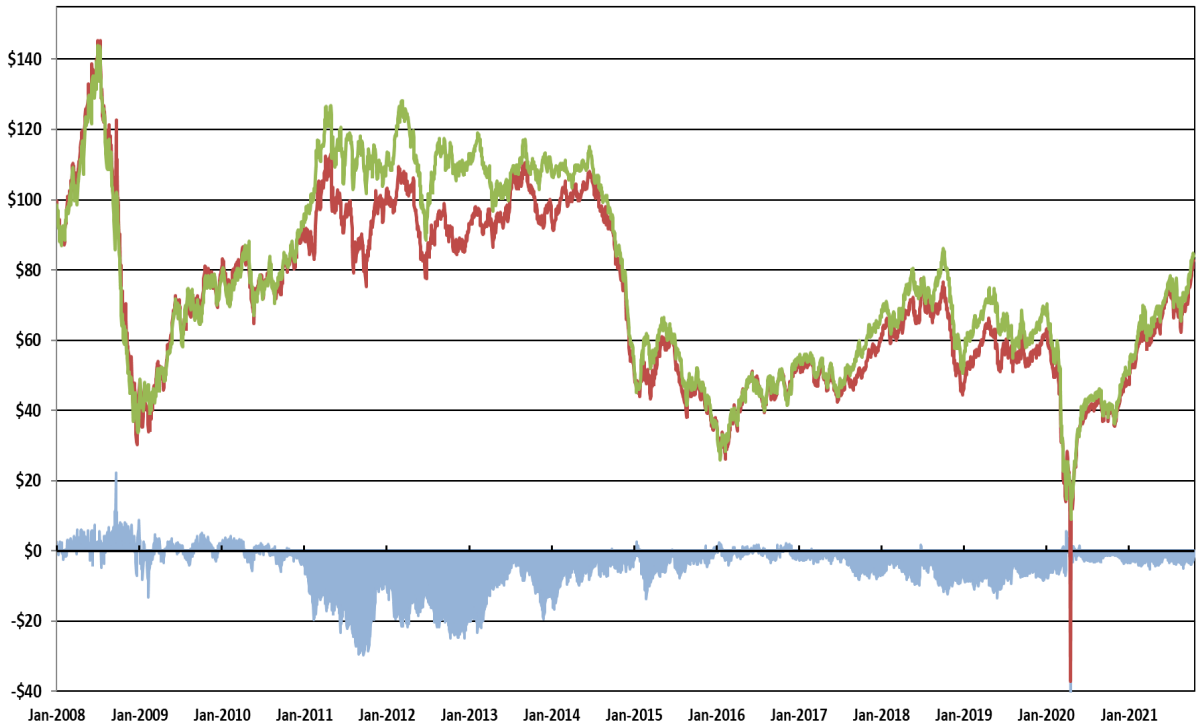


Source: Data from Energy Information Administration

The EIA has habitually stressed the increased uncertainty of price forecasts due to the pandemic. Its December forecast draws attention to the risk associated with the onset of the Omicron variant, the main uncertainty currently weighing down markets. Irina Slav writes in Oilprice.com that forecasters have predicted that even though there will be a temporary dip in oil prices in the first quarter of 2022, they expect higher prices because of the anticipated strong demand and not so strong supply in 2022. This article also noted the growing concern over the lack of new oil and gas investments, so oil prices do not increase so high and remain at that level.

Other reports indicate that a US oil refiner, HollyFrontier Corp’s fourth quarter throughput is lower than forecasted due to bad weather and setbacks at refiners in Washington, New Mexico, and Oklahoma. According to an article by Gary McWilliams, throughput in the last three months to Dec. 31 averaged 11 percent below the company’s expectations.

Figure 2 shows WTI and Brent prices and spreads since January 2008. Brent spreads have hovered around \$2/bbl since October but have risen to nearly \$4/bbl in December. Since January 2021, the Brent – WTI spread has averaged \$2.73/bbl. EIA anticipates a roughly \$3.63 spread, little changed from October.



Source: Data from Energy Information Administration

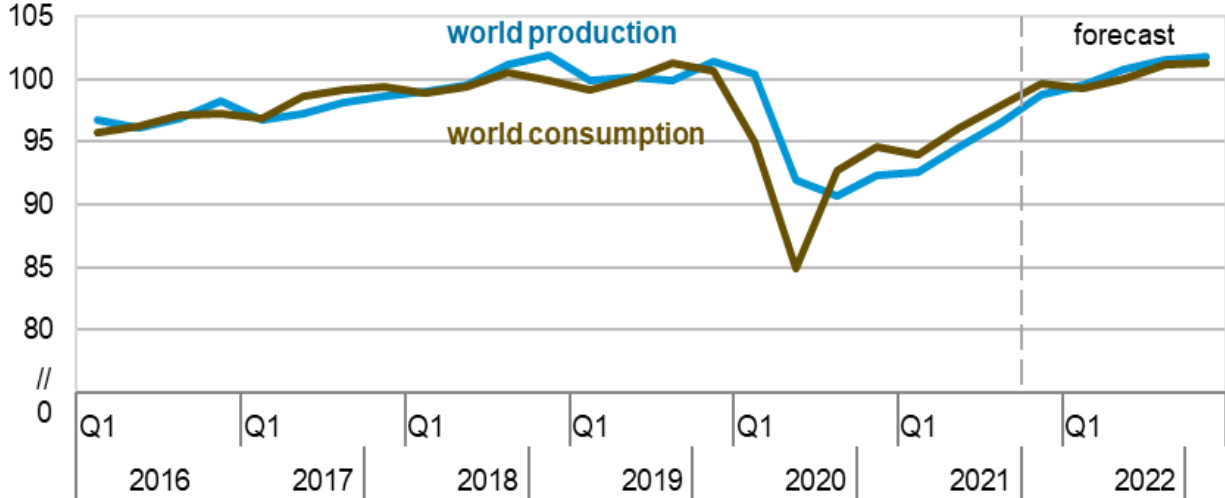
Figure 3 shows world fuel production and consumption while Figure 4 shows Organization for Economic Cooperation and Development (OECD) Commercial Stocks of Crude Oil and Other Liquids. EIA’s December production forecast averages 10.2 million/bbd for 2022,

0.4 percent more than October. Calendar year 2022 consumption is anticipated to average 100.9 million/ bbd, a 0.3 percent decrease when compared to the October forecast.

At 63.61 days of supply, the December 2022 inventories forecast is 2 days higher than envisioned in October.

**World liquid fuels production and consumption balance**

million barrels per day

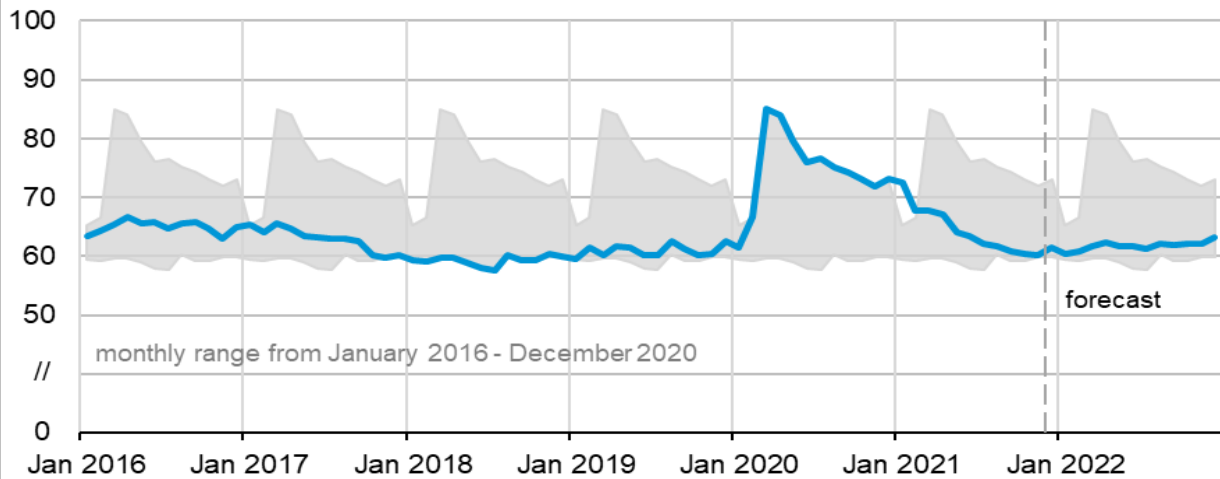


Source: Energy Information Administration

**Figure 4: OECD Inventories of Crude Oil and Liquids**

**Organization for Economic Cooperation and Development (OECD) commercial inventories of crude oil and other liquids**

days of supply



Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



As noted above, the Omicron variant is adding demand uncertainty to otherwise bullish markets.

Kimani notes in a December 15 article in Oilprice.com that “IEA has forecasted global oil demand in Q4 to clock in at 98.6 million barrels per day (mb/d), a downward revision of 300 thousand barrels per day (kb/d), while the Q1 forecast of 97.9kb/d is a downward revision of 630kb/d.”

Quoting a Reuters article, Kimani reports that “Energy traders don't want to bet against OPEC+ but all the short-term risks from Omicron to Fed tightening are proving to be very disruptive to the short-term outlook for oil prices. The virus spread across Europe is delivering a bigger hit than expected and when you calculate family gatherings for the holidays, the short-term outlook could get slashed over the next month,” Oanda senior analyst Edward Moya has told Reuters.”

