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First Quarter 2019
January – March

# Canadian Retail Gasoline Prices Reached a Two-Year Low in January Before Climbing for the Remainder of the Quarter

***Retail gasoline and diesel prices reached a fifteen-month low in January before climbing to the end of the quarter, following rising crude prices and expanded refining margins.***

Global crude prices were pushed higher in first quarter over concerns of tighter supplies following the agreeement by the Organization of the Petroleum Exporting Countries (OPEC) to cut production, sanctions on Venezuelan crude, and crude production quotas in Alberta. Early in Q1, higher crude prices and lower wholesale prices squeezed refining margins, particularly for gasoline which reached its lowest price since 2012.

North American gasoline inventories expanded to record highs in January following strong North American refinery runs throughout 2018 and lower seasonal gasoline demand early in the quarter. Later in the quarter, wholesale gasoline prices began to climb as demand increased and supplies tightened due to planned and unplanned refinery outages. In addition, the switch to summer blends of fuel applied upward pressure on prices in March.

North American distillate demand kept pace with refinery production this past quarter as distillate inventories showed little change from the same quarter in the previous year despite rising demand. Canadian wholesale diesel prices rose along with crude costs this past quarter, moderately increasing retail prices. **Figures 1 & 2** show the historical movement of retail gasoline and diesel prices in Canada along with their component prices.

This past quarter was characterized by higher crude prices. Brent, a global crude benchmark, climbed to 67.76 $US/BBL, 28 percent higher than the end of the previous quarter. The key North American benchmark, WTI, saw a similar rise this past quarter, climbing to 60.17 $US/BBL, 32 percent higher than the end of the previous quarter. Brent's premium to WTI reached as high as 10.75 $US/BBL in mid-February as crude inventories expanded at Cushing, OK, a result of refinery issues in PADD 2. For the rest of the past quarter, the WTI to Brent discount remained fairly constant, ending at 7.59 $US/BBL, just 0.01 $US/BBL above the end of the previous quarter.

**Figure 1: Canadian Average Regular Gasoline and Component Prices**

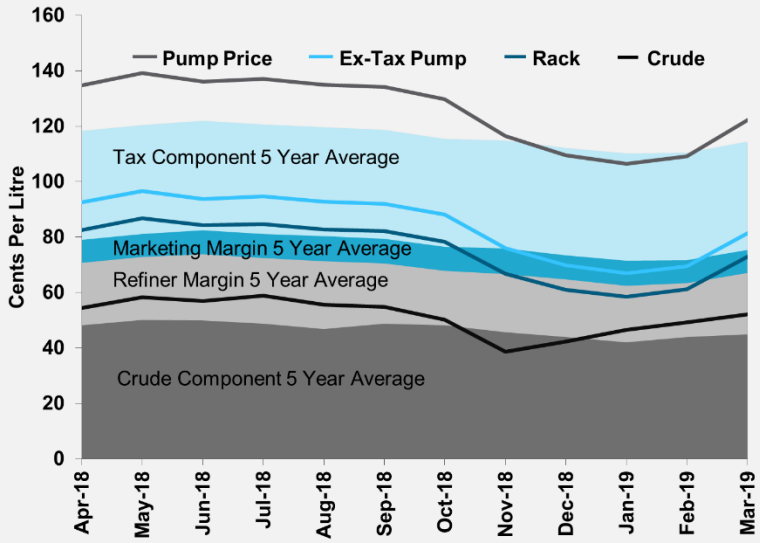
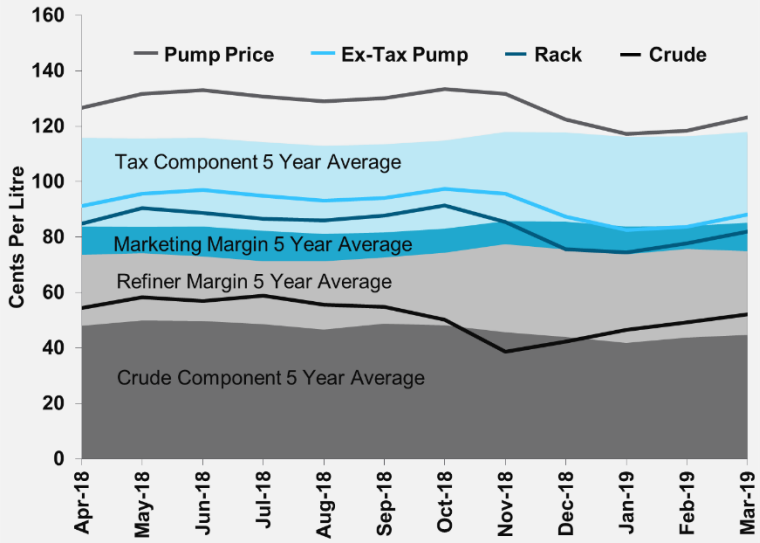



