



Retail Prices Declined in the First Quarter of 2016 as Crude Prices Reached Fourteen-Year Lows.

Uncertainty over demand growth, and its capacity to stem the growing surplus of global crude supplies, kept crude prices lower in the first part of 2016. The latter part of the quarter saw crude prices rise slightly in response to news of a possible OPEC production freeze. Gasoline and diesel prices fell to their lowest levels in seven years, as rising inventories forced wholesale prices lower and pushed some refineries to make cuts to their refinery runs. The adjustments to refinery outputs applied some upward pressure on refined product prices towards the end of the quarter.

Strong refining margins and increased access to cost-advantaged Canadian crude led to a surge of imports into the Midwest and Gulf regions of the U.S. This allowed refineries in the region to raise utilization rates, resulting in a sharp increase in gasoline stocks. Accompanied by lower product demand in January, many area producers sold refined products at a discount to clear the glut, driving prices down throughout western Canada in February. Prices rose in the latter part of the quarter as refineries cut back refinery runs and planned maintenance began to bring some facilities offline. Diesel inventories also climbed to five-year highs, due to weakened demand and strong refinery production. Consequently, diesel refining margins declined, averaging 10 cents per litre less than the same period last year. **Figures 1&2** show the historical movement of retail gasoline and diesel prices in Canada along with their component prices.

WTI and Brent, key North American and international crude benchmarks respectively, finished the quarter at parity. WTI ended March at 37.64 \$US/BBL; only \$0.55 below the end of last year. Brent crude ended the quarter at 37.74 \$US/BBL, \$1.56 higher than it ended the year, and only \$0.10 cents above WTI. Despite relatively low prices, there was considerable volatility in oil markets stemming from wide-ranging expectations for rebalanced global crude supplies. WTI reached a low of 26.20 \$US/BBL in mid-February before rising to a high of \$40.70 \$US/BBL in mid-March, and similarly Brent fell to a low of 26.22 \$US/BBL in January before peaking at 40.73 \$US/BBL in March. The rise in crude prices aligned with news out of recent OPEC meetings outlining a potential production freeze aimed at stabilizing the crude market. The recent parity between WTI and Brent can be attributed to strong competition between the two crudes in key North American markets, and lifting of the U.S. crude export ban, which has helped move WTI prices in line with other internationally traded crudes.

Similar to global crude prices, Western Canadian Select (WCS) ended the quarter just one percent lower than the end of last year, but saw a great deal of volatility, dipping below 15 \$US/BBL in mid-February.

Figure 1: Canadian Average Regular Gasoline and Component Prices

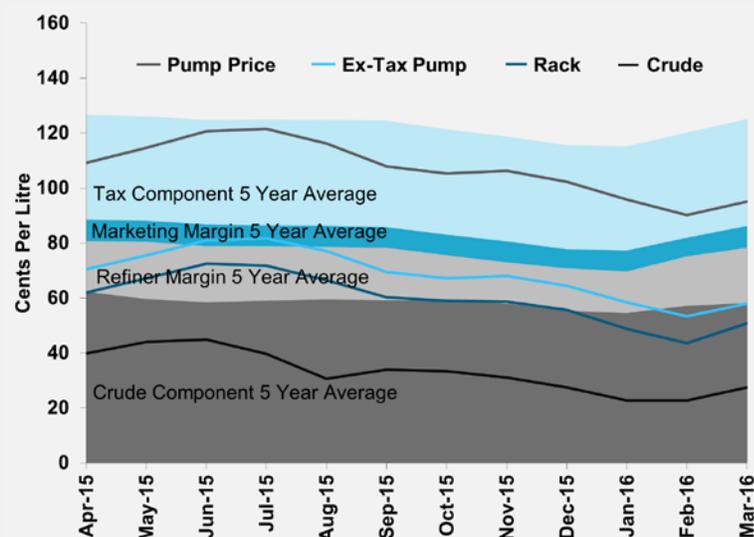
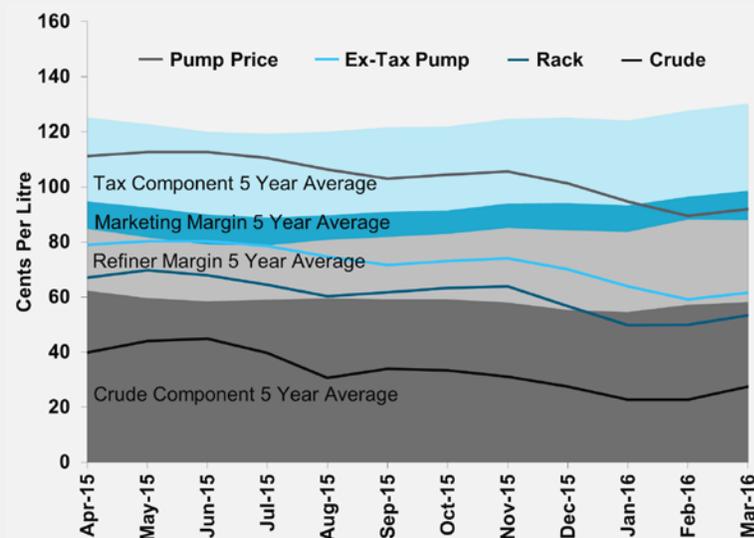


