bcuc
British Columbia
Utilities Commission

BC's Fuel Price
Transparency Act

Fuel Market Report

Prepared by British Columbia Utilities Commission Staff

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Background

As Administrator of the British Columbia (BC) *Fuel Price Transparency Act* (FPT Act), the British Columbia Utilities Commission (BCUC) is responsible for collecting and publishing information about gasoline and diesel fuel activities in BC, to promote competitiveness, and public confidence in the competitiveness of the fuel market.

About the BCUC

The BCUC is an independent regulatory agency of the Government of BC that is responsible for regulating BC's energy utilities, the Insurance Corporation of BC's compulsory automobile insurance rates, intra-provincial pipeline rates, and the reliability of the electrical transmission grid.

Our jurisdiction and authority are legislated under the *Utilities Commission Act* (UCA) and the *Clean Energy Act*. We have responsibility to ensure that British Columbians get value from their utilities with safe, reliable energy services and fair energy and basic auto insurance rates, while ensuring the entities we regulate have the opportunity to earn a fair return on their capital investments. The BCUC is established as the sole independent regulator for energy services in the province of BC.

In March 2020, the BCUC was also named as the Administrator of BC's FPT Act.

Executive Summary

The purpose of this report is to provide a snapshot of British Columbia Utilities Commission (BCUC) staff observations about the fuel market in British Columbia (BC). This report also provides an opportunity for industry participants and the public to provide further details, perspectives, and information to the BCUC on the observations found in this report or related observations.

This report examines concerns raised regarding fuel pricing behavior in certain geographical locations. We collected empirical data in those regions, as well as benchmark regions, to assess how fuel pricing aligned with the observations and comments received. The results of that data collection process are contained within this report.

General Observations

The Oil Price Information Service (OPIS) and Kent Group Ltd. (Kent) retail fuel pricing data collected by the BCUC from July 2020 to December 2020[1], validates the experiences of customers in certain regions and is consistent with a number of general observations and comments the BCUC received from the public; namely that:

1. Retail prices for regular gasoline and diesel at gas stations across the province fluctuate throughout the day.
2. Differences in the price of retail fuel components (e.g, wholesale price, crude prices, etc.) lead to differences in the price at the pump between cities. Changes to the retail fuel price in some of the sample cities appear to be less dependent on the price of the major components.
3. These inter-city differences aren't always consistent (i.e., the same city may have a higher retail price than a neighbouring city one day, but a lower price the next).
4. Retail prices in regions adjacent to regions with higher fuel taxes (e.g., Vancouver) exhibit similar pump prices to those higher tax regions, despite lower tax rates (e.g., Squamish).

[1] The BCUC also collected data for June 2020 but the data was not used in this analysis due to a change in the reporting methodology.

Further Exploration

We also identified a number of areas that warrant further exploration to enhance the price transparency of BC's fuel market. Further explanation of these items is provided in the body of this report. These include:

- Establishing the actual price of fuel purchased by retailers and the origin of that supply.
- Gathering information on the relationship between retailers and their suppliers.
- Studying the impact of station throughput and the number of stations per city on retail prices.
- Measuring the effects of intraday price fluctuations on the overall price of fuel and the benefits and costs to consumers.
- Exploring the impact of market concentration of suppliers and retailers and its impact on pump prices.
- Studying the market dynamics of areas that exhibited negative retail margins (i.e., retailers are selling below cost).

Next Steps & Public Feedback

As a result of the above number of areas that we believe warrant further exploration, the BCUC will engage with the fuel industry to bring clarity and transparency to these pricing observations. The BCUC will seek an understanding of trends occurring and why certain market conditions exist.

The public is asked to provide comments or further observations on the data within this report to the BCUC at info@gaspricesbc.ca.

Report Details

Sample Cities

The following eleven cities were selected to be analyzed in this report based on public feedback received by the BCUC. Data sets for Langley, Nanaimo and Metro Vancouver were collected for comparative purposes.

Figure 1– Sample Cities in BC

Data Collection

The BCUC leveraged OPIS and Kent data to explore the fuel market in BC. OPIS and Kent fuel data contain information about the major components in the fuel supply chain in BC, including the price customers pay at retail gas stations including taxes (i.e., retail price), the price gas station owners pay for their fuel (i.e., wholesale price), and the crude oil price.[2] The fuel types analyzed in this report are: (1) regular gasoline; and (2) diesel.

