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**MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES
OIL AND GAS DIVISION
ESTIMATES NOTE**

ISSUE: Gasoline Prices

KEY MESSAGES:

- Gasoline prices across Canada vary due to a number of factors, including world oil prices, inventory levels, refinery and retail margins, as well as taxes.
- The only provinces where gasoline prices are regulated are Prince Edward Island, Newfoundland and Labrador, Québec, Nova Scotia, and New Brunswick.
- While the regulation of gasoline prices provides some price stability, research does not show it leads to lower prices for consumers.

BACKGROUND:

- Canadian retail gasoline prices on average from January 1 to December 31, 2017 were 11.4 percent higher than the same period of 2016 primarily due to a higher crude price. U.S. crude prices were 17.4% higher in 2017 at US\$50.77/barrel vs \$43.24 in 2016.
- From January 1 to December 31, 2017, Canadian gasoline prices averaged approximately 12 percent or 12 cents per liter higher at \$1.15, compared with \$1.03 cents per litre in 2016.
- From January 1 to December 31, 2017, gasoline prices in major BC centres rose similarly averaging 11 percent higher or 12 cents per litre higher at \$1.22, compared to \$1.10 per litre in the same period of 2016.
- British Columbia has a small supply of crude oil and little refining capacity for making gasoline in comparison to what is consumed in the Province. There are 15 refineries in Canada. Two refineries operate in British Columbia with 3.5% of Canada's refining capacity, which meets approximately 20 percent of the Provinces gasoline needs. The remaining 80 percent of provincial gasoline demand is managed through importing gasoline supplies from refineries in Alberta and Washington State.
- Gasoline prices are determined by market forces and influenced by a number of factors, such as the Canadian/U.S. exchange rate, the cost of refining, processing crude oil, the cost of transporting gasoline to retail outlets, and, federal and provincial taxes. There are also local factors such as access to wholesale gasoline supplies, market size, market demand, competition and retailing and distribution efficiencies. These situations can cause prices to vary considerably.
- Recent gasoline price pressure in BC has come from a rising wholesale market, refinery maintenance creating extra need to bid for refined supply in some cases out of California and a declining Canada/U.S. exchange rate.
- Provincial governments have the authority to regulate retail gasoline prices, but most provinces and territories prefer to allow market forces to determine prices.

- Two studies conducted on behalf of the BC Provincial Government during the 1990s to review gasoline pricing in BC concluded that marketplace competition is preferable to direct government intervention in setting prices or enacting other regulatory controls.
- External studies have also concluded that regulation is not the solution for high prices. Regulation will not mean lower prices but can offer more stable prices.

Gasoline Prices

1. Background

The recent increase in the price of gasoline to over \$1.50/litre in the Lower Mainland has turned public attention to the reasons behind that increase. The public discussion has been primarily about the high price of gasoline, but the press has often referenced the \$5 increase in the Carbon Tax which took place on April 1. However, the increase in the Carbon Tax translates into only a 1.11 cent/litre increase, and gasoline prices have been rising significantly since well before this change.