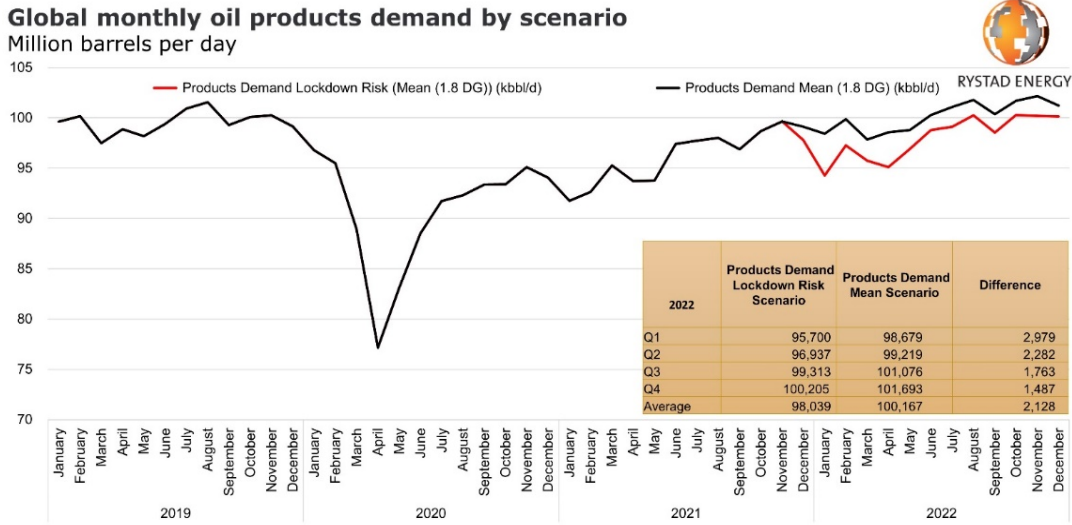
This article goes on to describe the OPEC consumption forecast:

“The OPEC Secretariat published its latest Monthly Oil Market Report (MOMR) on 13 December. The MOMR outlook has been very consistent in its 2022 demand growth outlook; the forecast has been 4.15mb/d in each of the past four reports. The latest report redistributed that growth differently by quarter and included some baseline changes. The backward-looking demand estimate for Q1-2021 was increased by 950kb/d, and this revised baseline provided the bulk of the 1.115mb/d upwards revision to Q1-2022 demand. China oil demand was revised higher by 500kb/d in both Q1-2021 and Q2-2022. The baseline changes helped to increase the OPEC Secretariat estimate of the call on OPEC in Q1 by 1.073mb/d to 27.9mb/d. However, oil price bulls can take some comfort in the fact that the key U.S. market continues to record significant crude draws, with the latest report by the American Petroleum Institute (API) estimating inventory draw for crude oil to be 815,000 barrels. “

In a December 2 press release, Rystaad Energy forecasts that “The new Omicron variant of Covid-19 could cost the global oil market as much as 2.9 million barrels per day (bpd) of demand in the first quarter of 2022, bringing total expected demand down from 98.6 million bpd to 95.7 million bpd, if it triggers more lockdowns or restrictions...

If the variant spreads rapidly, causing a rise in Covid cases and the reintroduction of lockdowns, Rystad Energy predicts that oil demand could fall from an expected 99.1 million bpd to 97.8 million bpd in December 2021 alone – a drop of 1.3 million bpd. Demand could tumble further in January 2022, shedding 4.2 million bpd to a level of 94.2 million bpd.”

Figure 5: Rystad Energy Demand Scenarios

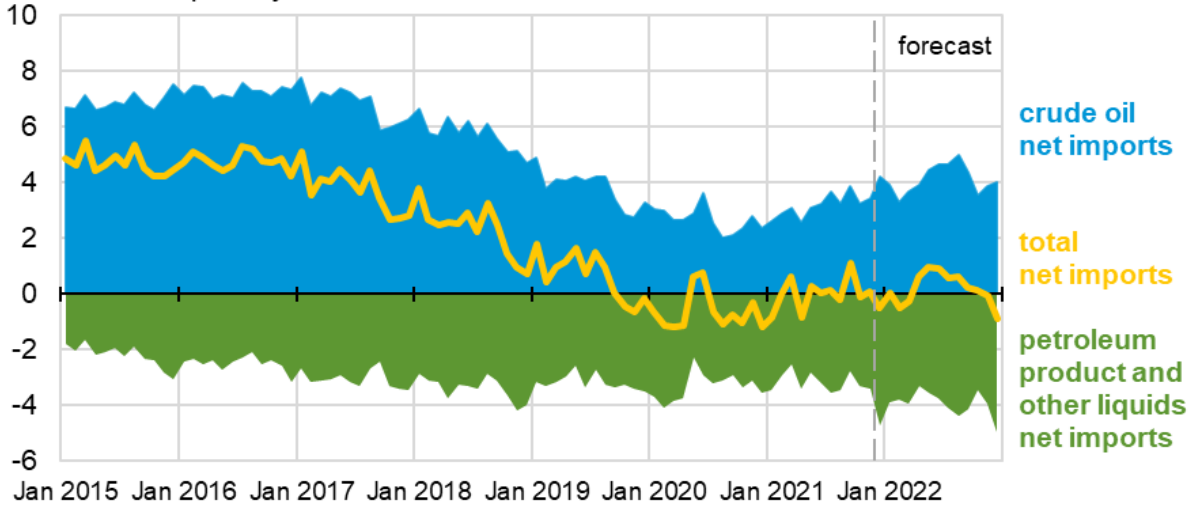


Source: Rystad Energy research and analysis

Figure 6 shows the recent U.S. import /export history and EIA’s forecast. Note U.S. refineries are biased toward heavy grades of crudes; therefore, it is common to be simultaneously importing and exporting crude oil. EIA’s latest forecast is for net imports to average 0.2 million/bbd, less than the 0.35 million/bbd envisioned in October.

U.S. net imports of crude oil and liquid fuels

million barrels per day



Note: Petroleum product and other liquids include: gasoline, distillate fuels, hydrocarbon gas liquids, jet fuel, residual fuel oil, unfinished oils, other hydrocarbons/oxygenates, and other oils.

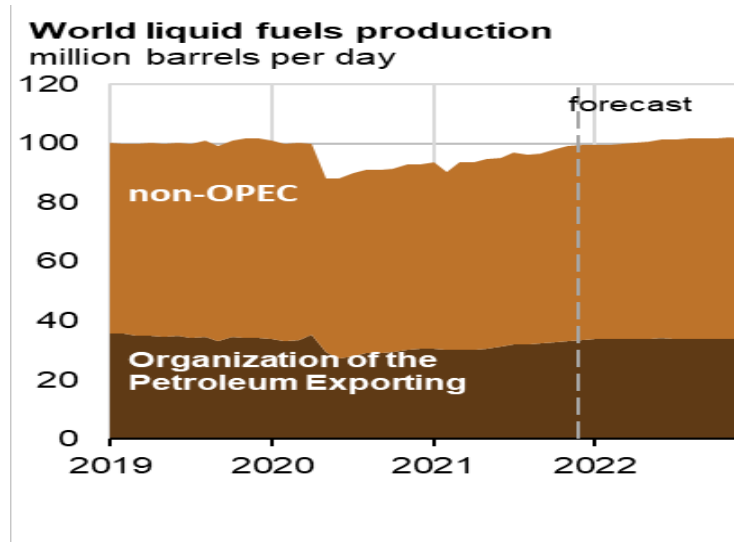
Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2021



## World and US Oil Production

Figure 7 shows world liquid fuel production by OPEC and non-OPEC countries. 2022 production is anticipated to be 33.90 and 33.89 million /bbd for OPEC and non-OPEC countries, a slight increase from October. OPEC share of 2022 world production is estimated at 33.5 percent, again a slight increase over the share reported in October.

**Figure 7: World Liquid Fuels Production: 2019-2022**



Source: Energy Information Administration

Producers became more efficient in 2021. A November 17, press release reported that “Rystad Energy’s annual cost of supply analysis has revealed that costs within the upstream sector have come down considerably in 2021, making new oil more competitive and significantly cheaper to produce. The average breakeven price for new oil projects has dropped to around \$47 per barrel – down around 8% over the past year and 40% since 2014, with offshore deep-water remaining one of the least expensive sources of new supply.”

However, it is not clear whether these efficiencies are the result of cherry picking or from factors such as reducing the drilled but uncompleted (DUCs) well backlog reported in this publication in October.

CNN reported on December 2 that “Saudi Arabia, Russia and other leading oil producers have decided to stick with plans to increase supply in January despite a recent plunge in prices driven by fears of a new glut...”

On the other hand, CNN has also reported in the same article that that the long-term outlook for OPEC+ producers is bullish “According to estimates from the International Energy Agency, OPEC and Russia could account for 58% of global oil supply by 2050, up from 46.5% last year, as other countries — including the United States — invest less in exploration and production as shareholders demand greater financial discipline.”



As a point of clarification, note that Figure 6 does not include Russia as an OPEC member.

In a December 20 press release, Rystaad Energy notes that “Global oil and gas discoveries in 2021 are on track to hit their lowest full-year level in 75 years should the remainder of December fail to yield any significant finds... As of the end of November, total global discovered volumes this year are calculated at 4.7 billion barrels of oil equivalent (boe) and, with no major finds announced so far this month, the industry is on course for its worst discoveries toll since 1946. This would also represent a considerable drop from the 12.5 billion boe unearthed in 2020.”

Figure 8 shows annual U.S. crude oil production by source. At 11.85 million/bbd, EIA’s 2022 has been increased 1.0% since October. Lower 48 states production has been increased to 9.6 million/bbd, only a 0.4 percent increase over October. However, Gulf of Mexico production has been increased to 1.84 million/bbd, a 5.1 percent increase. Alaska production is anticipated to decline 1.5 percent to 0.41 million/bbd.

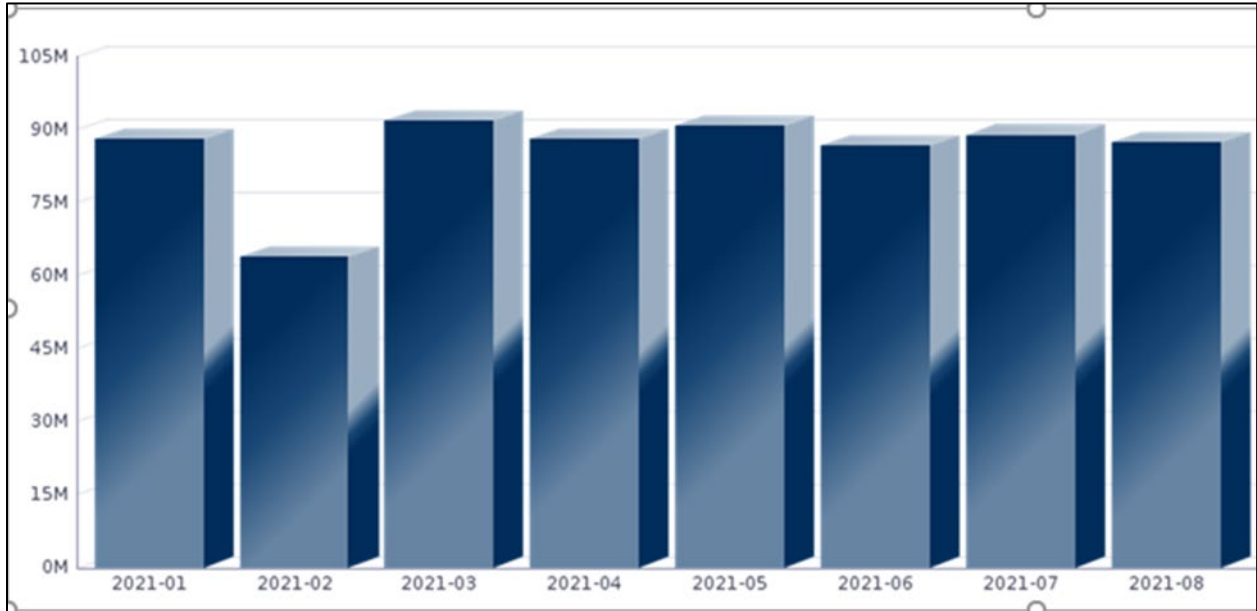
**Figure 8: U.S. Crude Oil Production by Source - (million barrels/day)**

|                            | 2018  | 2019  | 2020  | 2021  | 2022  |
|----------------------------|-------|-------|-------|-------|-------|
| Alaska                     | 0.48  | 0.47  | 0.45  | 0.44  | 0.41  |
| Federal Gulf of Mexico     | 1.76  | 1.90  | 1.64  | 1.71  | 1.84  |
| Lower 48 states (excl GOM) | 8.70  | 9.93  | 9.19  | 9.03  | 9.60  |
| Total U.S. production      | 10.94 | 12.29 | 11.28 | 11.18 | 11.85 |