The data sample used in this report is for the July 1, 2020 to December 31, 2020 period (total

[2] Retail gasoline and diesel prices and tax information are based on average prices reported by OPIS/ IHS Markit at 10:00 a.m., 4:00 p.m., and 10:00 p.m. Wholesale gasoline and diesel and Crude Prices are based on average daily prices as reported by Kent Group Ltd.

number of observations or "*n*" = 84,854). The data sample includes a time of day, with three observations taken on each day. For example, July 1, 2020 data for a relevant component (retail price), in a specific city (Vancouver), contains observations for 10:00 a.m., 4:00 p.m., and 10:00 p.m..

Table 1 provides summary statistics of the price (in cents (¢)) for the seven different fuel supply chain components contained in the data sample.[3] Data surrounding each of the seven different fuel supply chain components can be broken out by sample city (i.e., data surrounding the retail margin in a specific city, such as Kamloops can be analyzed).

Table 1 – Prices of Fuel Components in Data Sample (CAD cents per litre)

Component	Min	Mean	Max	*n*
Crude Price	25.1	30.2	33.9	12,122
Refining Margin	20.1	33.7	46.9	12,122
Retail Margin	-3.9	10.7	30.2	12,122
Retail Price (excluding tax)	58.5	74.7	94.1	12,122
Retail Price (including tax)	96.3	113.7	133.9	12,122
Taxes	33.8	39.0	52.2	12,122
Wholesale Price	50.0	63.9	77.4	12,122

Wholesale Price

Wholesale price captures the price gas station owners pay for fuel. This includes the price of crude oil, transportation costs, refinery costs, storage and profit margins. Wholesale prices are generally based on the price set by the refinery gate, or loading rack, which is commonly referred to in the industry as the "rack" price.

Refining margin is defined as the difference between the acquisition cost of crude and the wholesale price of gasoline or diesel. This report assessed wholesale price rather than refining margin. Due to the estimating methodology, an analysis of wholesale prices provides the same information as an analysis of refining margins when focusing on a single supply region of Western Canada.

The wholesale price data for the sample cities presented in ***Figure 2***, captures differences in how close each city is to the refinery gate, or loading rack, in BC.

For example, wholesale pricing for cities in the interior of BC (e.g., Kamloops, Kelowna, Revelstoke, Vernon and West Kelowna) are based on the posted rack price in Kamloops; cities in the Vancouver region (e.g., Langley, Squamish and Vancouver) are based on the posted rack price in Vancouver; and cities in the

[3] Table A1 in the Appendix presents a list of fuel components definitions contained in the data sample, as defined by OPIS and Kent.

Vancouver Island/Coastal region (e.g., Nanaimo, Port Alberni and Powell River) are based on the posted rack price in Nanaimo. Cities in the same region will be referred to as comparator cities within the report.

This assumption of geographic clustering to the nearest refinery gate, or loading rack, in BC is based on the methodology employed by other data providers such as OPIS and Kent.

Figure 2 and ***Figure 3*** present the wholesale pricing for the sample cities for regular gasoline and diesel fuel, respectively. Based on the above BCUC assumption of geographic clustering to the nearest refinery gate, there are three distinct wholesale price groupings for the sample cities.

Figure 2 and ***Figure 3*** show that, in addition to pricing volatility during the latter half of 2020, cities in the interior of BC (e.g., Kamloops, Kelowna, Revelstoke, Vernon and West Kelowna) experienced the lowest wholesale price for regular gasoline, but the highest wholesale price for diesel.