Figure 2: Canadian Average Diesel and Component Prices



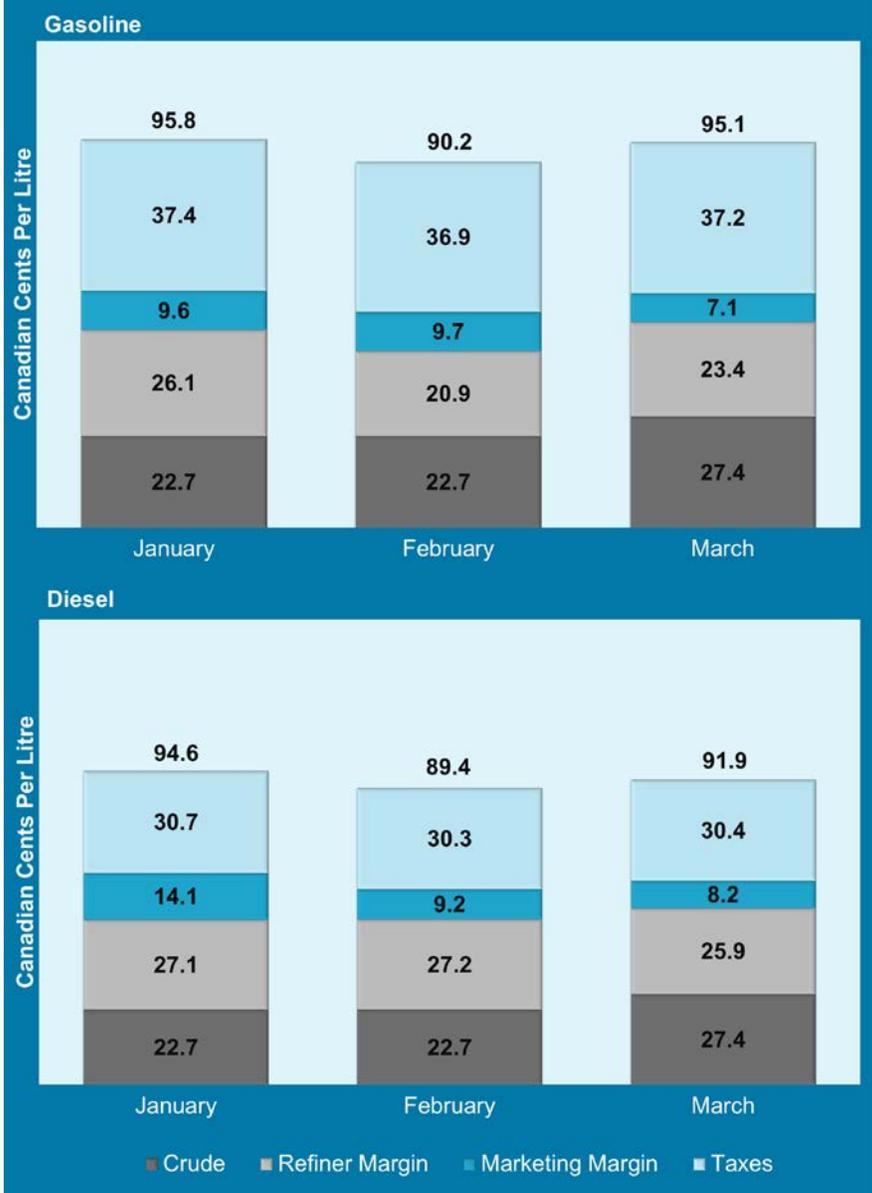
Gasoline and Diesel Market Overview

The Canadian average retail gasoline price fell to a seven-year low in February, as crude prices hit fourteen-year lows, and refining margins shrank to their lowest level in a year. High finished product inventories put downward pressure on wholesale prices in February, but prices began to move upwards in March when seasonal demand began to pick up, and refinery production slowed on lower margins and seasonal maintenance. Retail margins shrank to 7.1 cents per litre as the rise in retail prices lagged the rise in wholesale prices.

