



Third Quarter 2021
July - September

Expanding Refining Margins and Rising Crude Prices Led Canadian Retail Fuel Prices to Multi-year Highs in the Third Quarter

As gasoline refining margins reached a six-year high and crude prices reached a three-year high this past quarter, Canadian retail gasoline prices were pushed to an all-time high, and retail diesel prices reached a level not experienced in seven years.

Canadian crude prices were pushed higher this past quarter as global crude markets tightened. A glut of crude oil that emerged in 2020 during the onset of the pandemic completely disappeared by the third quarter as demand pushed up against supply. The Organization of Petroleum Exporting Countries and allied countries (OPEC+) continued to limit crude oil production while demand for crude increased - namely upon improved demand for refined products as higher vaccination rates led to an easing of travel restrictions. A natural gas energy crisis in Europe has increased the demand for heating or furnace oil (a by-product of crude), resulting in higher crude price valuation. In late August, the landing of Hurricane Ida also contributed to tighter crude inventories as 96 percent of crude oil production in the Gulf of Mexico was pushed offline and took several weeks for production levels to return. By the end of September, North American crude inventories had fallen 7.5 percent from the end of the previous quarter, and Canadian crude prices reached a three-year high.

Like crude oil, strong demand and limited production in the third quarter led to falling inventories and rising wholesale gasoline prices in North America. The U.S. Energy Information Administration (EIA) reported that gasoline consumption in early July reached record levels and remained well above levels from a year ago throughout the summer months. Hurricane Ida had a significant effect on gasoline production late in the quarter as several refineries in the Gulf of Mexico were forced to close, some for several weeks. The Gulf of Mexico is a significant supplier of fuel along the North American East Coast, and disruptions can affect prices as far away as central Canada. As consumption outpaced supply, North American gasoline inventories averaged below the five-year range for much of the quarter, sending wholesale gasoline prices higher. Canadian refining margins reached a six-year high in August and averaged 5.3 cents per litre above the five-year average for the quarter.

North American diesel fuel inventories also experienced contraction over the third quarter. Diesel fuel demand is heavily correlated with economic growth. As the North American economy recovers from the COVID-19 pandemic, demand for diesel fuel increases upon increased freight and construction. However, growth in gasoline demand has outpaced diesel fuel in 2021, so North American refiners have generally favoured gasoline production, increasing gasoline yields over diesel fuel yields. Consequently, diesel fuel stocks have declined over the past quarter resulting in Canadian diesel refining margins reaching an 18-month high by September and averaging 1.9 cents per litre above the five-year average for the quarter. **Figures 1 & 2** show the historical movement of retail gasoline and diesel prices in Canada, along with their component prices.

Figure 1: Canadian Average Regular Gasoline and Component Prices

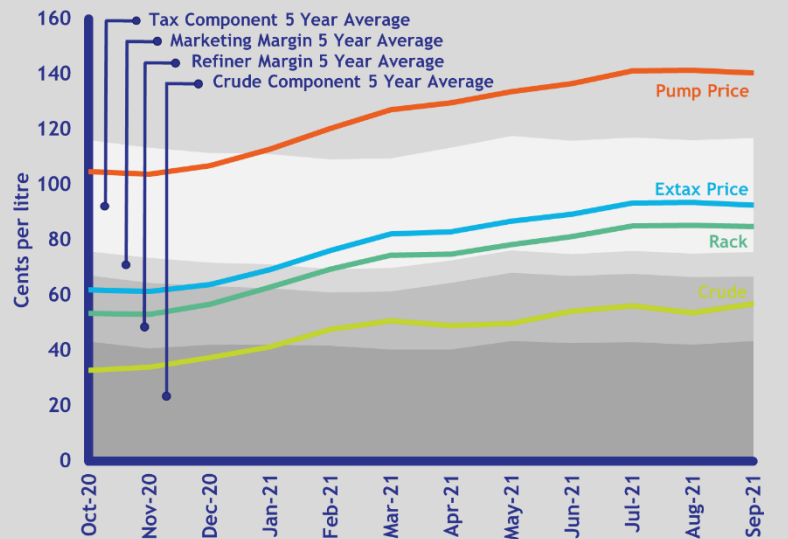
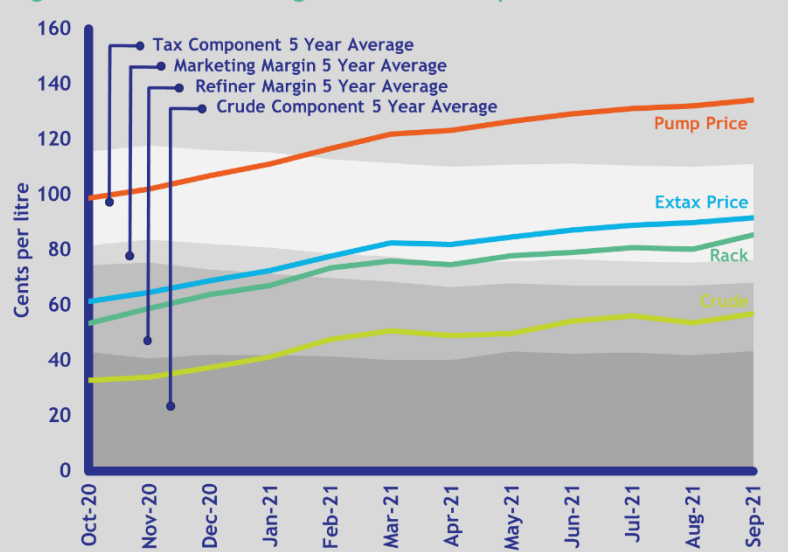