Figure 2 – Daily Wholesale Price for Regular Gasoline, by Sample Cities

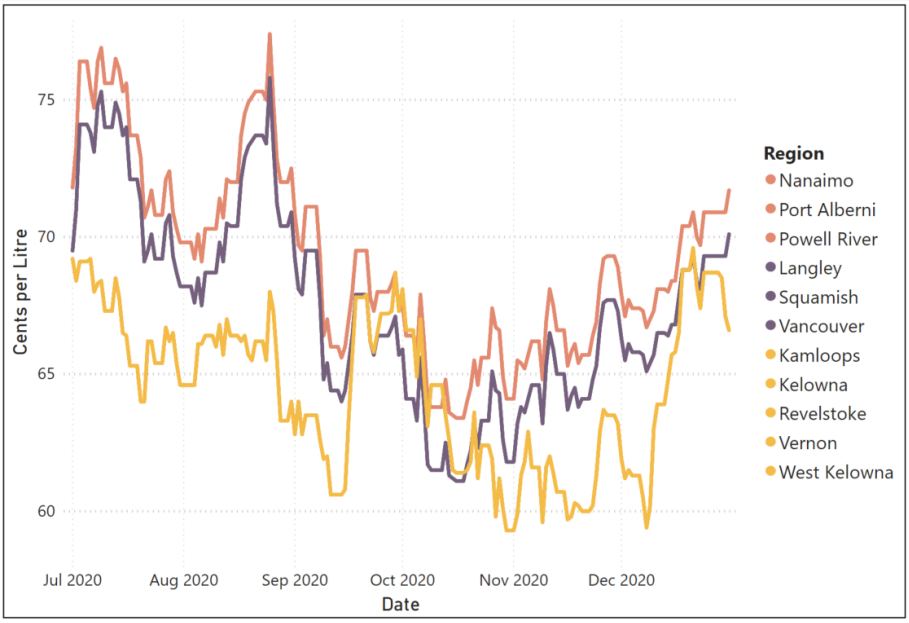
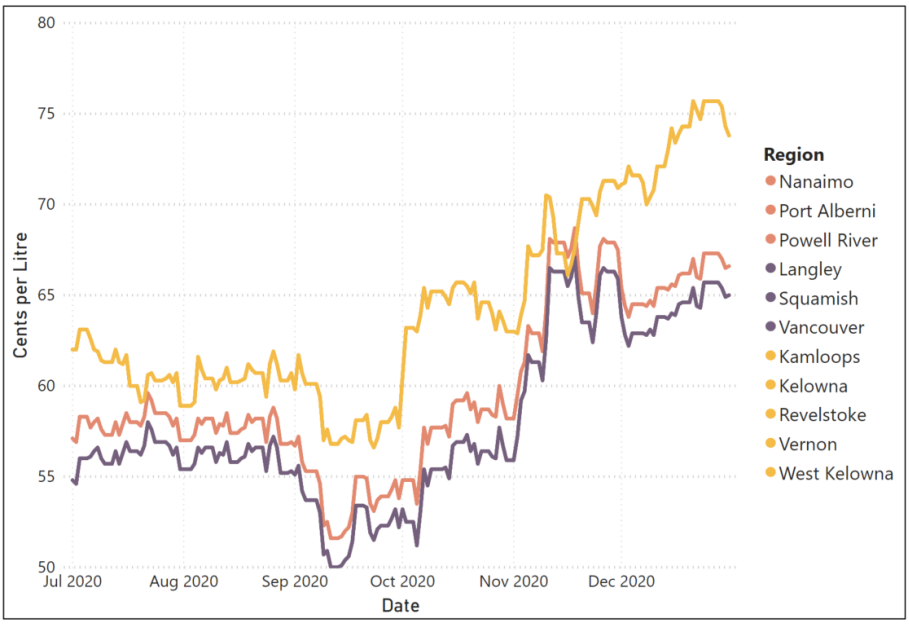


Figure 3 – Daily Wholesale Price for Diesel, by Sample Cities



Retail Pricing Components

Like the wholesale price, the retail price at gas stations in BC is comprised of many different components, including the price of crude oil, transportation costs, refinery costs, storage, and margins charged by wholesalers and retail gas stations.

Figure 4 and ***Figure 5*** present the average retail price at gas stations in the sample, along with some of the major components driving the retail price for both regular gasoline and diesel.

As shown in ***Figure 4*** and ***Figure 5***, the price of crude oil is consistent across all sample cities for both regular gasoline and diesel, along with taxes being roughly consistent across comparator cities for both fuels.

Although taxes are roughly consistent among comparator cities, an exception to this is Squamish where pump prices are similar to nearby cities despite having lower tax rates.

Some of the differences in retail prices for fuel (e.g., in addition to transportation costs, refinery costs, storage costs, etc.) in the sample cities, can also be attributed to the differences in margins charged by both gas stations and refineries.