Regional disparity in wholesale pricing continued between the West Coast and the rest of Canada, with Vancouver wholesale gasoline prices averaging nearly twelve cents per litre higher than Edmonton in February. The West Coast wholesale market remained isolated by limited finished-product pipeline capacity from Alberta, and product specification differences with nearby U.S. markets, thus limiting their ability to bring lower-cost product into the region.

Diesel supply exceeded demand throughout the first quarter, keeping wholesale prices low and refining margins below the seasonal norms of the last couple of years. Low crude prices in February also contributed to diesel reaching its lowest average price since June of 2009. Average diesel prices were below gasoline to start the year, after averaging nearly fourteen cents per litre above gasoline in the first quarter of 2015.

Figure 3: Canadian Average Gasoline and Diesel Price Components for 1st Quarter 2016



Midwestern wholesale diesel prices averaged roughly five cents per litre below Ontario and eastern regions in the first quarter. This is largely a consequence of disparate seasonality in demand, related to a higher rate of distillate use in heating applications throughout eastern parts of North America.

Market Outlook for the Next Quarter

The second quarter is characterized by higher gasoline demand as we enter the summer driving season, and this generally pushes gasoline prices higher. With refinery utilization rates in line with where they were a year ago, it is expected that the margin impact from seasonal demand increases will be similar to last year. However, expected lower crude costs will help mitigate these effects, keeping prices below last year's levels.

Early in the next quarter many refineries will complete a switch to summer blended fuel; a gasoline blend with lower vapor pressure, aimed at limiting evaporative emissions in the warmer months. This blend of fuel contains less butane, and is more expensive to produce, which will likely apply further upward pressure on prices.

As we head into second quarter, we are expecting diesel prices to continue their decline, which is typical of this time of year. Combined with record-high diesel inventories, it is possible that diesel prices could fall to multi-year lows over the next quarter.

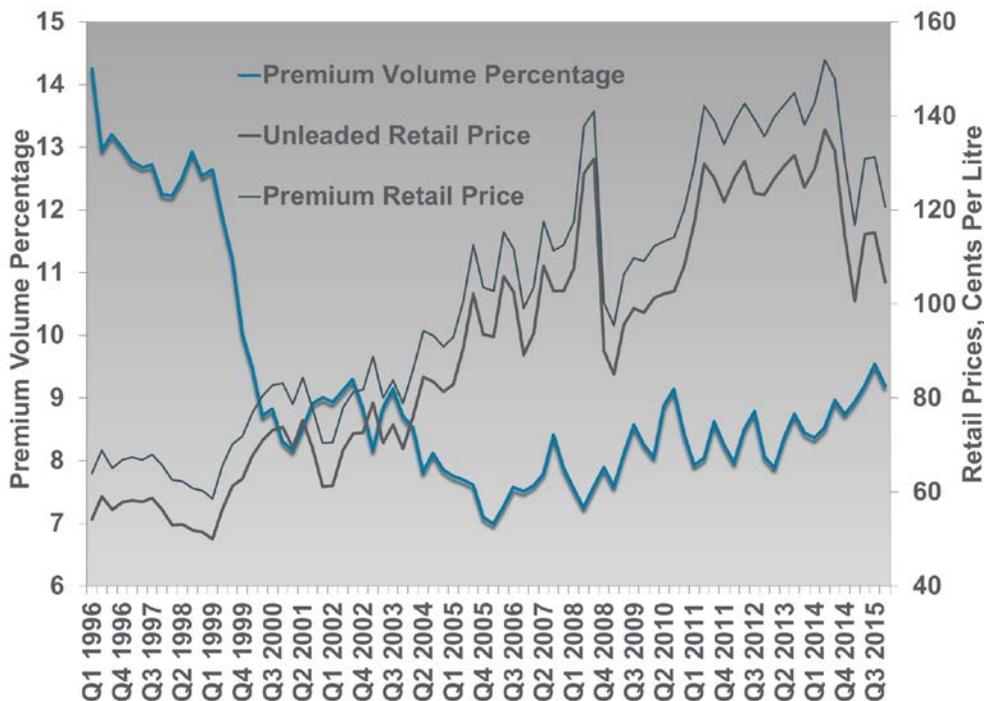
The Changing Role of Higher Octane Gasoline in the Canadian Retail Fuels Market

Higher octane grades of gasoline - such as midgrade, premium, and super-premium grades – have an increasing role in the Canadian fuels market, and also in allowing automakers to achieve rising fuel efficiency standards. These grades made up a combined 13.5 percent share of retail gasoline sales in 2015. However, the market share percentage of higher octane fuels had been declining significantly, from a high of 23.0 percent of retail gasoline sales in 1996, to a low of 12.5 percent in 2006, and has slowly climbed since. This analysis will consider trends in penetration rates, as well as pricing of higher octane gasoline grades, with a particular focus on premium grade (91 octane) gasoline.