Source: EIA

Figure 9 shows crude oil production in Texas (roughly two-thirds of Permian production) as calculated by the state’s regulatory agency. Production as of August 2021 (the last complete month) was down 10.9 percent when compared to 2020 and down 4.8 percent when compared to July 2021.

**Figure 9: Texas Permian Basin Oil Production**



September monthly data from the New Mexico Oil and Gas Conservation Division (roughly one-third of Permian production and the second largest producer in the lower 48) shows year-to-date output up 13.2 percent, showing the industry’s interest in the Delaware lobe of the Permian basin. The North Dakota Department of Mineral Resources reported that 2021 September production decreased 5.1 percent when compared to 2020.

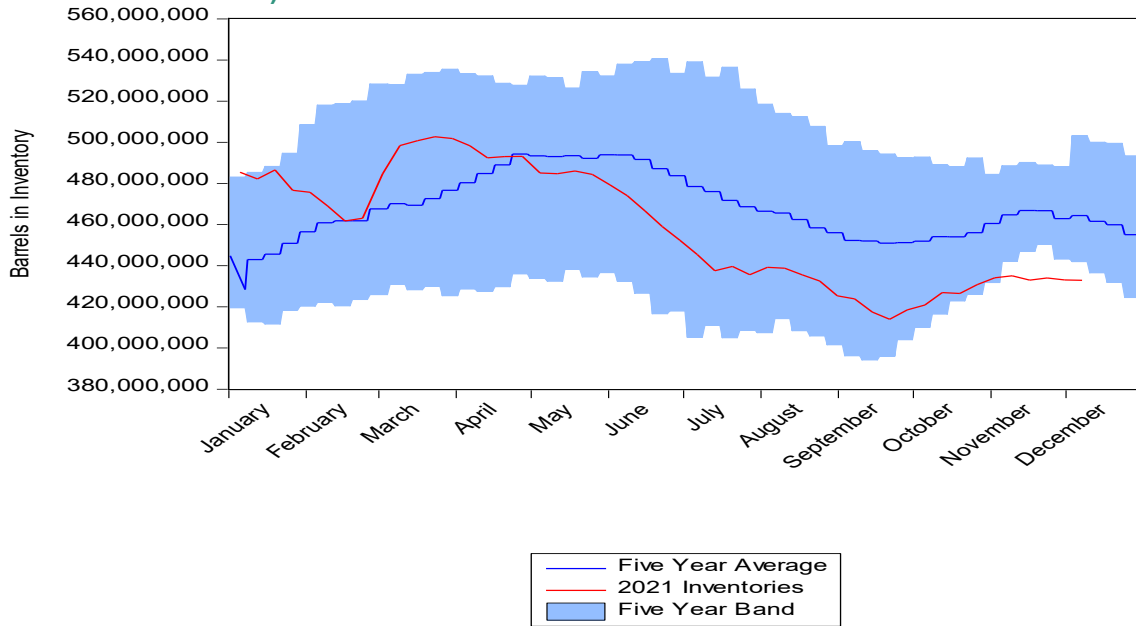
A November 22 Rystaad press release finds that “Reinvestment rates among US shale oil producers hit an all-time low in the third quarter of 2021, resulting in a record free cash flow for the quarter, and are projected to fall even lower by year-end according to a Rystaad Energy analysis. The analysis focused on a peer group of 21 public US shale oil producers, excluding majors, that together account for 40% of the expected 2021 output.”

**US Crude Oil Inventories**

This publication uses five-year averages and bands of inventories to compare to current inventory levels. Inventories have traditionally 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.

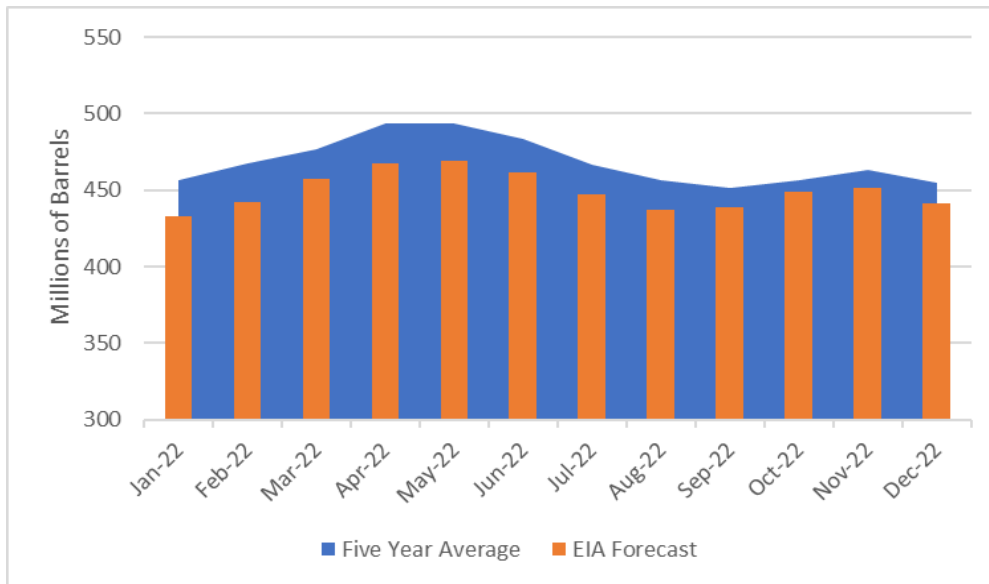
Figure 10 shows monthly crude oil inventories. Inventories mid-month December was 432 million bbl, some 2 percent below the bottom of their historical range.

**Figure 10: Weekly 2021 U.S. Ending Inventories of Crude Oil (Excluding Strategic Petroleum Reserve)**



Source: Energy Information Administration, WSDOT

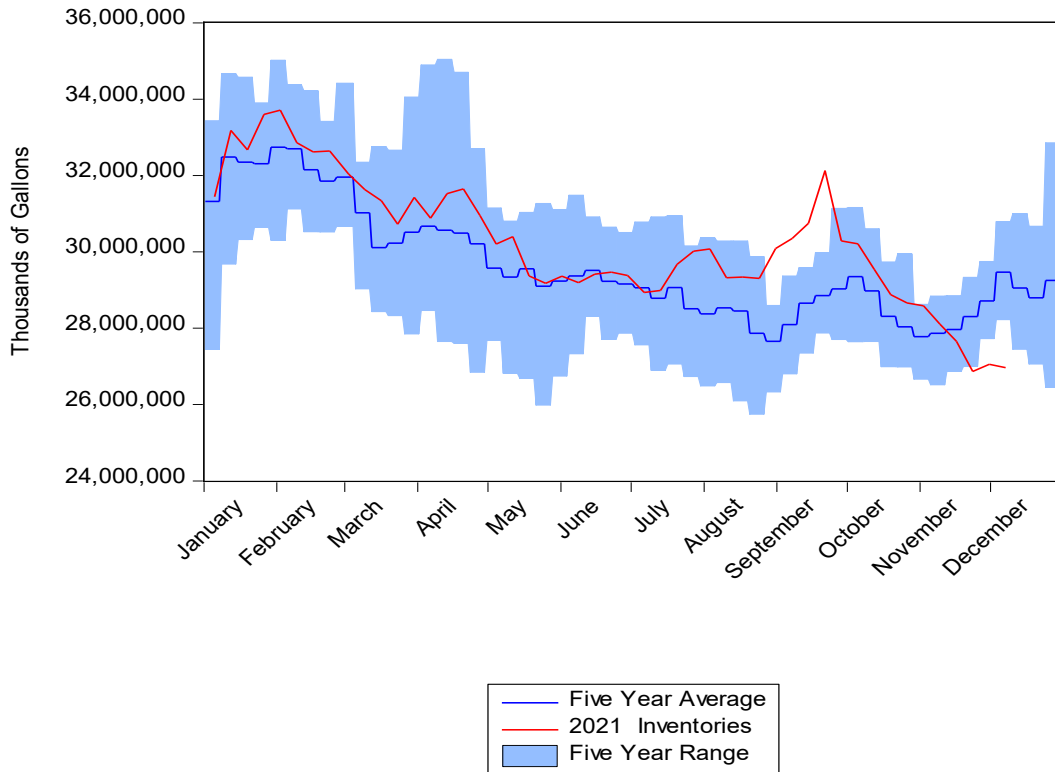
Figure 11 compares the current EIA inventory forecast to historical five-year averages. This forecast implies weak stocks throughout next summer’s driving season. Unlike the October forecast which had a summer spread of 14 percent, the December forecast anticipates a constant spread of 5 percent throughout most of the year. This difference should close to 3 percent by December 2022.