Figure 2: Canadian Average Diesel and Component Prices



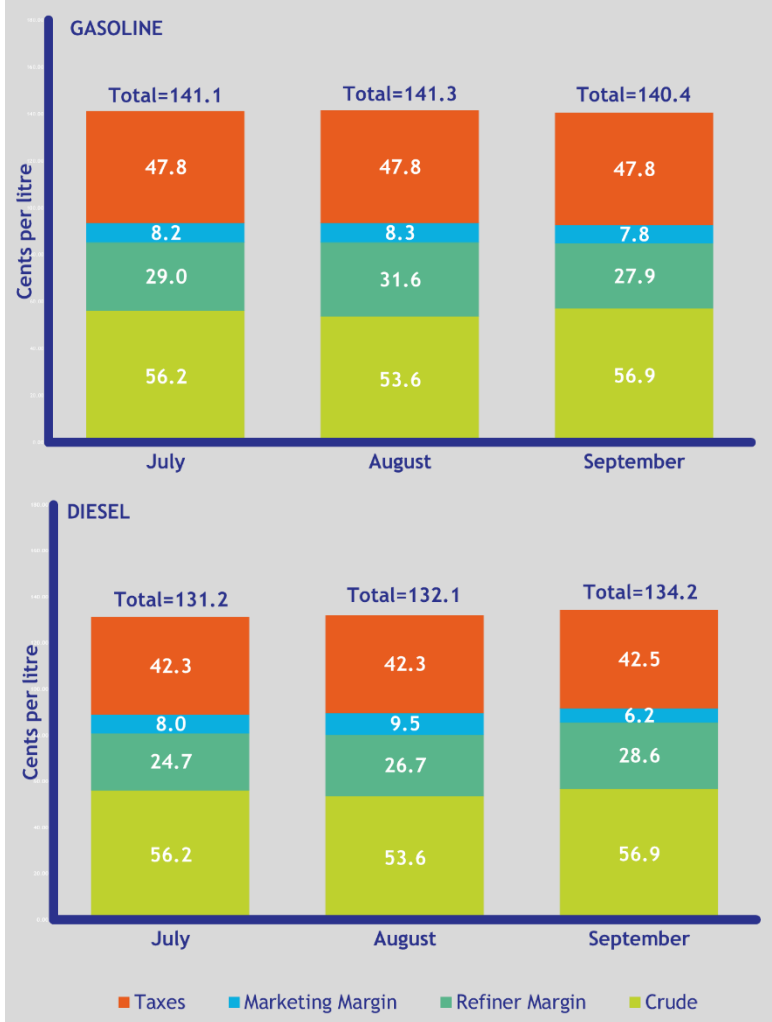


Crude prices experienced increased volatility in the third quarter due to competing information on supply and demand issues but ended the quarter higher. The price of Brent crude (a global benchmark) ended the quarter at 78.64 \$US/BBL, 5.2 percent above the end of the previous quarter. Similarly, the WTI benchmark ended the quarter at 74.83 \$US/BBL, 2.1 percent above the previous quarter's finish. Brent's premium to WTI widened in the third quarter, ending at 3.81 \$US/BBL, up 2.36 \$US/BBL from the previous quarter's end. In the summer, extreme European natural gas price increases have led to increased demand for crude oil globally as suppliers look for alternatives for heating fuel, thus pressuring Brent crude higher over WTI.