**Figure 2: Canadian Average Diesel and Component Prices**

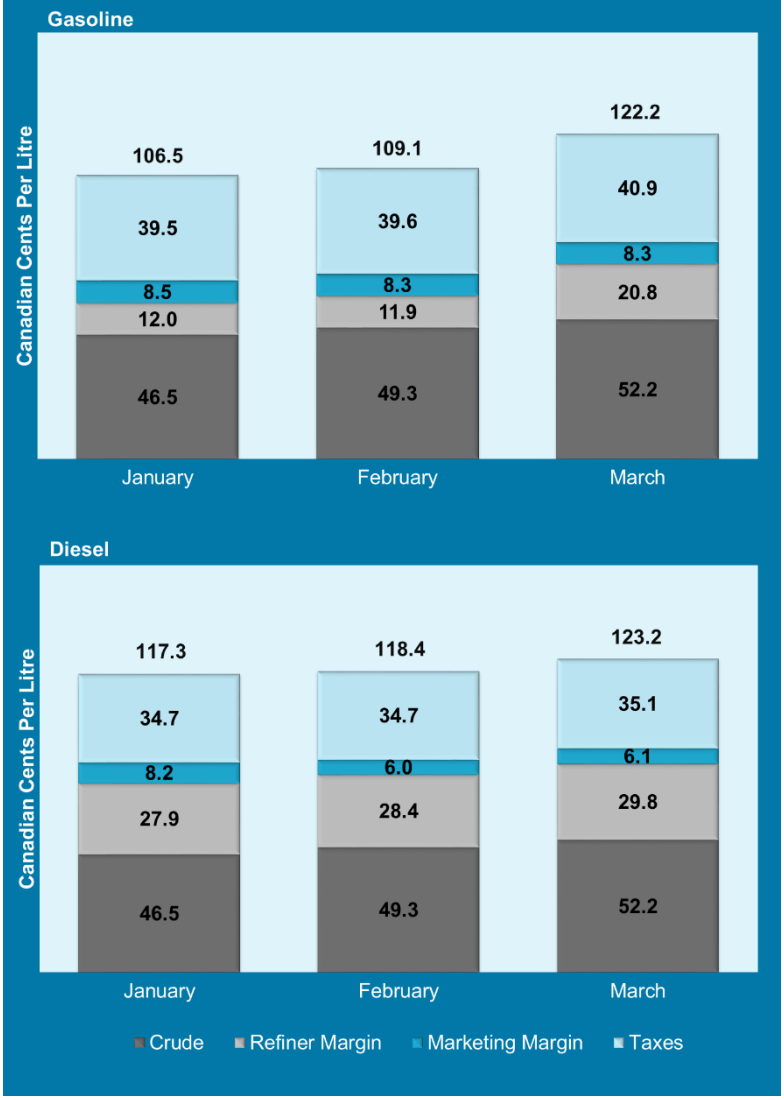



The Canadian crude benchmark for heavy oil, Western Canadian Select (WCS), climbed over 250 percent from lows reached in November 2018, a direct consequence of the Alberta government's crude oil production restrictions instituted in January. Although the Alberta government increased production limits both in February and March, and announced further production limit increases throughout 2019, the value of WCS continued to strengthen along with other global benchmarks over the quarter. The WCS price differential to WTI ended the quarter at 7.92 $US/BBL, down from 13.48 $US/BBL at the end of the 2018 and its high of 39.84 $US/BBL this past October.