Source: Energy Information Administration, WSDOT

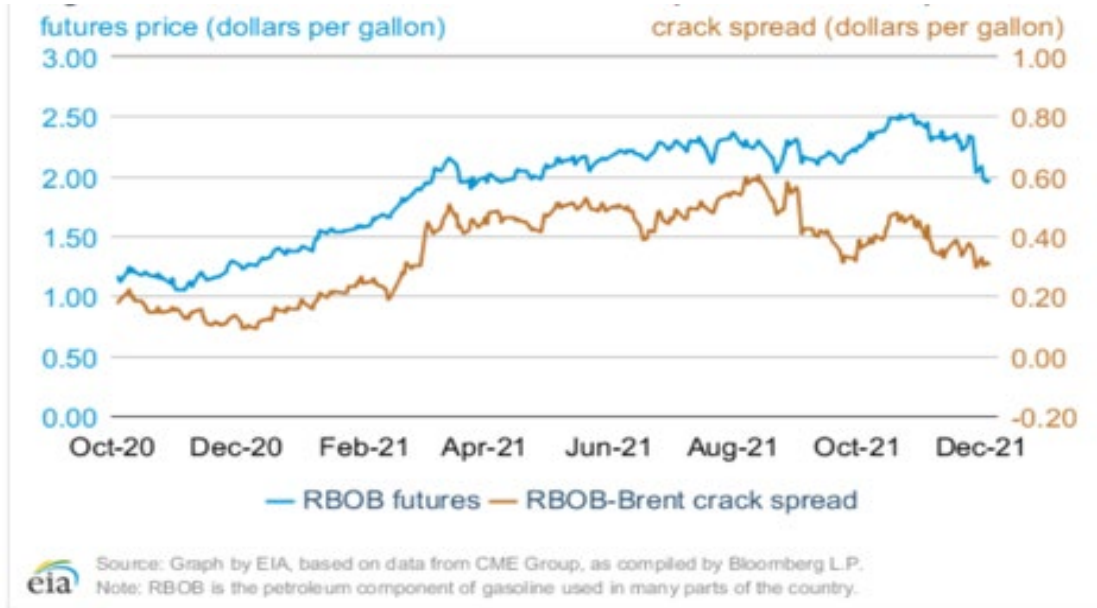
Figure 12 shows gasoline inventories for the West Coast, PADD5. As noted in the last report, refiners clearly overestimated the summer driving season and have now overcorrected. This decline closely tracks gasoline crack spreads as shown in Figure 13. A crack spread is the overall pricing difference between a barrel of crude oil and the petroleum product refined from it. EIA notes that in the current STEO that “the RBOB–Brent crack spread (the difference between the price of RBOB and the price of Brent crude oil) decreased by 8 cents/gal to settle at 31 cents/gal during the same period. The average RBOB–Brent crack spread in November was 36 cents/gal, a 7 cents/gal decrease from October. The decrease in RBOB prices and the crack spread likely reflected market expectations that responses to the Omicron variant could reduce demand.”

**Figure 12: 2021 Weekly Ending Gasoline Inventories (West Coast PADD5)**



Source: Energy Information Administration, WSDOT

Figure 13: Gasoline Crack Spreads

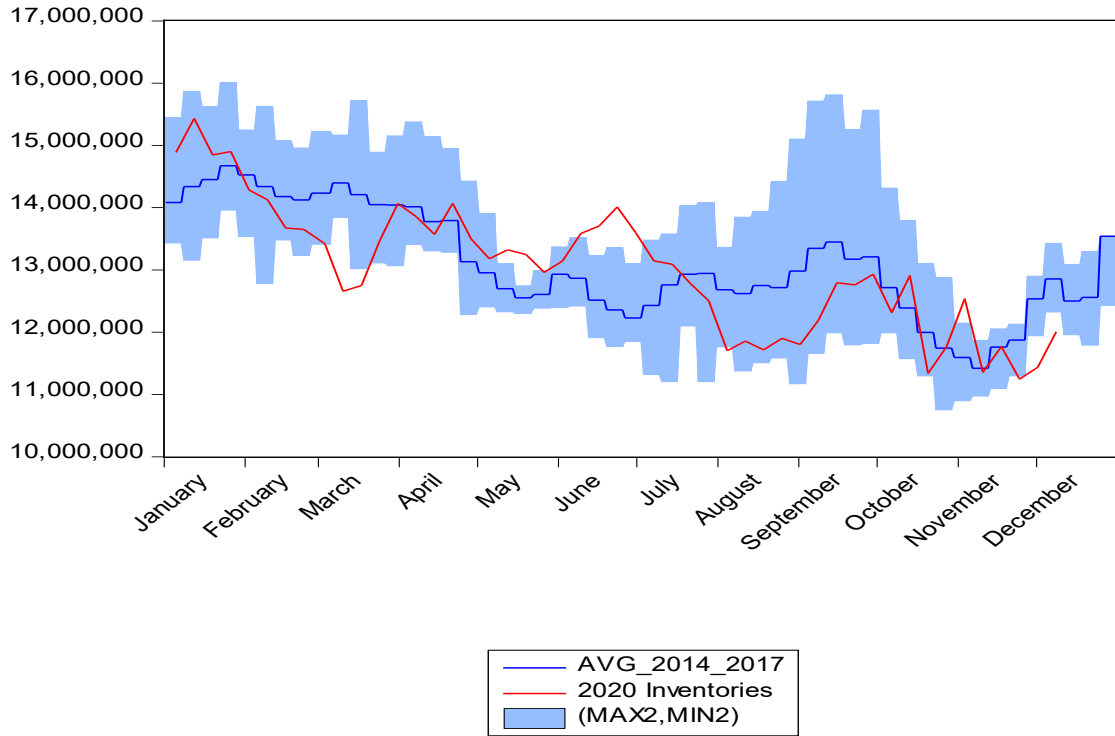


Source: Energy Information Administration

Figure 14 shows the analogous figures for diesel stocks. In contrast to gasoline stocks, diesel inventory declined to near the bottom of its five-year range throughout the summer before increasing in early fall.

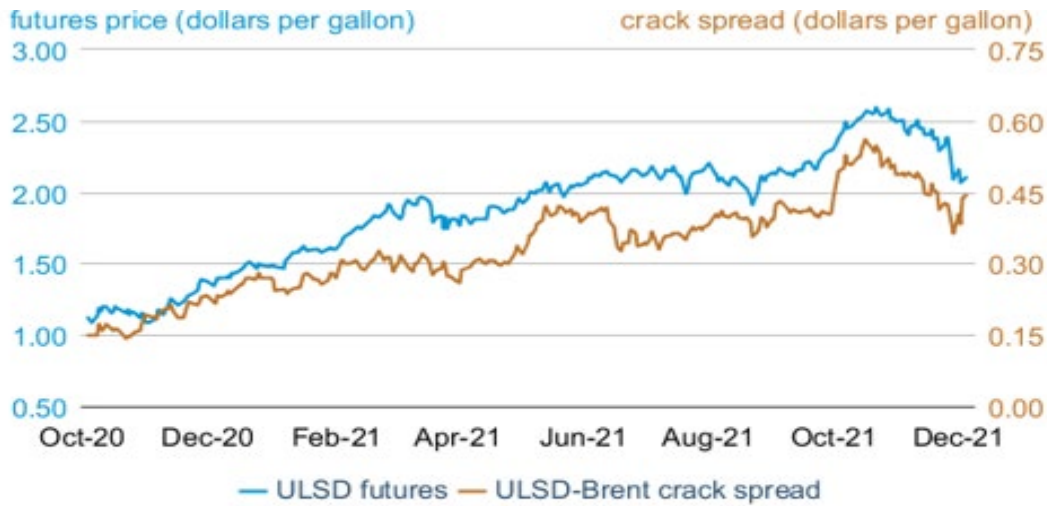
EIA notes in its current STEO that “The ULSD–Brent crack spread in November averaged 45 cents/gal, down 7 cents/gal from October’s average but up 25 cents/gal from November 2020. Recent changes in crude oil prices caused by concerns about the Omicron variant increased volatility in the crack spread, which decreased 6 cents/gal on November 26 (the largest single-day decrease since April 2020) and then increased 7 cents/gal through December 1. We estimate that U.S. distillate consumption increased by 0.1 million b/d (2.8%) from October to 4.2 million b/d in November, more than the five-year average but just below 2019 levels. U.S. distillate production increased from October as refineries came back from maintenance, but it remained below the five-year average.”

**Figure 14: 2021 Weekly Ending Diesel Inventories (West Coast PADD5)**



Source: Energy Information Administration, WSDOT

**Figure 15 Diesel Price Crack Spreads**



Source: Graph by EIA, based on data from CME Group, as compiled by Bloomberg L.P.  
 Note: ULSD=ultra-low sulfur diesel

Source: Energy Information Administration

### US Consumption and Prices

Figure 16 shows the collapse and recovery in national gasoline compared to 2019. The four-week rolling average for the latest December 2021 weekly consumption statistic was roughly 9.4 million bbd, roughly equal to the comparable period in 2019 (pre-pandemic). In the last Trends report, this writer expressed concern about the fall and winter when consumption is dominated by commuting patterns and that concern is heightened by the onset of the Omicron variant. EIA does not expect gasoline demand to reach 2019 levels throughout 2022.



Source: Energy Information Administration, WSDOT

Figure 17 shows national consumption by product. Since consumption is not directly observable, EIA calculates the production that has disappeared from the production/inventory records as a proxy known as “product supplied”. While all consumption is expected to increase from the depressed levels of 2021, the main driver is forecasted to be jet fuel, at 16 percent annually. Overall, consumption is expected to remain below 2018 levels.

