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Fourth Quarter 2017
October – December

Higher Crude Prices, Pipeline Issues, and Increased Demand Helped Push Canadian Retail Prices Higher in the Fourth Quarter of 2017.

Retail prices spiked mid-quarter as unexpected U.S. pipeline issues constrained supply to the central part of the country, an area already recovering from the effects of Hurricane Harvey in the previous quarter. Retail petroleum prices for both gasoline and diesel finished the year above their five-year average.

Many North American refiners, strained from the effects of Hurricane Harvey, had delayed scheduled refinery maintenance, condensing the period of maintenance that is typical in Q3. This had the effect of drawing down inventories and sent wholesale prices higher in October. In November, higher crude prices, and robust demand forced wholesale prices higher and pushed retail gasoline prices to a three-year high. As refinery maintenance eased and pipeline issues were resolved towards the end of the year, wholesale gasoline prices began to recede.

North American diesel inventories ended the quarter well below 2016 levels, following increased product demand and record-high exports. Additionally, crude prices rose following the decision by the Organization of Petroleum Exporting Countries (OPEC) in late-November to extend crude production limits to the end of 2018. Accordingly, wholesale diesel prices rose to a three-year high in December with retail prices following. **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

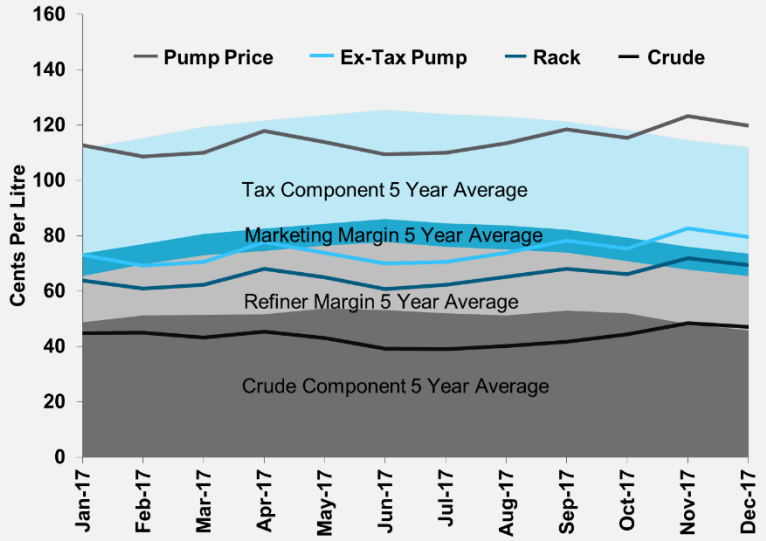
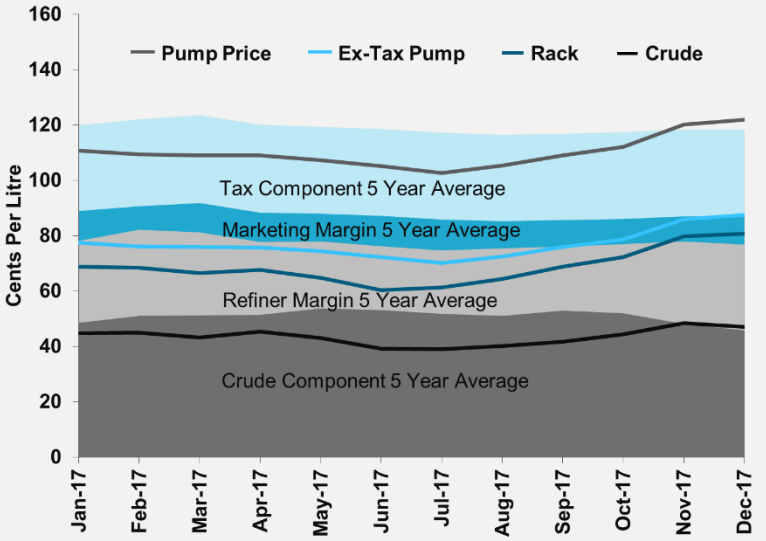