Figure 4 – Average of Major Components Comprising Price of Regular Gasoline

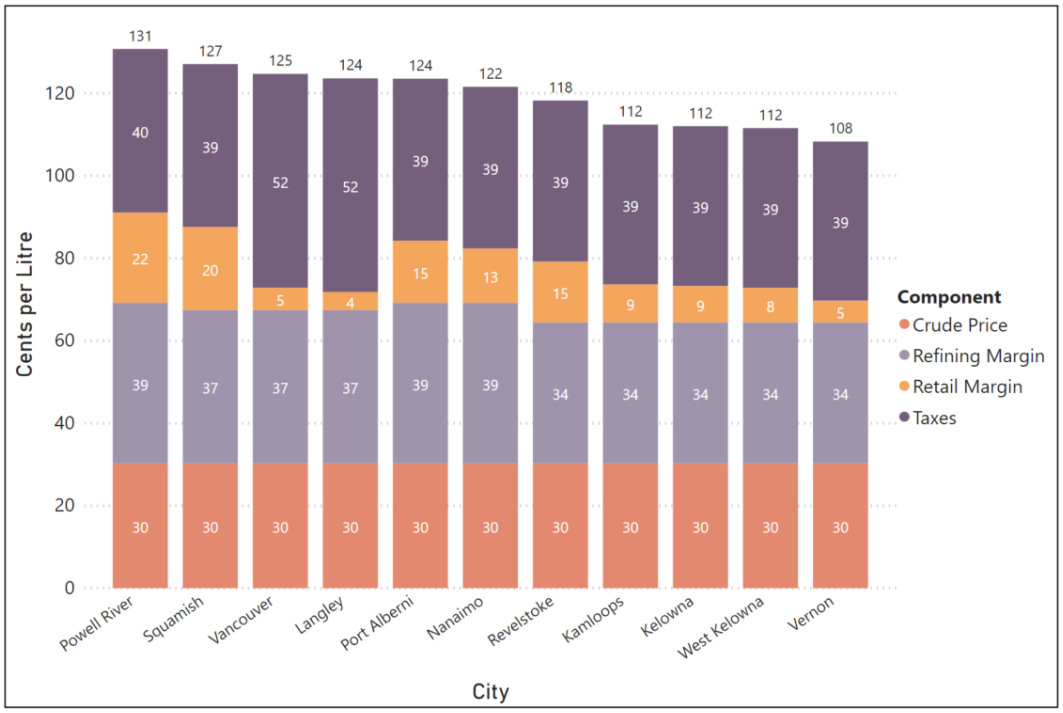
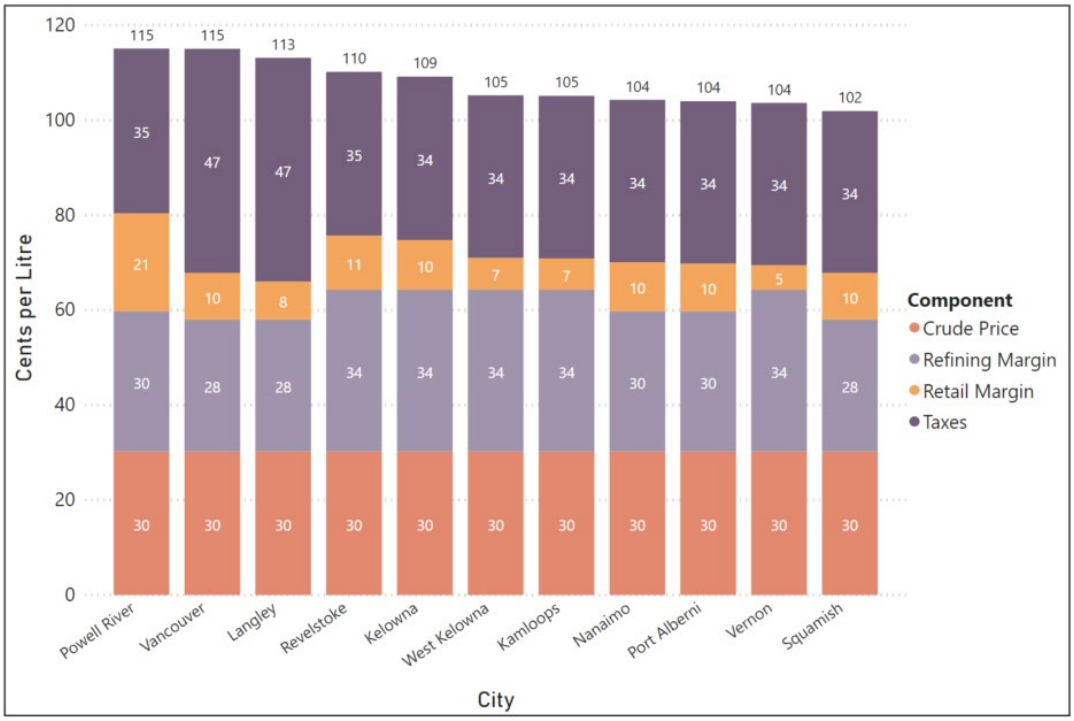


