



## Canadian Prices Continued to Rise in 2017, Reaching Highs Not Seen Since the Summer of 2015.

*Rising crude prices in first Quarter of 2017, and the effect of carbon pricing in both Alberta and Ontario, pushed the average Canadian retail gasoline price to its highest level since August 2015, while the average Canadian retail diesel price reached its highest level since June 2015.*

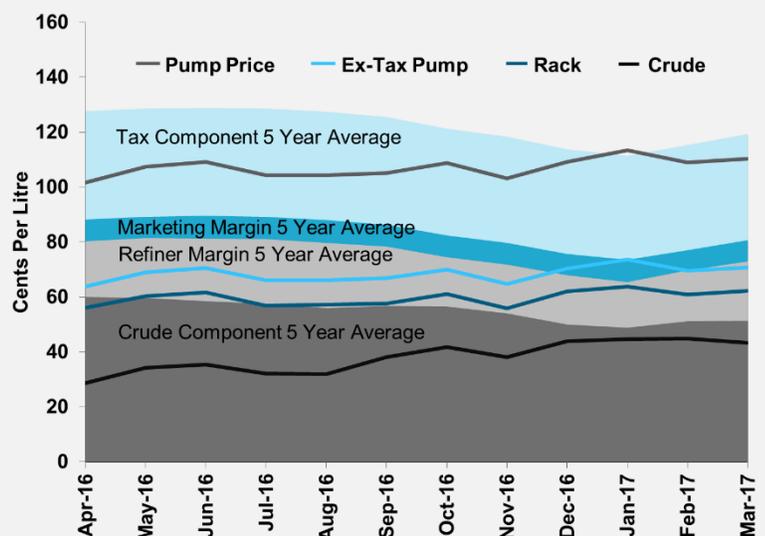
The decision by the Organization of Petroleum Exporting Countries (OPEC) to fix crude oil production in November kept upward pressure on crude markets into the early part of 2017. Towards the latter part of the quarter, increased crude production and record crude stocks in the U.S. drove North American crude prices below \$50 per barrel. Canadian average gasoline prices rose in response to higher crude prices and the introduction of carbon pricing in Alberta and Ontario, but began to abate during the latter part of the quarter following reports of record high gasoline inventories.

As with gasoline, Canadian diesel prices peaked in January following the rise of crude prices and the introduction carbon pricing in Alberta and Ontario. Conversely, diesel prices remained high throughout the quarter due to stronger than expected demand. **Figures 1&2** show the historical movement of retail gasoline and diesel prices in Canada along with their component prices.

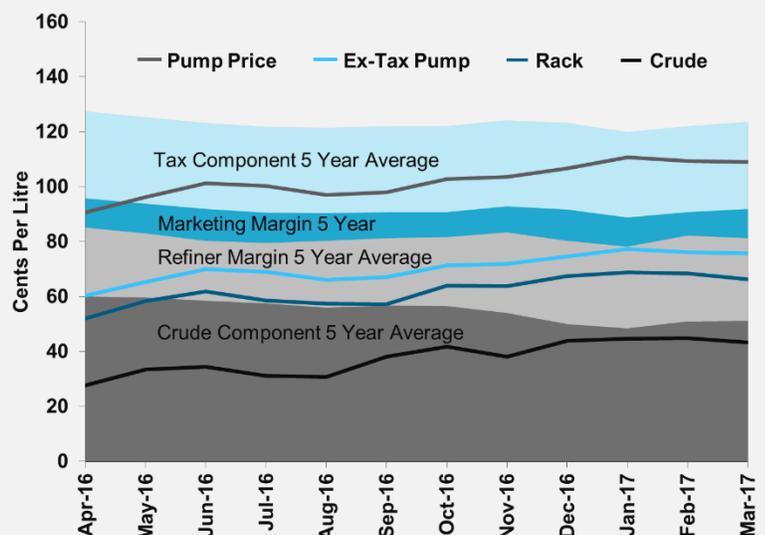
This past quarter, North American crude stocks reached their highest levels since the Energy Information Association (EIA) started keeping records in 1982. Record North American crude stocks accompanied by falling global crude production levels resulted in a disparity between North American and global crude prices. The price gap between WTI and Brent, key North American and international crude benchmarks respectively, widened to an average of 2.36 \$US/BBL, up 1.37 \$US/BBL from the previous quarter's average. WTI was 3.87 \$US/BBL higher in January and February than the same time last year, while Brent averaged 5.11 \$US/BBL higher over the same period. Crude prices then fell in early March as markets reflected skepticism towards crude production cuts alleviating the growing global crude glut. WTI fell to a low of 47.11 \$US/BBL and Brent to 50.10 \$US/BBL before beginning to climb again towards the end of March. Overall WTI ended the quarter at 50.57 \$US/BBL, 5.9 percent lower than the end of 2016. Similarly, Brent ended the quarter at 52.52 \$US/BBL, 6.0 percent lower.