# Gasoline and Diesel Market Overview

After gasoline prices reached a two-year low in January, planned and unplanned refinery shutdowns in the latter part of the quarter pushed gasoline rack prices higher, expanding refining margins to typical seasonal levels in March from their lows in January and February. Wholesale gasoline prices were also higher as refineries switched over to the production of summer blended gasoline, a more expensive blend to manufacture, along with increased demand as Canadian drivers returned to the roads as the wintery weather subsided.

**Figure 3: Canadian Average Gasoline and Diesel Price Components for 1st Quarter 2019**




Wholesale gasoline prices on the west coast averaged 14.9 cents per litre above the Canadian average in March, attributable to refinery issues south of the border and the area's logistical isolation from the rest of North America. In addition, flooding in the Midwest severely limited delivery of ethanol to the west coast, a product used to meet renewable fuel content requirements.

Diesel refining margins fell from record highs in November, and averaged four cents per litre lower than than the same quarter in the previous year. Higher domestic demand, due to distillate's use as a heating fuel, and increased global demand was met with increased North American refinery production keeping wholesale prices aligned to crude price changes this past quarter.

Western diesel refining margins shrunk over 25 cents per litre by March from highs reached in November as heavier western crude prices rose. In contrast, Eastern diesel refining margins were steady over the quarter as increases in diesel rack prices kept pace with increases to crude input costs. (**Figure 3**)

# Market Outlook for the Next Quarter

As we head towards peak driving season in the next quarter we will likely see upward pressure on gasoline prices as inventories get drawn down. Additionally, a number of Canadian provinces will see price increases in the form of carbon taxes, instituted in provinces without a provincial-run carbon pricing program, and rising in other provinces such as British Columbia.

The forecast trend for diesel fuel prices is less clear. Although diesel prices will likely rise due to additional carbon taxes in many provinces, diesel demand will likely soften in the near-term. In addition, economic growth is heavily linked to diesel fuel demand due to its use in transporting goods as well as its use in commercial and farming applications, and Canadian economic growth indicators are signaling slower growth expectations in 2019 compared to 2018.

However, as 2020 approaches, refiners will begin to make changes in anticipation of IMO 2020 marine regulations that are set to reduce the amount of sulfur allowed in ocean vessels. Refined product prices will likely be pressured higher, and the effect on diesel prices is expected to be significant, as outlined in the next section.

# IMO 2020 Regulations and the Effect on Refined Product Prices

The International Marine Organization (IMO) 2020 regulations aims to limit sulfur content for ocean vessels and is set to come into effect in 2020. The regulations lower the amount of sulfur content in heavier fuel oils from 3.5 percent to 0.5 percent. Although the changes in regulations are for bunker fuel, they are expected to affect prices for all refined products, including diesel and gasoline. In this section we will examine how changes to bunker fuel regulations are likely to pressure crude input costs, change refinery product yields, pressure refined product margins, and ultimately increase distillate prices.

Refinery processes involve separating, processing, and blending hydrocarbon molecules and additives to produce usable fuels such as gasoline, diesel, aviation fuel, and other fuels such as residual fuel oil. Residual fuel oil can be used as fuel for marine transportation and also in furnace and heating applications. It is a heavier product and tends to be naturally higher in sulfur content.