The heavy-light crude oil price spread between WTI and Western Canadian Select (WCS) widened in the third quarter, weakening by 0.72 \$US/BBL by the quarter's end. The heavy-light price spread will likely strengthen in the next quarter with the opening of Enbridge's newly expanded Line 3, a crude export pipeline from Alberta. The expanded pipeline will allow more heavy crude exports to move by pipeline rather than the marginal barrels by rail, which require a larger discount to cover higher transportation costs.

Gasoline and Diesel Market Overview

Figure 3: Canadian Average Gasoline and Diesel Price Components for 3rd Quarter 2021



Canadian retail gasoline prices reached an all-time high in August as crude prices rose and refining margins expanded. A tight global crude market is driving prices higher as stronger than anticipated demand has consistently exceeded production due to voluntary production cuts induced by OPEC+ along with lost output from Hurricane Ida. North American gasoline inventories fell in the third quarter, causing refining margins to expand as wholesale gasoline prices reached a three-year high.

Regionally, gasoline refining margins expanded along the West Coast early in the quarter as a significant amount of wildfires prohibited some product movement into the area, an area with few options for re-supply and prone to price spikes. The East Coast, more reliant on global crude inputs to refineries, experienced a larger increase in retail prices as global crude prices rose further than domestic blends.

Like gasoline, Canadian wholesale diesel prices reached a three-year high in the third quarter, pushed higher by declining North American inventories as refineries favoured gasoline production over distillate production, and refinery utilization declined following the arrival of Hurricane Ida. Canadian diesel refining margins reached an 18-month by September.

Since the spring, West Coast wholesale diesel prices have risen above the rest of Canada, rising as much as 15.4 cents per litre higher in August and ending the quarter 12.5 cents per litre higher. The West Coast's capacity to produce fuel is less than the total amount consumed in the region, with the situation worsening in the last year as refinery closures reduced capacity further. (Figure 3)

Next Quarter Market Outlook

Since the beginning of October, crude oil benchmarks have continued to climb as demand for crude pushes up against shrinking inventories. The impact of a natural gas energy crisis in Europe may expand to North America and push crude oil prices higher as suppliers look for heating fuel alternatives. This comes at a time when North American distillate inventories have contracted upon lower production. With the start of the fall agricultural season and the winter heating season, we may see diesel fuel inventories contract further, sending wholesale diesel prices higher. Although gasoline demand is well above levels from a year ago and inventories have contracted, gasoline demand will likely taper in the coming months as the summer driving season has ended. Thus, we expect gasoline refining margins to begin to weaken and possibly provide some relief to high retail prices if crude oil prices stabilize.



Understanding Holiday Fuel Price Increases

This section of the newsletter will analyze daily fuel price trends, specifically what effect holidays have on fuel prices. It is a commonly held perception that retail gasoline prices rise in the days leading up to a holiday, presumably as a means for fuel retailers to profit beyond what might be considered a reasonable mark-up on gasoline from the additional car travel incurred. Our analysis will utilize daily pump price data over the last five years at the three largest Canadian cities: Vancouver, Toronto, and Montreal. We will examine daily price movements in the week leading up to and following six common holidays and explain the observed trends.

Our analysis begins by looking at daily gasoline retail price changes (excluding taxes) above or below the average price change over the last five years. As **Figure 4** illustrates, the Canada Average retail pump price excluding taxes follows a distinct weekly pattern of falling on the Monday following a weekend and rising over the remainder of the week. Monday pump prices were on average 0.3 cents per litre lower than the end of the previous week, then climbed an average of 0.3 over the remainder of the week. The daily pump price trend likely correlates to weekly consumer demand. A 2019 article by NACS found that Fridays were the busiest day for fill-ups, with nearly 16% of fill-ups occurring on this day. Therefore the weekly fluctuation in pump prices likely corresponds to demand trends - greater demand means higher inventory turnover and higher pump prices.

Daily pump price changes by month show a distinct seasonal trend. Rising in the spring and falling in the fall. This corresponds to gasoline demand - rising in the spring and summer and declining in the fall and winter. Monthly Canadian retail fuel margins, which represent the gross available profit margin to fuel retailers, calculated as the difference between the extax pump price and the wholesale pump price, do not follow a seasonal pattern. Kalibrate data from 2009 to 2020 shows the average retail margin in Canada was 7.9 cents per litre, varying within a small 0.4 range above or below in any month. Therefore, the seasonal pattern observed in daily pump price changes is attributable to changes in wholesale prices that are passed through to retail prices.