In contrast, Western Canadian Select (WCS) ended March 2.9 percent higher than the end of the previous quarter. Demand for Canadian crude continued to grow as Canadian crude exports to the U.S. reached record levels in late January, shrinking the WCS discount to WTI. The discount continued to fall throughout the quarter following an unplanned outage at a Canadian upgrader which producing synthetic crude oil. The synthetic crude is typically blended with heavier grades for transportation in pipelines, and so despite production of WCS not being affected, a transportation bottleneck that was

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



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



created put upward price pressure on heavy Canadian crudes. The WCS discount to WTI fell nearly 5 \$US/BBL from the end of the previous quarter, ending at just 11.43 \$US/BBL.

## Gasoline and Diesel Market Overview

Rising crude prices at the beginning of the year sent retail gasoline prices to their highest level since August 2015. The introduction of carbon pricing schemes in Alberta (carbon tax) and Ontario (Cap and Trade) in January increased the average gasoline tax component pressuring the average Canadian gasoline price upward early in the quarter. Despite rising crude prices, gasoline refining margins shrank to their lowest level since October 2013 as North American gasoline stocks reached record levels in mid-February, mitigating any rise in gasoline prices towards the end of the quarter.

**Figure 3: Canadian Average Gasoline and Diesel Price Components for 1<sup>st</sup> Quarter 2017**



Regionally, wholesale gasoline prices were consistent across Canada with the exception of the west coast where wholesale prices rose 7.0 cents per litre from February to March. The rise in west coast gasoline prices was largely the result of refinery issues on the US west coast which often supplies fuel into British Columbia.

Strong North American distillate demand combined with higher crude prices pushed diesel-specific rack prices to a twenty-month high in January, before retreating later in the quarter. Like gasoline, retail diesel prices were also impacted by carbon pricing levies introduced in Alberta and Ontario. The average diesel tax component of a litre of diesel reached an all-time high of 33.3 cents per litre in January.

Ontario was the only region that ended the quarter with higher wholesale diesel prices, largely attributable to the carbon pricing brought into the region in January. Quebec saw a modest drop in wholesale diesel prices over the quarter, as refining margins fell towards the end of March in that region. (Figure 3)

## Market Outlook for the Next Quarter

As we head into the spring and summer driving season, demand for gasoline will likely rise, putting upward pressure on gasoline prices. Combined with the seasonal switchover to summer blended fuel, a more expensive fuel blend used to curb evaporative emissions in the warm summer months, we will likely see higher gasoline prices over the next quarter. In addition, many refiners schedule refinery maintenance in early spring, pressuring supply and likely resulting in rising prices.