Higher octane grades are generally recommended in higher compression (turbocharged) engines to control the timing of ignition, preventing early detonation, which can cause engine damage and hurt vehicle performance. Smaller turbocharged engines, combined with high octane fuels, can have a significant impact on vehicle performance, increasing fuel efficiency and ultimately lowering GHG emissions. High performance engines are an increasingly essential component in automakers' compliance strategy for rising fuel efficiency standards. This has resulted in a higher percentage of vehicle sales having turbocharged engines, and by extension, more vehicles on the road that require (or recommend) the use of premium fuel. By 2020, it is expected that turbocharged engines will represent 39 percent of vehicle sales in North America, growing from 23 percent in 2015 (Honeywell), and up from just 7 percent in 2011. This is the primary reason for the recent rise in premium fuel sales in North America.

What caused the significant decline in the use of premium fuel that preceded the recent rise? Largely, it was related to price, and the high elasticity of consumers' purchasing decisions for these grades of gasoline prior to 2005. Consumers that do not require the use of premium fuel have the ability to easily substitute regular grade gasoline when the price of premium fuel (or gasoline in general) increases. Prior to 2010, only a small fraction of the cars on the road actually required premium fuel, and so consumers simply moved away from its use as gasoline prices rose, giving up the perceived benefits in exchange for lower relative fuel costs. There is a nearly perfect negative correlation between the price of gasoline and the percentage of premium fuel sales between 1996 and 2005 (-0.87); over that time gasoline prices doubled, while premium sales (as a percentage of total volume) was halved. (Figure 4)

Figure 4: Canadian Quarterly Premium Volume Percentage vs. Retail Prices 1996-2015



Sales of premium fuel bottomed out in Q1 of 2006 (just below 7%) and it is likely that this approached the percentage of cars on the road that actually required (or recommended) premium fuel - estimated to be slightly below the 7% figure at that time. This is important in understanding how the relationship between price and premium sales then changed; the correlation became much weaker (-0.17) between 2006 and 2015. While consumers still responded to price shifts with changes in their premium fuel buying habits, the responses were far more inelastic, suggesting that it was less feasible for consumers to substitute their premium fuel purchases with regular gasoline when prices rose. Since that point in early 2006, premium sales in Canada have been driven primarily by two factors: seasonality, and the percentage of cars on the road that require the use of premium fuel.

Demand for premium fuel increases in the summer months due to a greater number of high-performance vehicles on the road. This is especially true in Canada, where many performance vehicles will be parked for the winter months and brought out once the roads clear. Figure 5 shows the average percentage of premium fuel volume by quarter, and since 2005 there has been an average increase of nearly a percentage point (representing an 8 percent rise) between Q1 and Q3. This seasonal pattern of premium fuel consumption in

Figure 5: Canada Average Premium/Unleaded Percentage of Total Volume 2006-2015 by Quarter