Figure 2: Canadian Average Diesel and Component Prices



Both WTI and Brent, key North American and International crude benchmarks, were driven higher by increased refinery inputs and pipeline issues this past quarter. WTI rose 8.77 $US/BBL, ending the quarter at 60.44 $US/BBL, or 17 percent higher than the end of the previous quarter. Similarly, Brent rose 9.52 $US/BBL, ending the quarter at 66.80 $US/BBL, or 17 percent higher than the end of the previous quarter. Storage constraints in Cushing, Oklahoma, the pricing hub for WTI, eased somewhat in November after the unexpected shutdown of the Keystone pipeline, shrinking the Brent premium to WTI to just 4.69 $US/BBL. However, the unexpected shutdown of the Forties Pipeline in Europe, which transports Brent for processing, sent the Brent premium to WTI as high as 7.24 $US/BBL in December, before ending the quarter at 6.36 $US/BBL.

The Keystone shutdown in November also pushed the price of Western Canadian Select (WCS) lower. With limited alternative shipping options, the shutdown created a bottleneck of heavy oil in Alberta and pushed the price of the benchmark down 13.2

percent over the quarter. The WCS discount to WTI which started the quarter as low as 11.11 $US/BBL in October, peaked near the end of December at 27.29 $US/BBL. As a result, refineries with continued access to WCS saw increased refining margins over the quarter.

Gasoline and Diesel Market Overview

Figure 3: Canadian Average Gasoline and Diesel Price Components for 4th Quarter 2017

Rising crude costs and growing retail margins contributed to retail gasoline reaching its highest average fourth quarter price in three years. Refining margins, although lower than the previous quarter, averaged more than four cents per litre higher than the same quarter last year, a result of tightened refined product supply, and declining inventories, leading to elevated U.S. and global wholesale prices.

While Western refiners saw higher refining margins due to lower western Canadian crude costs, Eastern refiners saw their refining margins shirink over the past quarter as many rely on more expensive imported crude. The West Coast remained the most expensive region for gasoline in Canada, with wholesale prices ending the quarter more than eleven cents per litre higher than the average of the rest of the country.

Canadian wholesale diesel prices rose more than crude costs, leading to expanded diesel refining margins, as is typical of the winter heating season. Retail prices did not rise as quickly causing retail margins to shrink over the quarter, averaging 1.5 cents per litre lower than the previous quarter.

As with gasoline, diesel refining margins showed some regional disparity as Eastern regions increased 1.2 cent per litre over the quarter, while Western and Central regions increased 12.4 cent per litre, a result of higher demand due to economic activity in these regions. (**Figure 3**)

Market Outlook for the Next Quarter

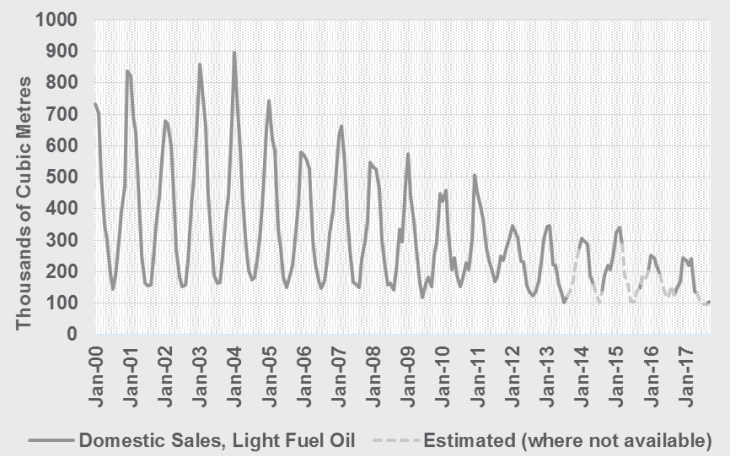
Typically, weaker gasoline demand in the winter months leads to lower Canadian wholesale gasoline prices. Notwithstanding any unexpected increases in crude input costs, most regions of the country would typically see softening retail gasoline prices in the coming months. However, the impact of expanding carbon pricing initiatives in Canadian provinces will likely offset the normal seasonal decline in retail fuel prices in January and February. By mid to late-February the normal seasonal rise in wholesale gasoline prices (and gasoline margins) is likely to begin as refineries begin to implement seasonal turnarounds in advance of the spring and summer rise in gasoline demand.