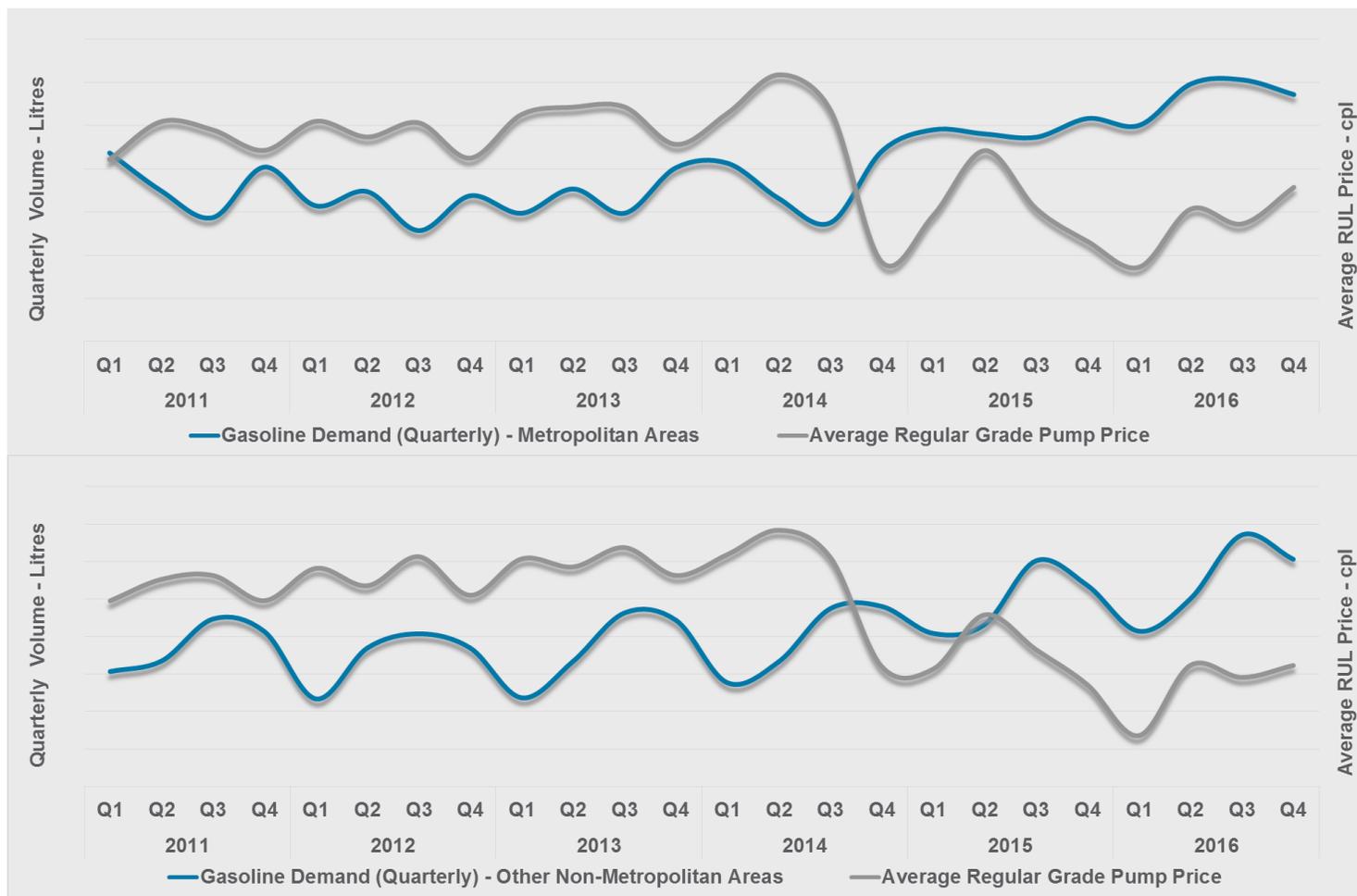
Following a contrasting seasonal demand cycle to gasoline, diesel fuel demand generally tapers off in spring due to diesel fuel's use as a heating fuel. However diesel fuel demand is also tied to economic growth and North American economic

growth has recently shown signs of strength. As a result, some of the country may not see diesel prices drop as much as is typical for this time of year.