Figure 5 – Average of Major Components Comprising the Retail Price of Diesel



Negative Retail Margin

At different times in the day gas stations may incur a negative margin (i.e., the amount that a gas station pays for regular gasoline or diesel is more than the amount the gas station charges its customers, excluding taxes).

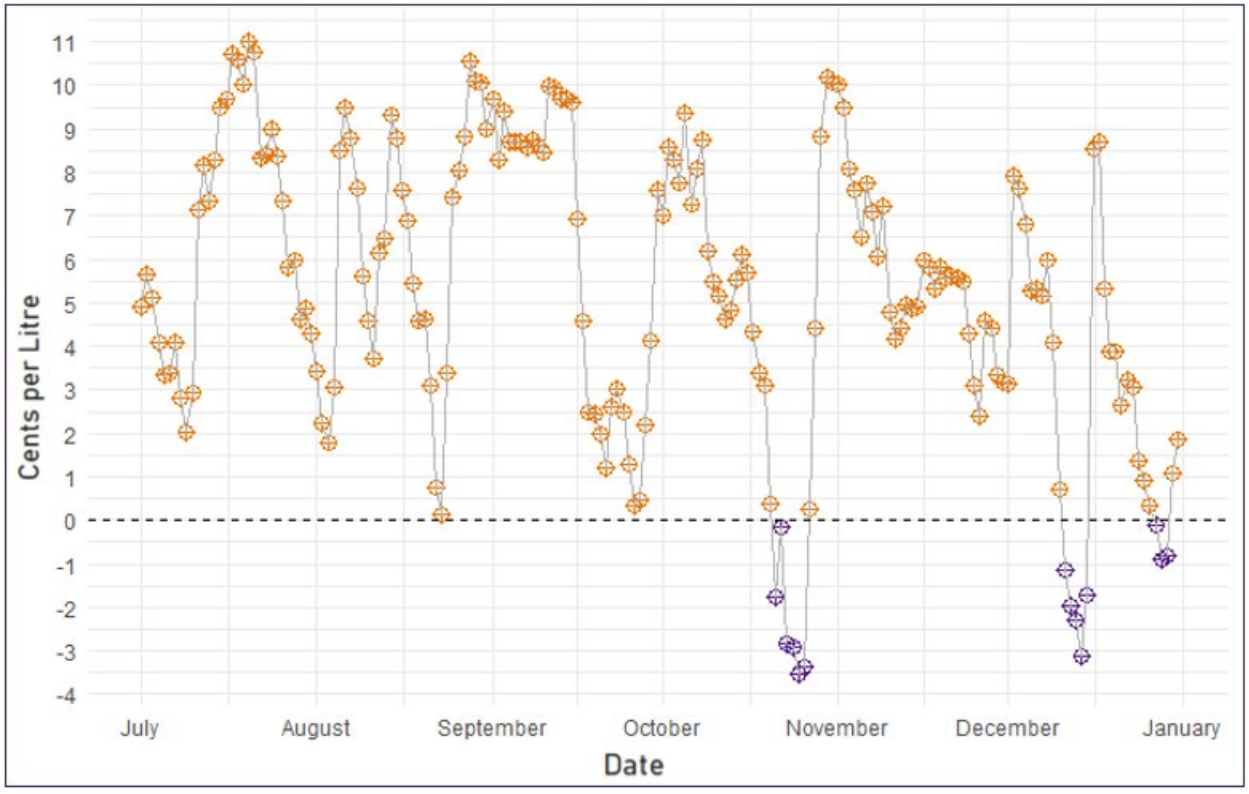
Therefore, during times of negative margin, gas stations are possibly earning no profit (or even incurring a loss) on fuel sold at their pumps.