**Figure 17: US Consumption of Hydrocarbons**

|                 | Product supplied (million barrels per day) |        |        |        |        |
|-----------------|--|--------|--------|--------|--------|
|                 | 2018                                       | 2019   | 2020   | 2021   | 2022   |
| motor gasoline  | 9.329                                      | 9.309  | 8.049  | 8.789  | 9.015  |
| jet fuel        | 1.707                                      | 1.743  | 1.076  | 1.383  | 1.607  |
| distillate fuel | 4.146                                      | 4.103  | 3.786  | 3.965  | 4.077  |
| hydrocarbon gas |  |        |        |        |        |
| liquids         | 3.014                                      | 3.139  | 3.228  | 3.410  | 3.588  |
| Other           | 2.316                                      | 2.248  | 2.047  | 2.220  | 2.189  |
| total           | 20.512                                     | 20.543 | 18.186 | 19.766 | 20.475 |

Source: Energy Information Administration

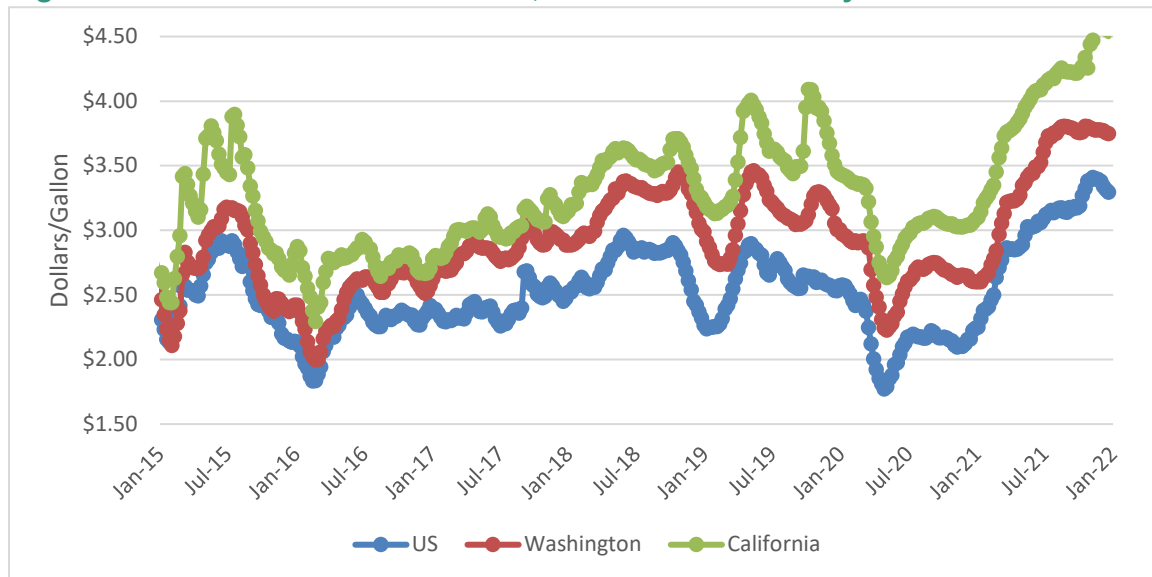
Although obscured by refinery inventory changes and other factors, national consumption is highly correlated with Washington taxable gallons. although Washington taxable gallons seem to track generally lower than national data. This makes sense since Washington has a more sophisticated job mix than the nation as a whole and is therefore more susceptible to telecommuting. September sales (the latest available data) were down 4.6 percent when compared to September 2019, a pre pandemic month.

This report customarily notes that it is problematic to compare diesel fuel tax activity to EIA consumption data: the series covers both significant off-road use and railroad consumption. Diesel fuel is used almost exclusively in commerce, the EPA estimates that only 3 percent of new cars use diesel. August special fuels taxable gallons were up 5.5 percent when compared to (pre-pandemic) September 2019.

Figure 18 shows the history of the monthly gasoline prices for the Washington, California, and the national markets since 2015. Prices for California and Washington are highly correlated because Washington is the swing supplier to the California market. This publication has previously shown that West Coast markets are physically cut off from the bulk of U.S. refining capacity. Correlations between US and west coast prices are almost completely a function of the price of oil.

Retail gas prices have increased in concert with increased demand and decreased supply. The average national retail gas price in December was \$3.32/gallon, 42 percent more than in January and 7 cents lower than the prior monthly average of \$3.39 per gallon. The Washington retail gas price average for December was \$3.76/gallon, 43 percent greater than in January and 2 cents lower than the November retail gas price. The current monthly average California price was \$4.22/gallon in December, 42 percent more than in January and 1 cent higher than in November.

**Figure 18: Retail Gasoline Prices: WA, CA & the U.S. January 2015- December 2021**

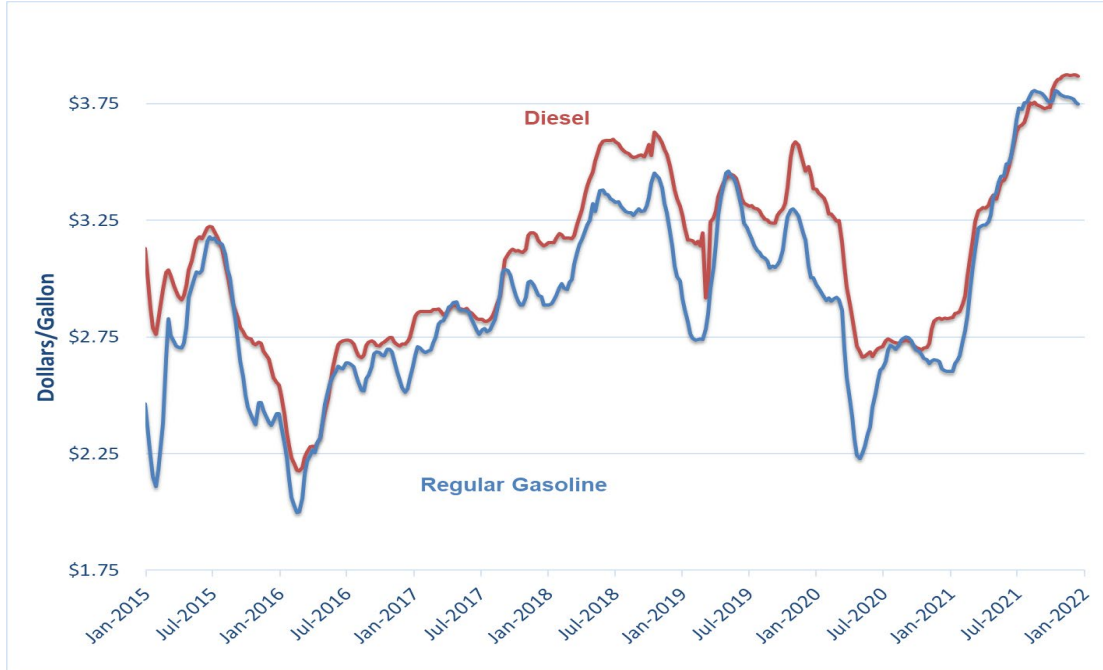


Source: Energy Information Administration



Figure 19 shows retail gasoline and diesel prices for Washington. As noted above, the average Washington retail gasoline price for month-to-date December was \$3.76/gallon, while the analogous diesel price was \$3.87/gallon. Diesel prices in November and December have been relatively flat. Monthly average diesel prices have risen 36 percent since January, less than the above-mentioned 43 percent for gasoline. The spread between the two fuels has increased appreciably since January. Spreads averaged 7.7 percent at the beginning of the year; the December average is 17 percent.

**Figure 19: WA Retail Gasoline and Diesel Prices- January 2008 –December 2021**



Source: AAA, Energy Information Administration

## BIODIESEL PRICE PREMIUM TRENDS

### Analysis by Lizbeth Martin-Mahar, Ph.D.

#### *Biodiesel Production and Prices: Comparison of Historical and Recent Prices*

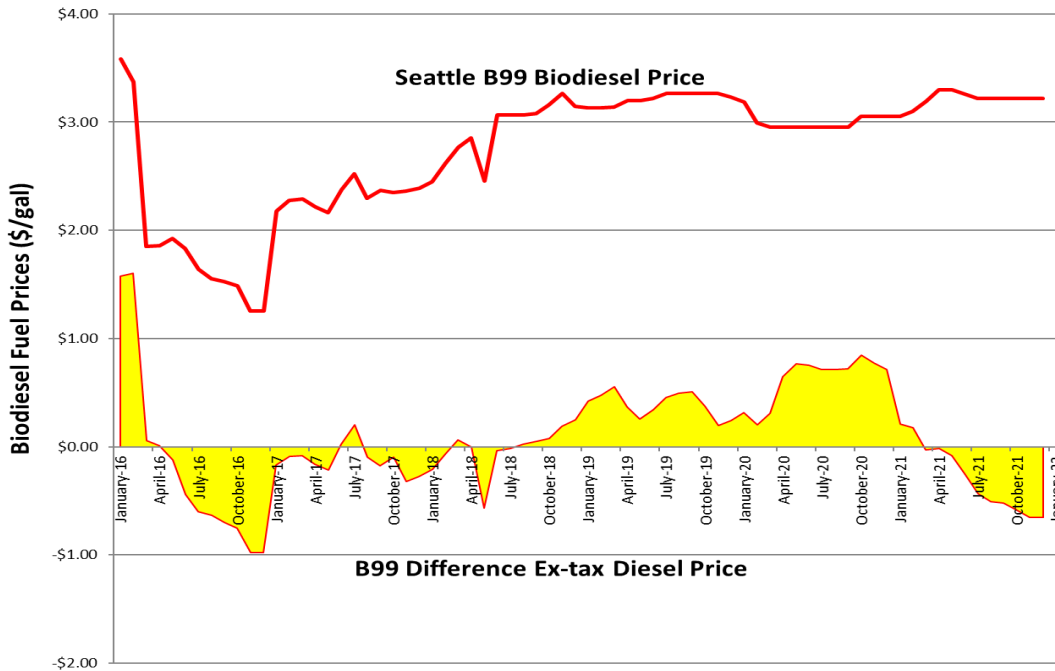
According to EIA monthly biodiesel production report, biodiesel production in Washington state consists of two companies producing 112 million gallons per year. This biodiesel production makes up nearly 90 percent of the PADD 5 production as of December 2020. Washington’s biodiesel production makes up 6 percent of the total US biodiesel production. On the other hand, Oregon only has one company producing 17 million gallons per year of biodiesel. California has 8 companies producing 81 million gallons per year of biodiesel. These statistics reveal that Washington state has the largest production of biodiesel than any of

the states in the PADD 5 region. The biodiesel market in PADD 5 states indicate that the market is not filled with a lot of different producers and thus is not very competitive.

**Recent Trends: Washington B99 Biodiesel Prices**

Since January 2019, the Washington B99 price has remained at an average price of \$3 per gallon. Since March, B99 biodiesel prices have been about the same at \$3.2 per gallon. Still in November and December 2021, the B99 biodiesel price in Washington was \$3.217 versus \$3.22 per gallon. B99 prices are not subject to fluctuations as regular diesel prices. Figure 19 shows the Washington B99 price and the price premium since January 2016.