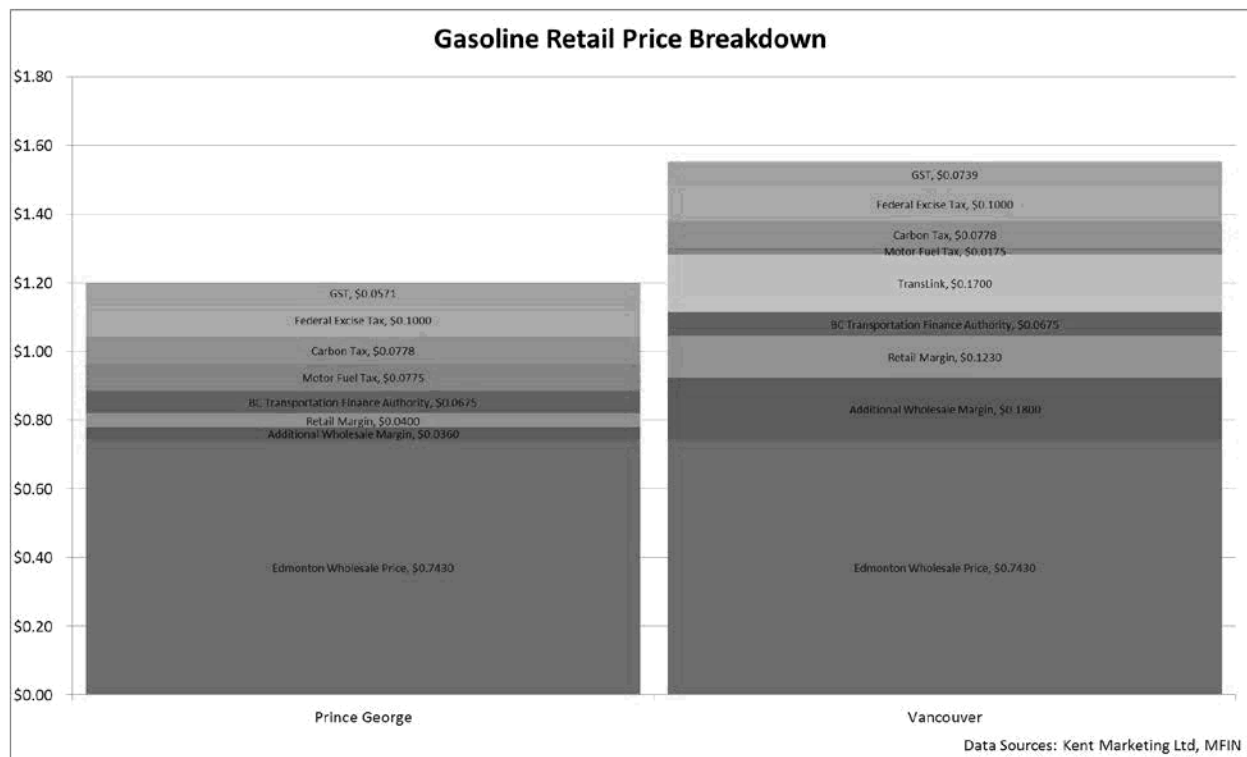
Gasoline prices are determined by market forces and influenced by a number of factors, such as exchange rates, the cost of refining, processing crude oil, the cost of transporting gasoline to retail outlets, and, federal and provincial taxes. There are also local factors such as access to wholesale gasoline supplies, market size, market demand, competition and, retailing and distribution efficiencies that can lead to situations where prices vary considerably.

1.1. Gasoline Retail Price Breakdown

It is instructive to compare Vancouver and Prince George pricing, as they are both cities in British Columbia, but appear to be subject to different market dynamics. In general, Prince George appears to behave similarly to Calgary and Edmonton, while the Vancouver market behaves significantly different. Kamloops is also referenced, as it appears to have characteristics of both markets, likely because it is logistically closer to Alberta than Vancouver, but a significant portion of its fuels are supplied through the Trans Mountain Pipeline.

The following chart illustrates the pricing components for Prince George and Vancouver for April 2018. It is interesting to note that the “Additional Wholesale Margin” plus the “Retail Margin” is just over 30 cents/litre in Vancouver, but under 8 cents/litre in Prince George.

The retail margin depends on a number of factors, including transportation costs from the wholesale rack and local operating costs for the retail outlet, for which public data is not available.