## Price and Its Effect on the Demand for Gasoline

Generally it is thought that shifts in the price of gasoline have a limited effect on gasoline consumption, since demand for gasoline is widely considered to be “inelastic”. Elasticity in a commodity’s demand curve means that as prices rise, consumers are very responsive and purchase less of the commodity, and as the price of the commodity falls, the opposite would be true. However, this relationship between changes in gasoline price and quantity demanded is not universal; it often varies by region, and is influenced by a number of variables. Our analysis will explore Canadian consumers’ responsiveness to gasoline price movements and provide commentary on the factors that influence elasticity of demand for gasoline in Canada.

**Figure 4: Canadian Gasoline Consumption vs Price in both Major Metropolitan Areas and Non-Metropolitan Areas**



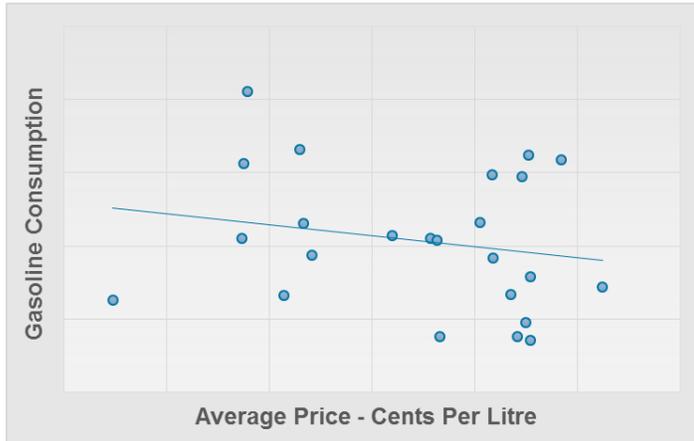
Shifts in gasoline demand, particularly as they relate to changing prices, tend to happen fairly slowly and can be dampened by the disparate set of factors influencing vehicle-miles-travelled (such as urbanization and fuel-efficiency of the current vehicle fleet). Consumers, regardless of price, still need to get to work, they need to get groceries, and for the most part, these consumers cannot easily make short-term changes to their routines in response to gas price changes. The actions that many Canadian consumers take in response to rising gasoline prices are limited, and are generally longer-term in nature; these could include purchasing a more fuel-efficient vehicle, moving closer to where you work, or travelling less.

However, larger metropolitan areas in Canada such as Montreal, Toronto, and Vancouver have alternatives to vehicular travel (such as robust public transportation, or the option to walk or bike in denser urban areas) that allows for more “day-to-day” responsiveness to fuel price shifts. As a result we see that these urban areas tend not to follow the same consumption patterns as the rest of Canada, and are far more responsive (or elastic) when gasoline prices rise or fall. It is clear in **Figure 4** that demand for gasoline in metropolitan areas more closely follows changes in price, whereas non-metropolitan areas tend to follow more stable seasonal trends, much less affected by changes in price.

To examine more closely the elasticity of demand as it relates to changes in the price of gasoline, **Figures 5 & 6** show the demand levels as they relate to price for smaller Canadian markets (24 non-metropolitan markets in QC, ON, and BC) versus the major metropolitan areas (Montreal, Toronto and Vancouver). By comparison, a 20 cent per litre increase in price leads to a 0.87% decrease in expected consumption for smaller markets, while in major metropolitan areas there is a 3.24% decrease in expected consumption. Further, the strength of the relationship between price and volume (measured by the r-squared value between variables) is much stronger in metropolitan areas.

**Figure 5: Non-Metropolitan Markets Volume vs. Price, 2011-2016**

**Figure 6: Metropolitan Area Volume vs. Price, 2011-2016**



Note: Non-Metropolitan markets include 24 markets in QC, ON and BC; Metropolitan areas include Montreal, Toronto and Vancouver.

Despite a number of factors besides price that can affect gasoline consumption – such as economic growth, weather, and seasonal factors – significant changes to pump prices can have a larger and more immediate effect on consumption in larger urban areas where consumers have more transportation alternatives available to them. Consumers in these markets can choose to park their vehicle and use some other form of transportation that is not an option available to the average Canadian.