**Figure 4: Canadian Refinery Domestic Sales, 2018**

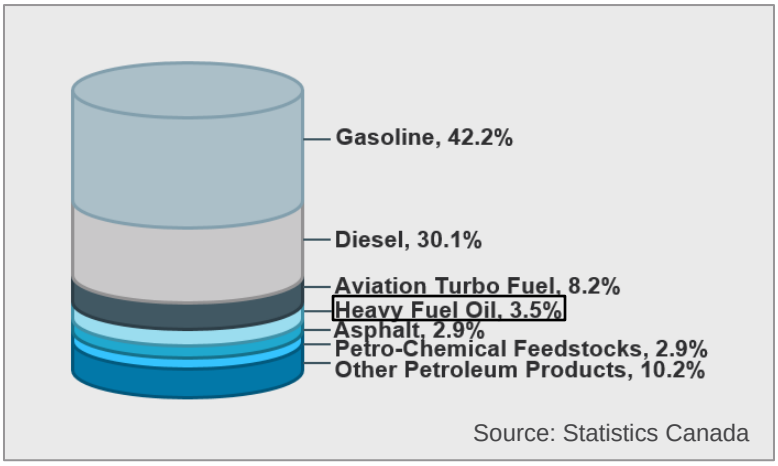
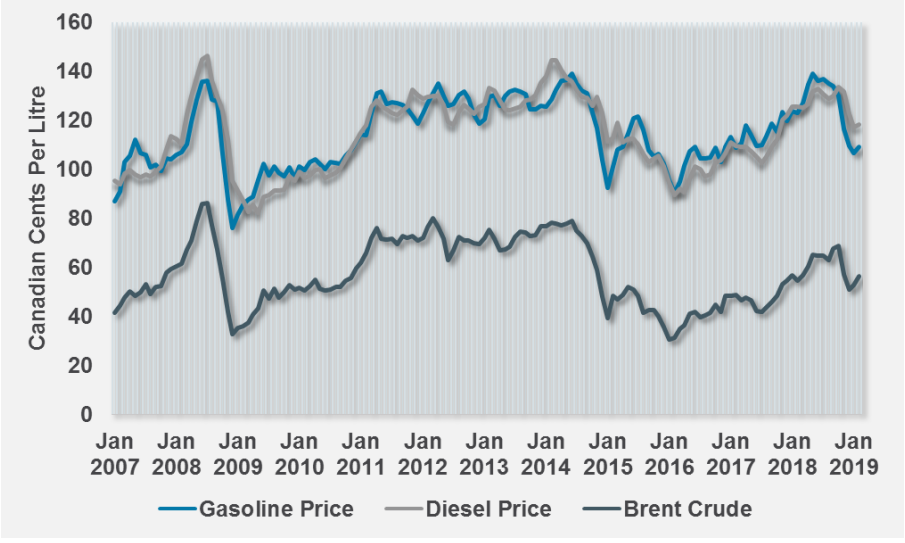



**Figure 4** shows yields by product for Canadian refineries in 2018. Residual fuel, or heavy fuel oil, made up roughly 3.5% of total Canadian refined product demand in 2018 while lighter fuels such as gasoline and diesel fuel made up almost three quarters of total refined product demand (Statistics Canada). U.S. refiners had similar yields - 1.6% for residual fuel oil, 45.6% for gasoline and 20.2% for diesel in 2018 (EIA).

Refinery yields are a product of both refinery equipment (complexity) and crude oil inputs and are meant to balance product demand with available supply. A more complex refinery has the ability to refine heavier crude oil into a sufficient yield of lighter products, and often provides the flexibility to adjust yields to reflect shifts in product demand. Refinery complexity in a given region is strategically linked to both crude availability and product demand. Although heavy fuel oil demand only makes up a small amount of demand in North America, IMO 2020 regulations are expected to influence refinery decisions around crude inputs and product yields, ultimately affecting finished product prices for a broader range of fuels such as gasoline and diesel.

When the IMO 2020 regulations come into effect, shippers will have options when deciding their pathway to compliance. One option for shippers would be to continue purchasing higher-sulfur fuel and run emissions through a scrubber (an exhaust cleaning system). Scrubbers are expensive and this may not be a cost-effective option on older ships.