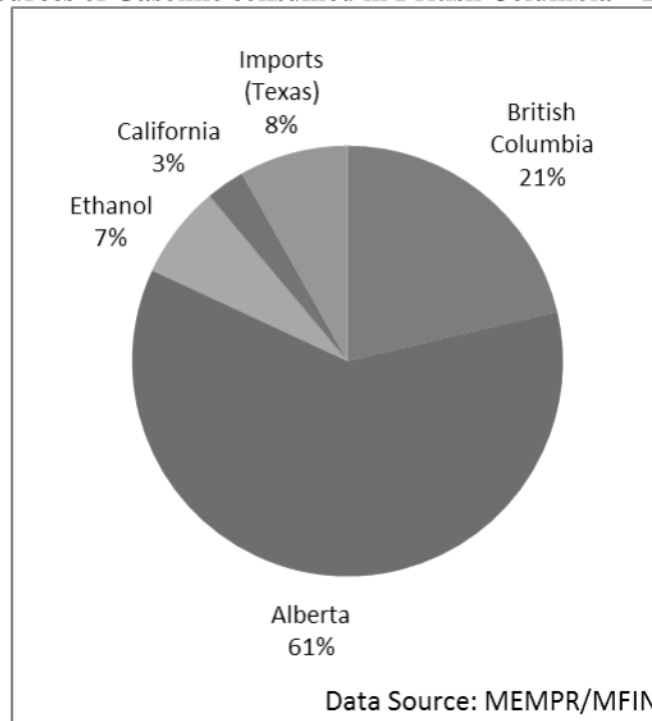
1.2. Sources of gasoline

British Columbia's gasoline came from a number of sources in 2017:

- About 21% is produced in B.C. at the Parkland Refinery (formerly Chevron) in Burnaby and the Husky Refinery in Prince George. The crude oil for the Parkland Refinery is shipped from Alberta via Kinder-Morgan's Trans Mountain Pipeline (TMP)¹.
- About 61% comes from Alberta. This is shipped to Kamloops and Vancouver primarily via the TMP, and to the rest of the province via truck and rail.
- About 7% (in 2016) is ethanol imported from a diversity of jurisdictions and shipped to B.C. primarily by rail.
- About 3% is imported from California in summer to meet the Cleaner Gasoline Regulation requirements for low volatility in the Lower Fraser Valley.
- The remaining quantities are imported from various jurisdictions as needed. In 2017 the source was Texas, while in other years it may have been Washington or any other jurisdiction that ships fuel by water.

¹ The TMP is a multi-modal pipeline, meaning that it is capable of transporting a range of petroleum products, from diluted bitumen to refined products such as gasoline and diesel.

Sources of Gasoline consumed in British Columbia – 2017



Alberta crude prices have historically been lower than global markets due to a restricted capacity for shipping crude oil to refineries. This leads to lower costs for fuels produced in Alberta and B.C. However, when access to this low-cost source is limited, higher-cost fuels are imported via the Port of Vancouver to meet local needs. Imported fuels are more expensive, so local supplies are able to demand a higher price to prevent the fuels from being exported to more lucrative markets.

1.3. Wholesale Margins

The chart below shows the difference in wholesale pricing of Regular grade gasoline between Edmonton and a number of product destinations: Calgary, Prince George, Kamloops and Vancouver. Historically these prices have been two to three cents more than Edmonton, which can be attributed to the transportation cost for moving that fuel from Edmonton to the market destination. The exception has always been Vancouver, which tends to be more volatile, so that while the average difference is similar to other markets, the variability is significantly greater.

Beginning roughly in 2015, this pattern changes for Kamloops and Vancouver wholesale prices. In April 2018, the wholesale price for Regular gasoline exceeds Edmonton by 15 to 20 cents/litre in Vancouver, and by almost 10 cents/litre in Kamloops. This means that the producers of Regular unleaded are realizing a significant extra margin for fuel sold in the Vancouver and Kamloops markets, but not in the Prince George (i.e. northern) market.

1.4. Retail Margins

Retail markets are affected by many factors beyond the scope of this analysis. However, comparing Vancouver retail margins to the margins in Calgary, Edmonton, Prince George and Kamloops leads to two observations:

1. The retail margin in Vancouver is significantly less volatile than in the other markets. This is opposite to the situation in the wholesale market.
2. The retail margin in Vancouver was similar to the other markets until roughly 2014, when it began to rise above the others. Since early 2017 this margin has been about 12 cents/litre, while in other markets the average appears to be about 4 to 8 cents/litre.