Figure 4: Canada Average Extax Gasoline Daily Price Change, By Days of the Week and By Month, 2016-2021

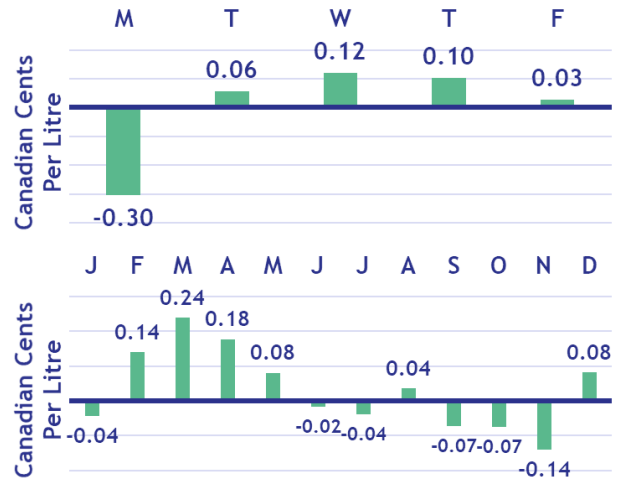
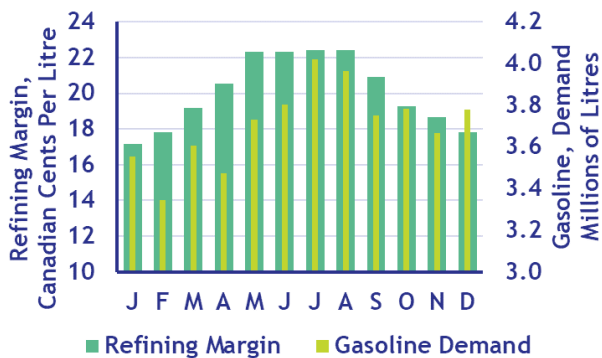


Figure 5: Monthly Canadian Refining Margin and Gasoline Demand, 2009-2020



Source: Statistics Canada, Tables #25-10-0044-01&0081-01, Kalibrate

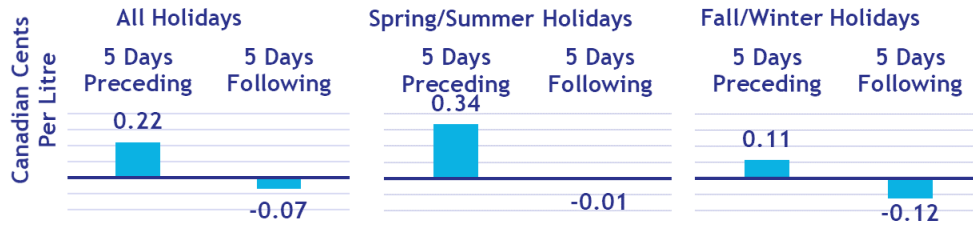
Figure 5 shows that Canadian refining margins follow a seasonal trend of rising in the spring, remaining high during the high-demand summer months, and dropping off in the fall and winter when demand is low. Refining margins are calculated as the difference between wholesale prices and crude input prices. Since crude prices do not follow a seasonal pattern but are determined mainly by global supply and demand conditions and are greatly influenced by geopolitical events, most of the variation in refining margins is determined by wholesale price movements. Stronger demand leads to greater inventory constraints and pushes wholesale prices higher. Higher wholesale prices lead to larger refining margins and entice refineries to produce more refined products to meet demand. Therefore the monthly seasonal pattern in retail prices is likely a direct result of seasonal changes in wholesale prices being passed through to retail prices.

These daily and monthly demand trends in gasoline consumption affect retail prices and impact holiday pump price changes. We analyzed six common holidays in three cities: Vancouver, Toronto, and Montreal. These included Easter, Victoria Day (National Patriot’s Day in Quebec), Canada Day, Labour Day, Thanksgiving, Christmas and New Year’s. Looking at all three cities and calculating the average pump price change in the week before a holiday, we found that pump prices averaged 0.22 cents per litre higher in the week leading up to a holiday and were 0.07 cents per litre lower following a holiday (**Figure 6**). The increase in pump prices leading up to a holiday was more pronounced in the spring and summer (up 0.34 cents per litre), but despite prices typically falling in the off-season, fall and winter holiday pricing also saw an increase in pump prices leading up to a holiday (0.11 cents per litre). Additionally, we observed that the decrease in pump prices following a holiday was more pronounced during the fall and winter holidays. As with monthly variations in pump price changes, the increase in pump prices leading up to a holiday is



exaggerated during the spring and summer when pump prices are already rising. Similarly, the decrease in pump prices following a holiday is more pronounced in the fall and winter when pump prices are already trending lower.