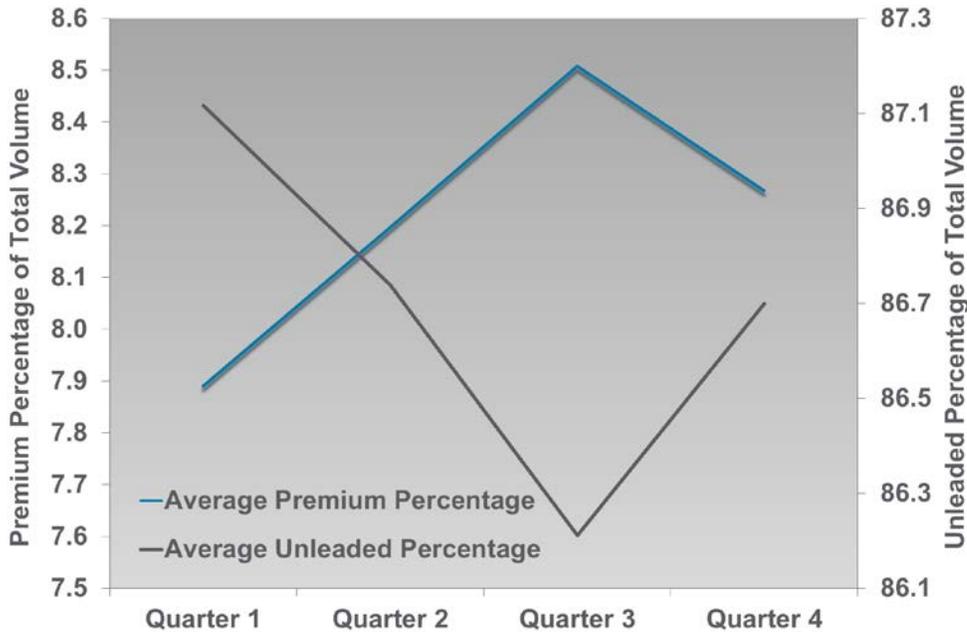
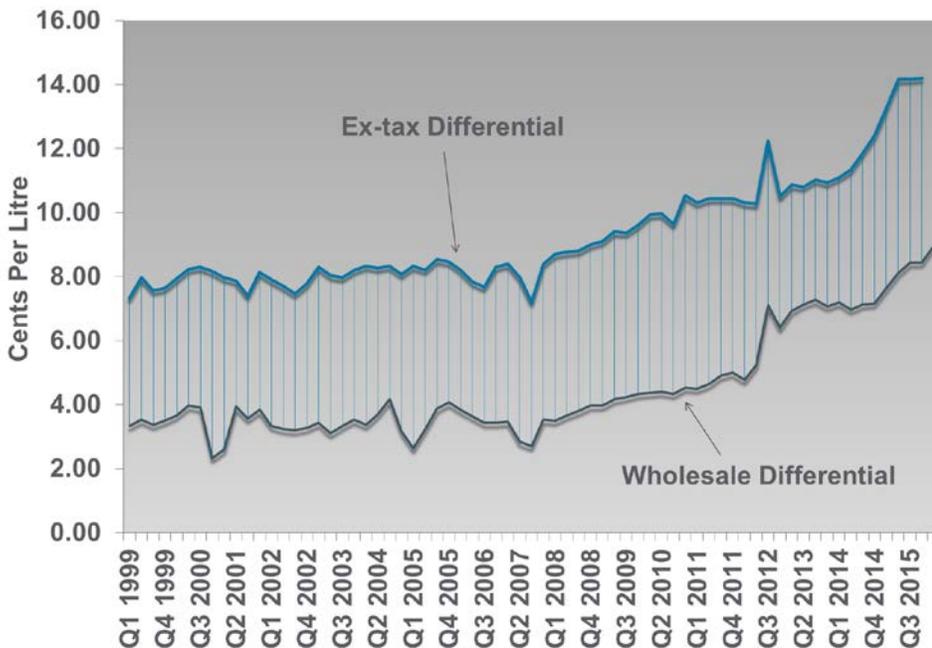


Figure 6: Quarterly Canada Average Premium/Unleaded Ex-tax vs Wholesale Price Differentials 1999-2016



Canada has been remarkably consistent from year-to-year.

Another aspect of premium fuel consumption is the price differential between regular and premium grades. **Figure 6** shows the relative stability in the wholesale and retail differentials up to 2008, when they began a fairly steady rise of roughly 5 cents per litre respectively. Both wholesale and retail differentials increased at nearly identical rates, suggesting that the rise is being driven by pricing decisions at wholesale. The average retail margin on premium fuels has remained fairly consistent since 2008.

The rise in the relative wholesale price of premium gasoline is likely a function of both cost pressure and the current inelasticity of premium fuel demand. Relevant cost-related pressures would include: the increased use of heavy oil and cracking units at refineries, as well as the increased use of lighter shale oil, all of which tend to produce less of the high octane blending components required to make premium gasoline. This essentially puts demand pressure on octane at the refinery, and ultimately drives up the price of blending for higher octane.

So what is the outlook for premium grades of gasoline? With an expected increase in sales of turbocharged engines, the use of higher octane fuels is likely to increase. However, with price differentials on the rise, it is unlikely that consumers will net any 'value' from their fuel efficiency gains. Alternatively, consumers could choose regular gasoline in vehicles recommended for higher octane fuel, in effect, sacrificing engine performance and fuel economy for lower costs. This is one instance where the use of higher ethanol blends (E15 and above) may be a benefit, as ethanol provides a significant octane boost, but can be relatively cost effective.