2. Factors that affect Vancouver wholesale fuel prices

2.1.1. Refinery shutdowns

When refineries that supply Vancouver prepare for shutdowns, the industry prepares by stockpiling fuel in Vancouver in advance of the shutdown, but this capacity is limited. The response to shortfalls is to import fuels, which currently come at a higher cost.

2.1.2. Limited pipeline capacity

The supply of refined products from Alberta is limited by a number of factors. One of those factors is the ability to ship fuel by pipeline. Recent TMP data² shows that the pipeline is fully utilized, and that crude oil shipments have been increasing. This implies that refined product shipments have been decreasing to make room for the increased crude oil shipments.

² Trans Mountain data source: <https://www.neb-one.gc.ca/nrg/ntgrtd/trnsprttn/2016/grp1cmpns/lndlqds/trns-mntn-ppln-ulc-trns-mntn-ppln-eng.html>

According to Statistics Canada pipeline data, crude oil exports to Washington State as well as crude oil deliveries to the B.C. refinery have been trending up since 2006.³ This implies that refined products such as gasoline are most likely getting squeezed out.

Even if it were possible to transport more refined products to B.C., A change to allocation rules of the Kinder Morgan pipeline to allow more refined products may appear to be a solution but that assumes product is available. Alberta claims that their refineries were running at 101% capacity in 2017⁴, which begs the question of where those refined products would come from.

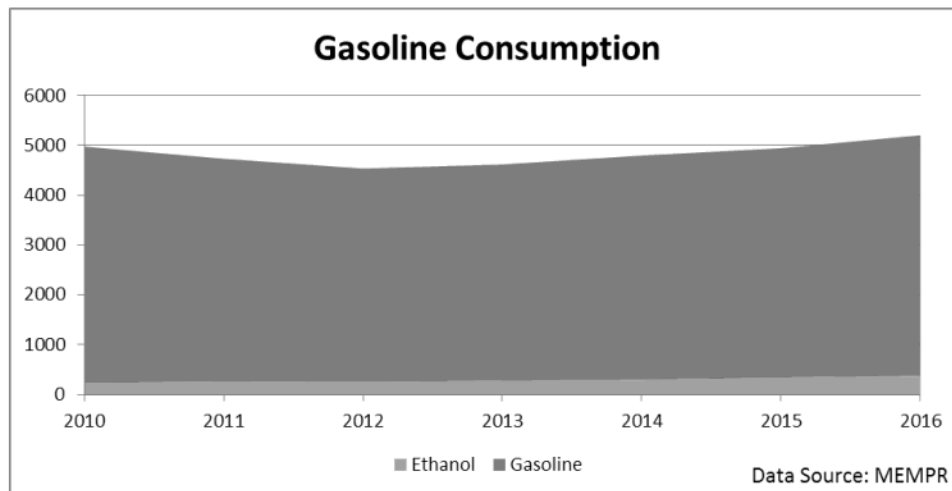
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³ Stats Canada <http://www5.statcan.gc.ca/cansim/a26?lang=eng&id=1330006> and <http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=1330003&&pattern=&stByVal=1&p1=1&p2=-1&tabMode=dataTable&csid=>

⁴ <https://www.aer.ca/data-and-publications/statistical-reports/plants-and-facilities>

2.1.3. Increasing demand

Demand for gasoline has increased slightly in Alberta and Saskatchewan, while demand in B.C. has increased significantly, by 15% from 2012 to 2016 (4.5% from 2010 to 2016).



2.1.4. Limited production capacity

The number of refineries in Canada has been constant for several decades. The following illustration from the Canadian Fuels Association shows that six refineries serve Western Canada, with one new refinery scheduled to come online to produce diesel fuel (only) in 2018. B.C. has 3.6% of Canada's refining capacity and 11% of western Canada's refining capacity. These refineries have been operating at maximum capacity, and any disruption in production must be met by importing fuel.