**Figure 20: Monthly B99 Biodiesel Prices since January 2016**



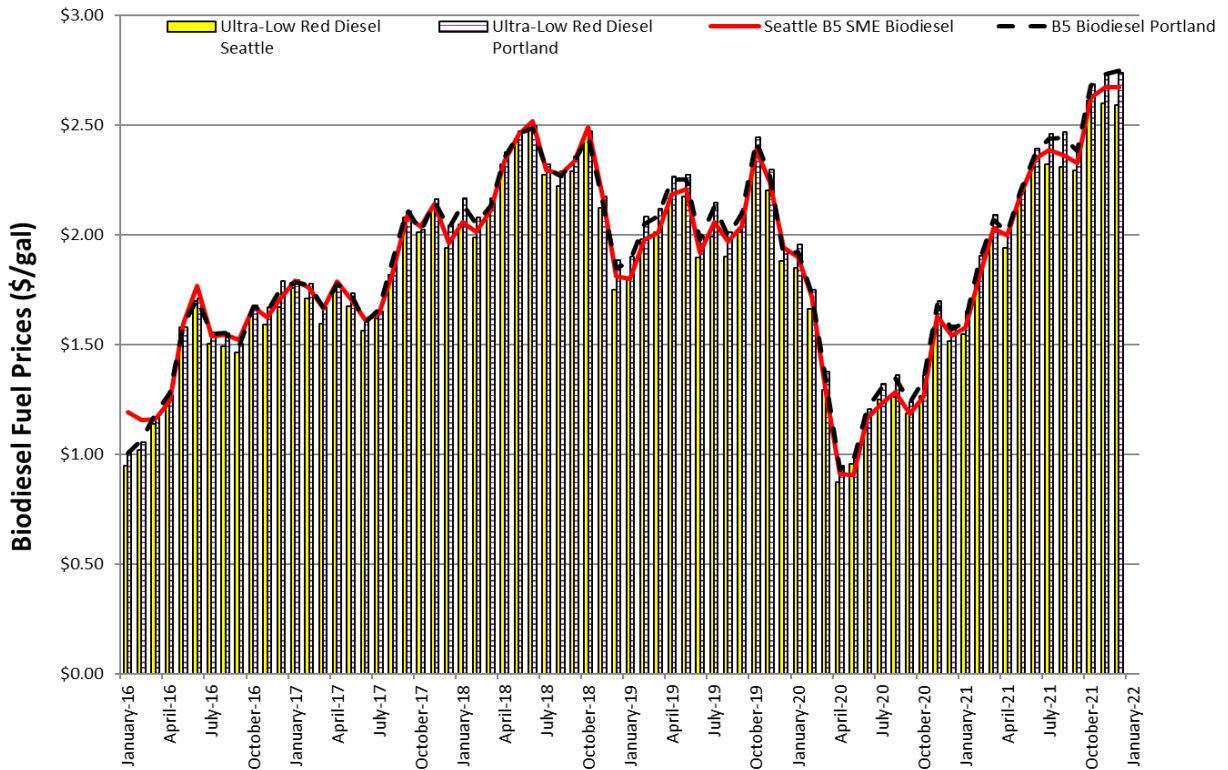
Source: B99, Seattle biodiesel price data - OPIS Fuel Price Survey

**Recent Trends: Seattle and Portland B5 Biodiesel Prices**

Seattle and Portland B5 red dyed biodiesel prices are tracked because the Washington State Ferries contract for fuel purchases is based on the Portland B5 red dyed biodiesel prices. This report compares the B5 red dyed biodiesel price with red dyed diesel as well. Figures 21 and 22 reveal the significant declines in B5 prices beginning in March through December mostly due to COVID-19 shutdowns beginning during the last few weeks of March 2020. Since the beginning of 2021, B5 biodiesel and red-dyed diesel prices have steadily risen in price. The B5 prices hit new peaks in November and December 2021 at \$2.75 and \$2.67 per gallon respectively in Portland and Seattle. Prices in Portland and Seattle are typically moving in the same direction but recently Portland B5 prices have risen while Seattle B5 prices have been relatively flat. Another trend that has occurred recently is that the difference between Portland and Seattle ultra-low red diesel has grown as Portland ultra-low red diesel has increased in

recent months while Seattle ultra-low red diesel prices have fallen. This helps explain why Portland B5 prices have increased more than Seattle B5 prices. Figure 21 also reveals that our current B5 prices in Seattle and Portland are the highest since we started tracking these OPIS prices in January 2016.

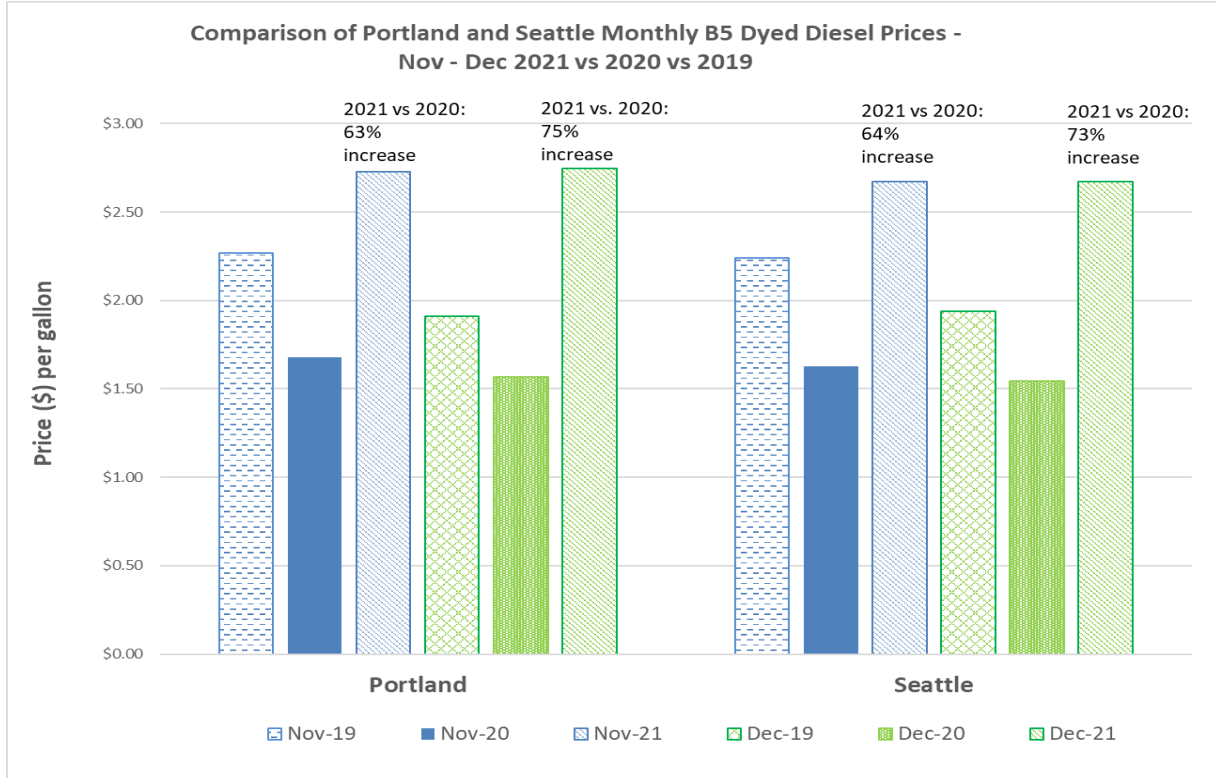
**Figure 21: Seattle and Portland OPIS Red Dyed Diesel and B5 Biodiesel Prices: Since January 2016**



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

Figure 22 shows how the monthly B5 prices have changed in Portland and Seattle from one and two years ago. In November 2021, B5 prices were 63 and 64 percent higher than the average prices a year ago in both Portland and Seattle, respectively. In November, the B5 prices were above (20 percent for Portland and 19 percent for Seattle) the pre-pandemic B5 prices in November 2019. In December 2021, the Portland B5 prices were 75 percent higher than December 2020 average prices and Seattle B5 prices were 73 percent above the December 2020 prices. In December, the B5 prices were above the pre-pandemic B5 prices by 44 percent for Portland and 38 percent for Seattle. Since January 2021, both Portland and Seattle B5 prices have risen substantially and now are stabilized at around \$2.74 per gallon for Portland B5 and \$2.67 per gallon for Seattle B5 prices during the last two months.

**Figure 22: Seattle and Portland OPIS B5 Biodiesel Prices: November – December 2021 Versus 1 and 2 Years Ago**



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.**

As noted earlier in this December edition of the *Fuel Price and Vehicle Trends Report*, WTI crude oil prices were rising but have fallen now in December. By week ending December 17, 2021, the first 4-week average in December was \$70 per barrel. This is a fall from an average in November of \$80 per barrel. That represents a nearly \$10 per barrel or 12.5 percent decline month over month. In contrast, retail gas and diesel prices have been relatively flat over the past two months. The dramatic fall in crude oil prices in 2020 due to the significant reduction in worldwide demand for oil from the pandemic has rebounded back to exceed 2019 pre-pandemic price levels. The WTI average crude price in November 2021 was \$80.13 per barrel which is 41 percent more than the November 2019 pre-pandemic average price of \$56.7 per

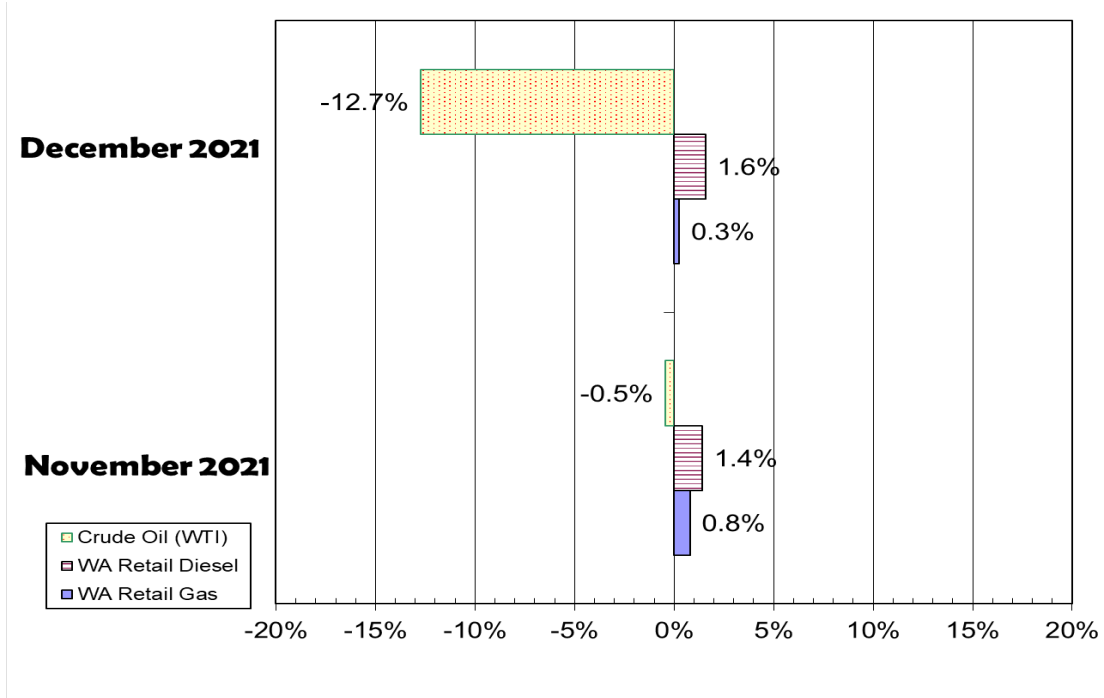
barrel. Then the WTI crude oil prices fell some to \$70 per barrel in December but it was still 19 percent higher than the pre-pandemic December 2019 price of \$59.7 per barrel. Since the beginning of calendar year 2021, WTI crude oil prices have risen 27 percent from \$56 per barrel in January to \$70 per barrel in December. In the November forecast, we raised the crude oil price forecast because it included higher recent monthly actual crude oil prices. The fourth quarter 2021 crude oil price projection from the November forecast was \$80 per barrel. In November, the monthly average crude oil price was 0.5 percent lower than the fourth quarter 2021 projections. In December, the monthly average crude oil price of \$70 per barrel was lower by 12.7 percent than the fourth quarter average forecast. See Figure 23 for more detail.