Demand for diesel fuel typically peaks during the winter months, meaning prices for diesel tend to be higher during that time of year. We expect that diesel prices will continue their slow upward push into January, but will stay relatively stable throughout February and March. This trend, like that of gasoline, could be affected by the unexpected movement of crude prices over the period.

An Examination of the Link between Diesel Fuel Prices and Furnace Oil

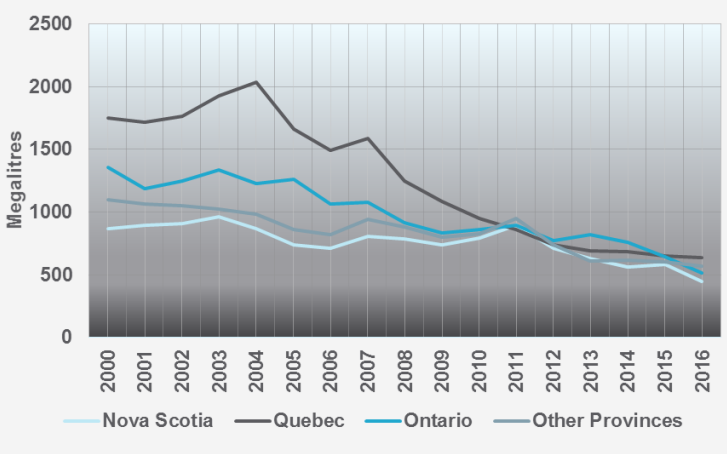
Heating oil is a highly seasonal product, with demand peaking in winter months and subsiding almost completely in summer. In the early 2000's, January heating oil consumption averaged more than five times that of July. Heating oil in Canada is predominantly used in Central and Eastern regions, but its use has declined in recent years as many home owners switched to other methods of home heating, primarily natural gas. From 2000-2005, heating oil represented 13.5 percent of the total Canadian distillate market, yet in 2016 it only represented 6.9 percent. (**Figures 4, 5**).

Figure 4: Canadian Monthly Sales of Light Fuel Oil, 2000-2017



Source: Statistics Canada, Cansim Table #134-0004

Figure 5: Annual Demand for Light Fuel Oil 2000-2016



Source: Statistics Canada, Cansim Table #128-0017

Heating oil and diesel fuel (both distillates) are similar products in terms of their formulation and specifications, but are not completely interchangable; there can be variations in product formulation or specifications, such as sulphur content. Due to the similarities between both products, significant seasonal swings in production and inventory for heating oil have tended to have a significant effect on the production and inventory levels of all distillates. Accordingly, when heating oil demand spikes in winter, the overall distillate supply may become constrained, leading to upward pressure on wholesale prices for both heating oil and diesel fuel, and by extension, their refining margins rise. As **Figure 6** illustrates, diesel fuel and heating oil refining margins closely follow one another even as the demand for heating oil has declined in recent years.

Figure 6: Average Canadian Refining Margin, 2000-2017

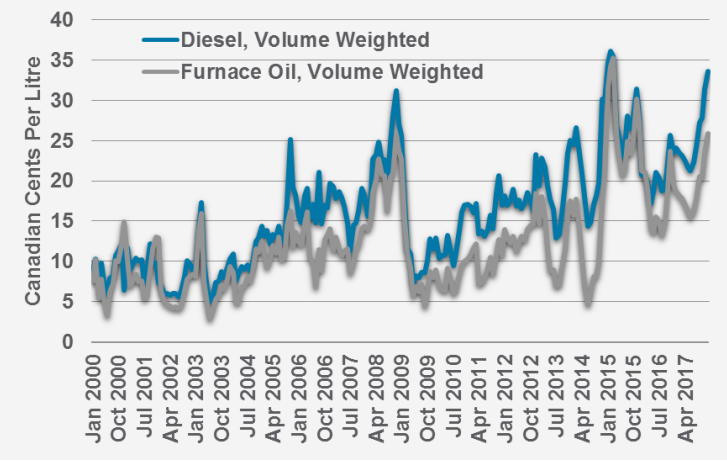
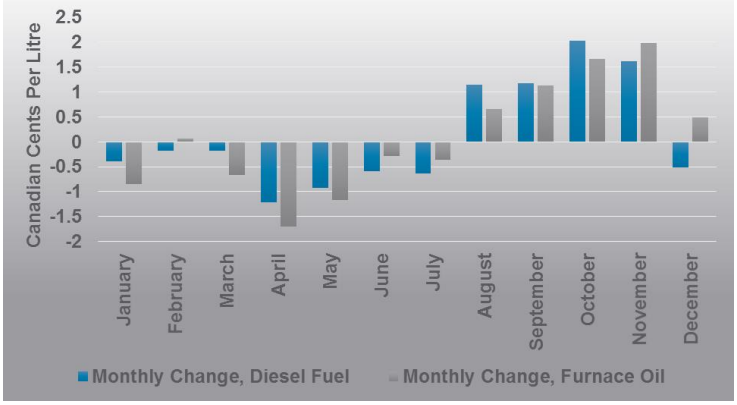