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2.1.5. Competing markets

The supply of fuel for the west coast of Canada and the U.S. has been tight relative to other parts of the continent. Refineries on the west coast have had issues since 2016, and there has been an increase in U.S. exports of gasoline to Mexico.

According to the International Energy Agency, 2016 was a tumultuous year for North American refiners, interrupting their five-year trend of throughput growth. The drop in throughput came largely from the deteriorating state in Mexican refining as multibillion dollar investments in Mexico that were announced at the end of 2015 were effectively put on hold until private companies take on the upgrade projects. In the first 11 months of 2016, total petroleum product exports from the U.S. rose in both volume (averaging 849,000 b/d) and value relative to the first 11 months of 2015. A significant portion of those increases have been exports to Mexico, and reductions in Mexico's utilization of their petroleum refineries have created a widening gap between its domestic supply and demand, and imports of gasoline from the U.S. now make up more than half of Mexico's gasoline consumption.

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The disconnection between west coast markets in Canada seems to have a similar counterpart in the US. Data from the U.S. Energy Information Administration shows that the west coast has been experiencing an increasing spread in prices between the producing state of Texas. For example, because of the west coast's relative isolation from areas of production, higher imports have largely met the region's increasing jet fuel demand. From 2012 through 2014, nearly all (98%) of the region's jet fuel demand was met by production within west coast states. This share fell to 87% from 2015 through 2017 as consumption increased. Increased imports of jet fuel into the west coast created an opportunity for Asian refineries to supply jet fuel to the region. These imports came primarily from South Korea, China, and Japan. If B.C.'s gasoline demand continues to grow, the same market response can be expected.

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2.1.6. Canadian dollar

Petroleum prices are indexed to U.S. markets, and when the Canadian dollar is valued below the U.S. dollar, fuel prices can be expected to rise. As the Canadian/U.S. exchange rate charted below shows, this has likely had an impact since about 2015, when the currency market shifted from roughly equivalent dollar values to a 30% premium for the Canadian dollar beginning in 2016.

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2.1.7. Alternative energy use

The B.C. low carbon fuel requirements and the Clean Energy Vehicle program may have an impact on wholesale pricing, but this should apply equally for Prince George and Vancouver, as these are province-wide initiatives.

There are additional costs associated with compliance to the low carbon fuel requirements, but at the same time, the addition of biofuels to the gasoline supply, and the increasing use of electric and natural gas vehicles will help ease demand for oil products, and could help with some moderation of prices. The net effect is difficult to estimate, but is not expected to have a significant impact on cost at the current clean energy vehicle use, or for the carbon intensity targets.

3. Factors that affect retail margins

There are local factors that significantly affect retail margins, such as access to wholesale gasoline supplies, market size, market demand, competition and, retailing and distribution efficiencies.

Under the Canadian Constitution, the provinces have the authority to regulate retail gasoline prices. In Canada, gasoline prices are regulated in Prince Edward Island, Quebec, Nova Scotia and New Brunswick.

- Quebec has a price floor regulation, which protects vulnerable retailers from predatory competition.
- New Brunswick, Prince Edward Island, and Newfoundland and Labrador have price ceiling regulations, which protect consumers on small markets from unreasonably high fuel prices.
- Nova Scotia's regulations encompass both a floor and ceiling.

No provinces west of Quebec regulate the price of fuels.

Evidence does not suggest that consumers in regulated markets face lower gasoline prices than consumers in non-regulated markets.

The Federal Government, through the Competition Bureau, is responsible for investigating anti-competitive activities such as price fixing, and ensuring consumers have access to fair prices. Under the Competition Act, price fixing and other anti-competitive activities are illegal in Canada.

4. Conclusions

Vancouver gasoline prices are unusually high, and appear to be exhibiting a number of unprecedented behaviours. It is not clear what is causing these behaviours, but there is no sign that there are non-competitive or unfair businesses practices leading to the higher margins. A similar behaviour in the US west coast seems to point to some growing supply constraints in a region with an expanding population and demand.