Retail fuel prices have been relatively flat with some decline in gas prices. In November and December, the retail gas prices have come in close to the fourth quarter average price. In November, retail gas prices were 0.8 percent above the fourth quarter 2021 estimated price and in December retail gas prices came in above the fourth quarter projections by 0.3 percent. Washington retail gas prices have grown 44 percent from \$2.62 per gallon in January to \$3.76 per gallon in December. Over the past two months, gas prices have been essentially flat at \$3.78 and \$3.76 per gallon in November and December respectively.

The recent trends in retail diesel prices have been like gas prices in Washington with diesel prices in November and December only being 1 cent different. In November, the average diesel price was \$3.86 per gallon and in December the average monthly price increase 1 cent to \$3.87 per gallon. In both months, the actual retail diesel prices have come in at 1.4 and 1.6 percent above the projected fourth quarter price of \$3.81 per gallon. Since the beginning of CY 2021, Washington retail diesel prices have grown 36 percent from \$2.84 per gallon in January to \$3.87 per gallon in December.

During the past two months (November through December), we have seen the difference between retail gas and diesel prices increase from 8 cents in November to 11 cents in December where retail diesel prices were back again above retail gas prices.

**Figure 23: Percent Change in 2021 Monthly Average Fuel Prices Compared to the November Forecast**



Source: Washington TRFC November 2021 Forecast, EIA, and AAA weekly fuel prices

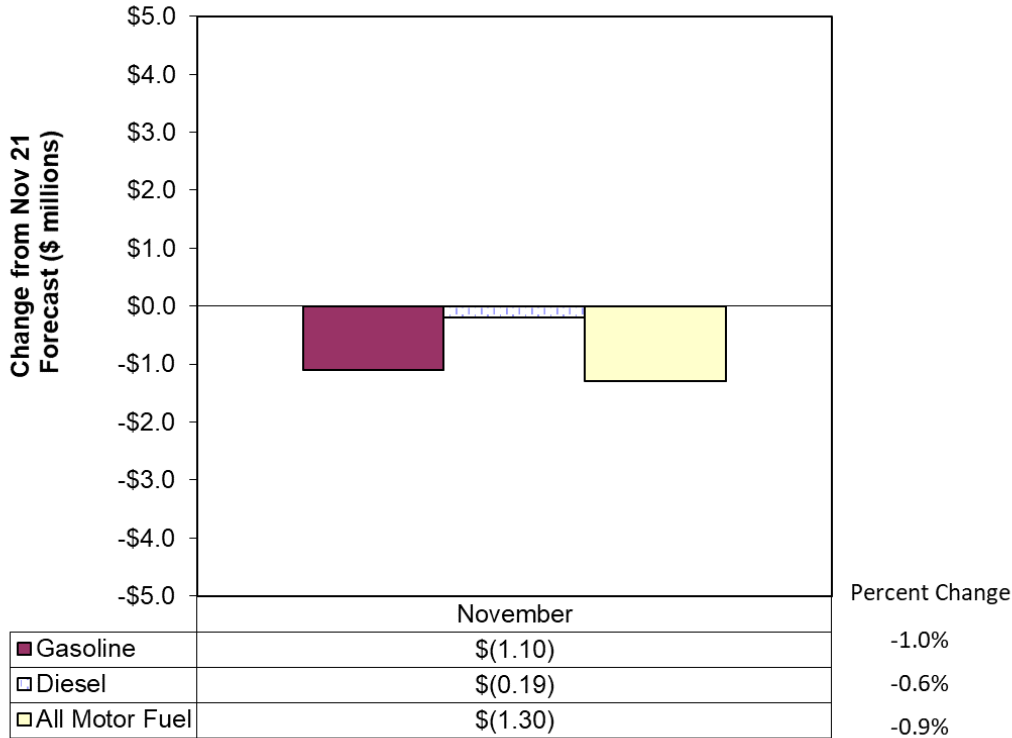
## WA MOTOR VEHICLE FUEL TAX COLLECTION TRENDS COMPARED TO RECENT FORECASTS:

Gasoline and Diesel Tax Collections

### Analysis by Lizbeth Martin-Mahar, Ph.D.

Since the adoption of the November 2021 forecast, one month of fuel tax collections have been reported. In November, total motor vehicle fuel tax collections came in below the forecast at \$144.20 million, which was \$1.30 million or 0.9 percent below the November forecast of \$145.5 million and this month was 7 percent below November 2019 (pre-pandemic) at \$155.8 million. The November 2021 actual gas tax collections came in at \$110.5 million which was 1 percent below the last forecast and 12 percent below the pre-pandemic 2019 November gas tax level. Diesel tax collections came in at \$33.7 million which was below the November forecast by \$0.2 million or 0.6 percent. November’s diesel tax collections were 11 percent above the November 2019 (pre-pandemic) level for that month.

**Figure 24: Motor Vehicle Fuel Tax Collections Compared to the November 2021 Revenue Forecast**



Source: Washington TRFC November 2021 Forecast and DOL and State Treasurer’s Office monthly fuel tax reports

## WA MOTOR VEHICLE REGISTRATIONS AND REVENUE TRENDS COMPARED TO RECENT FORECASTS:

Passenger Cars and Trucks

### Analysis by David Ding

#### Car and Truck Registrations

For the one month of licensing registrations and revenue data we have received since the November forecast, vehicle registrations were down in November, see Figure 25. Passenger car registrations came in at 384,249 vehicles. On the other hand, we forecasted 397,066 vehicles. November’s actual passenger car registration was 3.2 percent lower or 12,817 vehicles less than projected for the month. The actual registrations for November 2021 were below the November registration of 417,262 vehicles in 2020, but much more than 298,916 vehicles in November 2019. Unfortunately comparing November registrations in 2021

to 2020 and 2019 each has its own unusual circumstances. In November 2020, the passenger car registrations are likely higher than usual because earlier in the calendar year, the pandemic resulted in delays in registrations because DOL offices were closed for several months, and owners were not penalized for delays in vehicle renewals. As a result, passenger car registrations could have been unusually high in November 2020 because of all the other pandemic impacts earlier in the year. Then in November 2019, I-976 was passed by voters and many people thought they did not need to pay their vehicle registrations on time due to the passage of the initiative so the registrations for November 2019 was unusually low. If passenger car registrations are examined for November 2018 and 2017, those two months of passenger car registrations, 369,068 and 351,886, were in line with the November 2021 actuals and reveal that we now in 2021 have surpassed a typical pre-pandemic November registration level as represented in 2018 and 2017.

Truck registrations had a similar pattern to passenger cars. November truck registrations were 123,702 vehicles, meanwhile, the November forecast was 128,008 vehicles. The latest actual truck registrations were below the forecast by 3.4 percent. Using the current November truck registrations compared with the November truck registration of 133,883 vehicles in 2020 and 88,389 vehicles in 2019, we can see it's lower than November 2020 registration but higher than November 2019 registration. Just as we mentioned above, the November 2019 and November 2020 have unusual circumstances which explain that these months in prior years are unusually high in 2020 but unusually low in 2019. If we examine the truck registrations in November 2018 and 2017, we see that those prior years registrations were 115,960 and 108,848 respectively. We can say that the November 2021 truck registrations are above the pre-pandemic November truck actuals in 2018 and 2017 which is consistent with the passenger car trends as well.

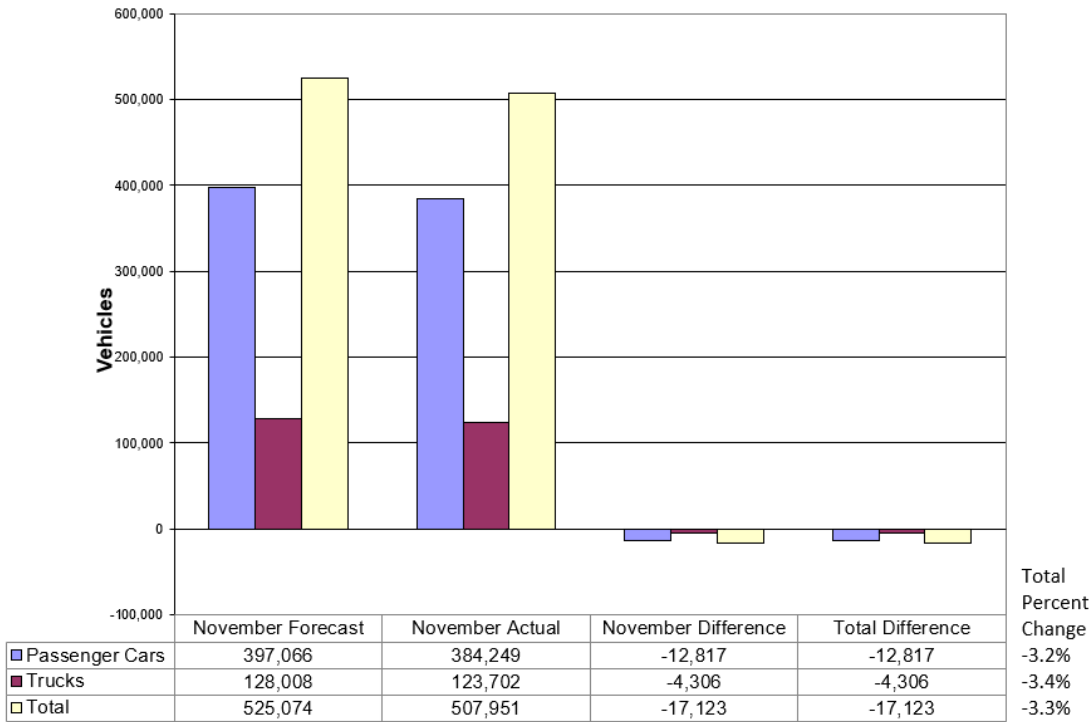
For both passenger cars and trucks combined for this period, vehicle registrations came in 17,123 vehicles or 3.3 percent below the November forecast.