Figure 6: Holiday Daily Pump Price Change Above/Below Average, 2016-2021 in Vancouver, Toronto, and Montreal



Are rising pump prices before a holiday and falling prices after a holiday indicating that fuel retailers are gouging consumers? To examine this, we looked at profit margins. We examined the daily change for both retail and refining margins leading up to and following a holiday.

Figure 7: Holiday Daily Retail and Refining Margin Change Above/Below Average, 2016-2021 in Vancouver, Toronto, and Montreal

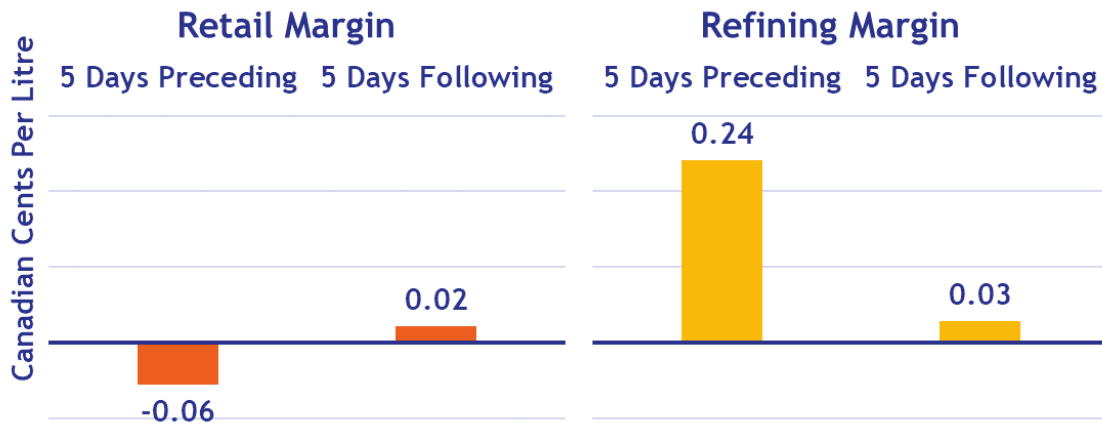


Figure 7 shows that refining margins in Vancouver, Toronto, and Montreal expanded by an average of 0.24 cents per litre in the days leading up to a holiday. This is likely a direct result of increased travel during the holiday leading to inventory draws and rising wholesale prices. Although less pronounced, as retailers attempt to replenish stocks following increased turnover during the holiday, refining margins expanded more moderately at 0.03 cents per litre. What may be surprising to many consumers is that fuel retailers retail profit margins contracted in the week leading up to a holiday, falling on average 0.06 cents per litre, and expanded less than refining margins following a holiday at just 0.02 cents per litre.

So, in conclusion, our analysis of daily prices changes leading up to a holiday shows that pump prices do indeed rise. However, it should be noted that the amount of the rise in prices leading up to a holiday is minimal at less than a quarter of a cent. The increase is a result of several factors. One factor is that pump prices tend to rise over a week any time of the year, so consumers will naturally observe increasing prices over the week leading up to the holiday weekend. Additionally, many holiday long weekends occur in the spring and summer months when pump prices are already trending higher due to normal seasonal demand fluctuations. Our analysis has determined that prices are most influenced by underlying wholesale prices changes that move upward or downward based on the balance between fuel supply and demand. When demand pushes up against supply, we see rising wholesale prices and expanding refining margins. The idea that fuel retailers are inflating pump prices during holidays to gain profits is untrue. Our analysis shows that fuel retailers experience smaller retail margins in the weeks leading up to a holiday - an indication of strong competition in the fuel market.



We welcome media enquiries

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About Kalibrate

Kalibrate's decision-making software empowers fuel and convenience retailers across the globe with the market intelligence, micro-local data, and precision pricing and planning tools they need to gain real competitive advantage. For over 25 years, Kalibrate has been the chosen decision-making partner of 300+ fuel and convenience retailers in over 70 countries. The firm is headquartered in Manchester UK, with local offices in the USA, Canada, India, China, Australia, and Japan.

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