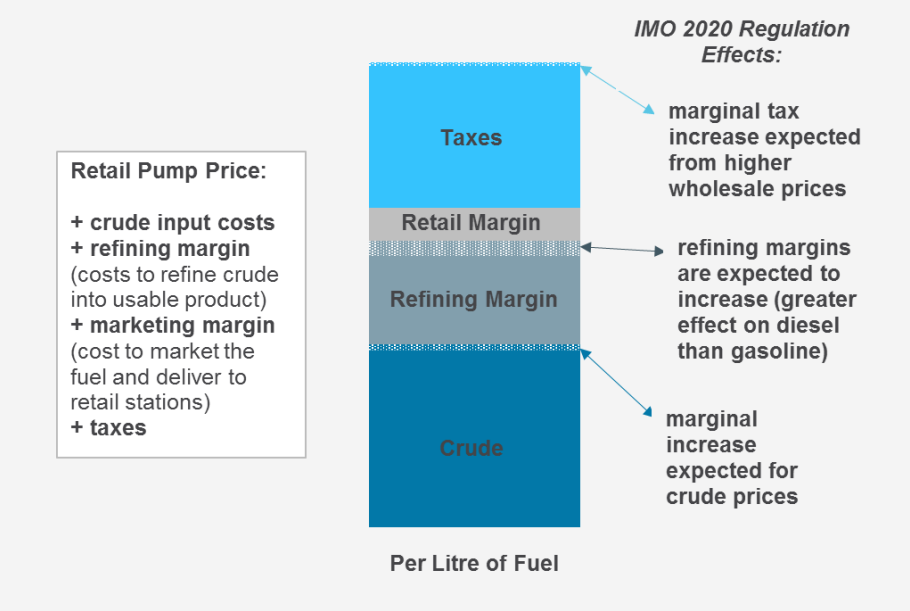
**Figure 5: Canadian Gasoline and Diesel Price Comparison to Brent, 2007-2019**




Another option would be to convert ships to an alternative fuel source such as liquefied natural gas (LNG), methanol liquefied petroleum gas, or batteries; however, there is a significant cost associated with this transition and without significant infrastructural changes, these alternatives may not feasible.

A more probable solution would involve shippers purchasing fuel oil with lower sulfur content. This move could force refiners to make decisions regarding how to meet shifting product demand, and one short-term option may be to purchase lighter and sweeter crude oils for input into their refineries. Ultimately, this approach could result in a global expansion of the price differential between light/sweet and heavy/sour crude blends. As the price for light sweet crude blends may be pressured higher, this could push all refined product prices higher, considering the historically strong relationship between them (**Figure 5**).

**Figure 6: Effects on Canadian Refined Product Prices from IMO 2020 Regulations**




Increased price pressure on refined products from IMO 2020 regulations will come not only from possible changes in crude input costs, but also from increased refining margins for refined products. It is easier to understand why distllate refining margins might be pushed higher as the regulations come into effect as it is simply a case of higher product demand and limited supply. However, gasoline refining margins may also be pushed higher as refiners may seek to maximize distillate yields at the expense of gasoline. A decrease in gasoline yield could result in tighter supply and ultimately push wholesale gasoline prices higher.

In all likelihood, the effect on refined product prices in Canada is expected to be between five and ten cents per litre for diesel and less for gasoline (based on EIA estimates), **Figure 6**.

This price effect, however, is not likely to be experienced equally across the entire industry, with much of the impact being felt in coastal markets, since IMO 2020 regulations only apply to ocean going vessels. In addition, since 2015, ships traveling through emission control areas (ECA - coastal areas around northwest Europe and North America including the U.S. Carribbean) already require marine fuel use at a maximum of 0.1 perecent sulfur content. Several ports in China have also had a 0.5 percent sulfur regulation in place since 2016, which was extended to include most of their coastline in 2019.

It is expected that roughly 75 percent of marine vessels will actually be compliant by 2020 (Oil & Gas Journal, January 2019), and that the shift towards lower sulfur fuel use in marine vessels has already started (and is likely to continue its slow rise well beyond 2020). Extreme and immediate effects on product prices in 2020 are unlikely, and it is much more likely that the effect on crude and refined product prices will build over a longer period of time as the industry adjusts and finds other approaches to compliance with these regulations.