Figure 7: Average Canadian Diesel and Furnace Oil Refining Margin Change from Previous Month, 2000-2017

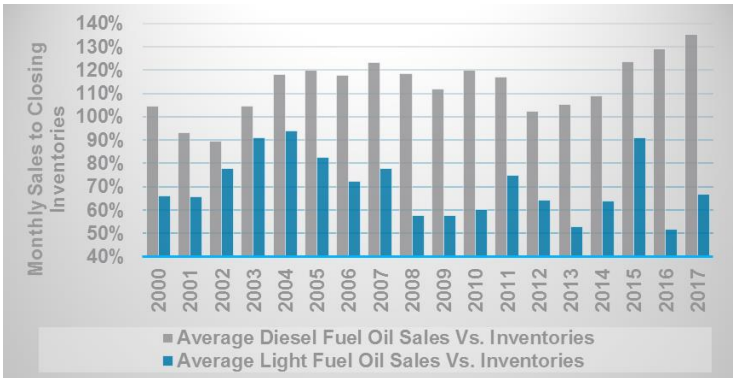


Diesel fuel and heating oil prices, and thus their refining margins, also show a distinct seasonal pattern, rising in late summer and fall as refineries work to build inventories to meet the demands of the coming winter heating season, and tapering off during the spring and summer months as the heating season abates. (**Figure 7**)

Figure 8 shows the average monthly sales (by distillate type) as a percentage of the average monthly closing inventory. Heating fuel consumption fell as a percentage of product inventories (with the exception of 2015 which included an exceptionally harsh winter), yet diesel appears to be moving in the opposite direction, indicating that the overall distillate market may have tightened with respect to the

balance between supply and demand. This is confirmed by diesel import data which show Canada having imported more diesel to meet market demands over the last several years - these imports have primarily come from the U.S. In 2000, diesel imports from the U.S. were just 552,000 cubic metres, but 2016 imports are almost four times this amount at 1,958,000 cubic metres (EIA), or about eight percent of total diesel sales. Considering the high diesel sales as a percentage of inventories, the parallel decline in heating oil sales, and the increased imports of distillates into the Canadian market, this may indicate the diesel market in Canada has more influence with respect to wholesale price setting for all distillates than in years past.

Figure 8: Average Canadian Monthly Sales versus Closing Inventories, 2000-2017



Source: Statistics Canada, Cansim Table #134-0004

So what does all this mean to the end-use consumer of either heating oil or diesel fuel? As the demand for heating oil declines, consumers can expect prices for both heating oil and diesel to become less seasonal. Although wholesale distillate prices will continue to be influenced by the balance between supply and demand, particularly for diesel, it is unlikely that there will be large seasonal swings in diesel refining margins like those seen over the last 20 years. **Figure 9** shows the range in each year in the average monthly percentage change for diesel refining margins since 2000 and it is clear that declining use of heating oil has lowered the seasonal effect on diesel margins. As more heating oil is displaced by the consumer shift to alternative heating options this decline in seasonal diesel price volatility will likely continue over the next few years.

Figure 9: Range in Average Monthly Percentage Change of Canadian Diesel Refining Margins, 2000-2017