### License, Permit and Fee Revenue

We also have one month of revenue to discuss in this report (Figure 27). For \$30 basic license fee, November revenue came in at \$12.1 million. This was \$0.1 million or 0.8 percent higher than the \$12.0 million forecasted for that month. This revenue increase does not match the trend with the passenger car registrations. This is not a new trend we have seen where the \$30 basic license fee vehicle registrations are not matching the revenues collected for the \$30 basic license fees. Due to this disconnect the forecast for \$30 license fees have been slightly reduced to compensate for fact that each month the revenue anticipated from taking vehicle registrations multiplied by the \$30 fee are higher than the amount of amount collected for the \$30 license fee. The current revenue forecast for the \$30 fee has been adjusted to better represent the revenue actually collected. That is why when the vehicle registrations are not meeting the vehicle registration forecast, the \$30 license fee revenues may be right on target with the forecast as is the case in November.



**Figure 25: Vehicle registrations, November 2021, Forecast vs. Actual**  
**November Registration Trend**

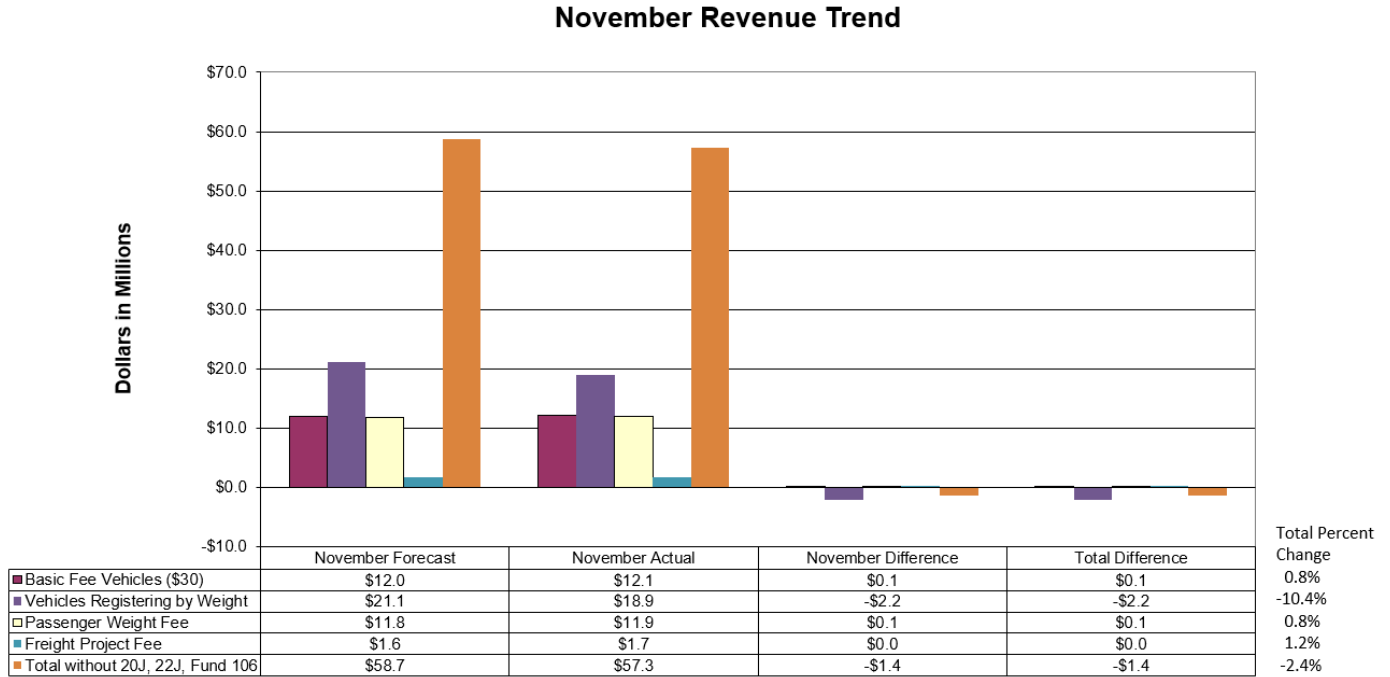


Source: Washington Transportation Revenue Forecast Council November 2021 Forecast and Department of Licensing Reports 13, November 2021

Revenue for truck weight fee came in lower than expected for November by \$2.2 million at \$18.9 million, which was 10.4 percent less than the November forecast. Comparing with the 3.4 percent decrease in truck registrations, the revenue reduction in November looks bigger than the reduction in truck registrations. An explanation for this is likely because in the winter months we anticipate more heavier trucks to register so when the registration counts are below the forecast, the revenue reduction is larger than the truck registration forecast decline because heavier commercial trucks register more in the November, December and January months.

Figure 26 also reveals that the revenue from the passenger weight fee came in at \$11.9 million which was \$0.1 million or 0.8 percent more than the forecast which is consistent with the trends in the \$30 basic license fee trend this month. The freight project fee revenue was a little higher than the forecast with the actual 1.2 percent higher than the November forecast. In total, License, Permit, and Fee (LPF) revenues came in at \$57.3 million, which was 2.4 percent or \$1.4 million below the November forecast.

Figure 26: Vehicle Revenues, November 2021, Forecast vs. Actual.



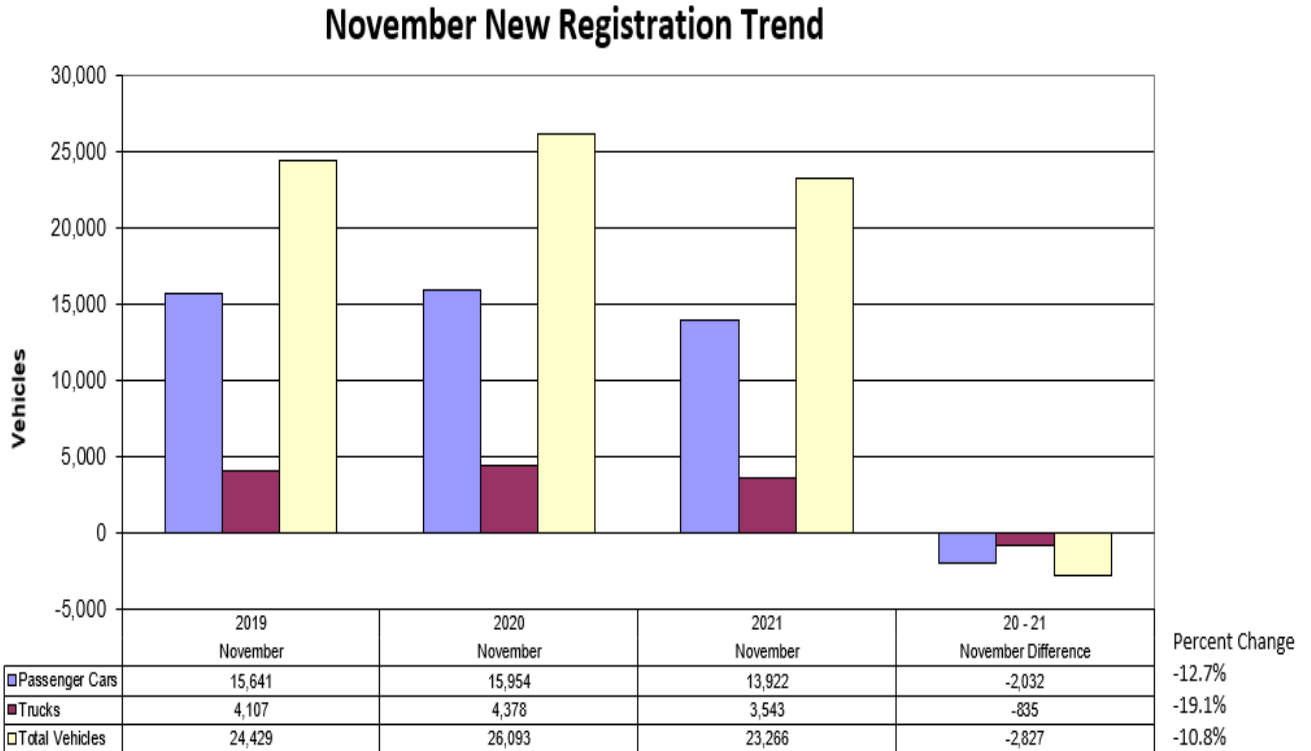
Source: Washington Transportation Revenue Forecast Council November 2021 Forecast and Department of Licensing ARFS Revenue Report, November 2021.

### New Car and Truck Registrations from Sales

This report also shows new car and truck registrations for November 2021, for more details, see Figure 27. In November, new car registrations were 2,032 vehicles less than the registrations in the same period a year ago, which was 12.7 percent lower than the previous year. November 2021 new car registrations were also 12.3 percent below pre-pandemic 2019 registrations. Same as the passenger cars, new truck registrations in Washington State showed a decrease in November 2021. The new truck registrations were down 835 trucks year over year, which represents a 19.1 percent decrease over last year. In addition, new truck registrations were down 15.9 percent from the pre-pandemic 2019 level in November as well. This indicates that both the new car and the new truck registrations are slowing down from prior months. Do note that November 2021 new vehicle sales levels are unusually low. We examined the past nine years of new vehicle sales for passenger cars and trucks. We found that the new passenger car sales level of 13,922 in November 2021 has not been seen in prior Novembers since 2012 when the new passenger car sales was 13,992. For new truck sales, this sales level in November 2021 of 3,543 trucks has not been seen since November 2015 at 3,244 trucks. We know the current new vehicle sales levels are the result of low product supplied rather than low consumer demand for new vehicles. There just are not enough new car and truck supplies on the current market. As a result, the new vehicle registrations have slowed down due to the supply chain problems in the car industry but used car sales have seen increases in recent

months.

Figure 27: New vehicle registrations Comparisons for November



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

Overall, total new vehicle registrations in November decreased by 2,827 vehicles or 10.8 percent year over year.

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