An example of negative margins at gas stations is presented in ***Figure 6***. As shown, gas stations in one sample city exhibited a number of days with negative retail margins, as displayed by the daily average purple dots in ***Figure 6***.

Such a situation could potentially be attributed to many factors including, for example:

- increased competitive pressure in an area during a timeframe; or
- retail prices not keeping pace with the variability in the components comprising its price (i.e., retail prices being slow to react to changes in the wholesale price).

Figure 6 – Daily Average of Retail Margin for Regular Gasoline in Vernon



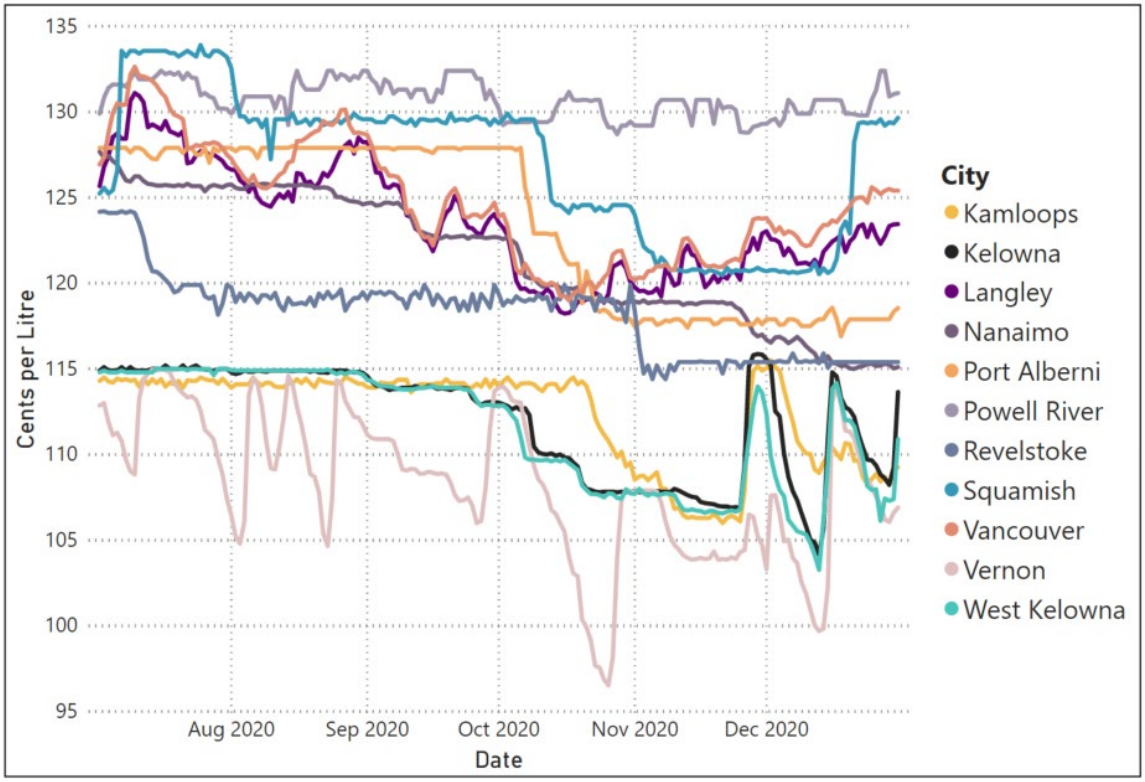
Retail Pricing Comparisons

Since the components (e.g., the price of crude, refining margin, transportation costs, etc.) that make up the retail price of fuel fluctuate on a daily basis, so does the retail price at gas stations.

For example, ***Figure 7*** below presents the fluctuations of the daily average retail price for regular gasoline sold at gas stations in each of the sample cities.

The chart also shows that the highest retail price over the sample period is found at gas stations in Squamish and Powell River, and the lowest is found at gas stations in Vernon.

Figure 7 – Daily Average of Retail Price for Regular Gasoline for the Sample Cities



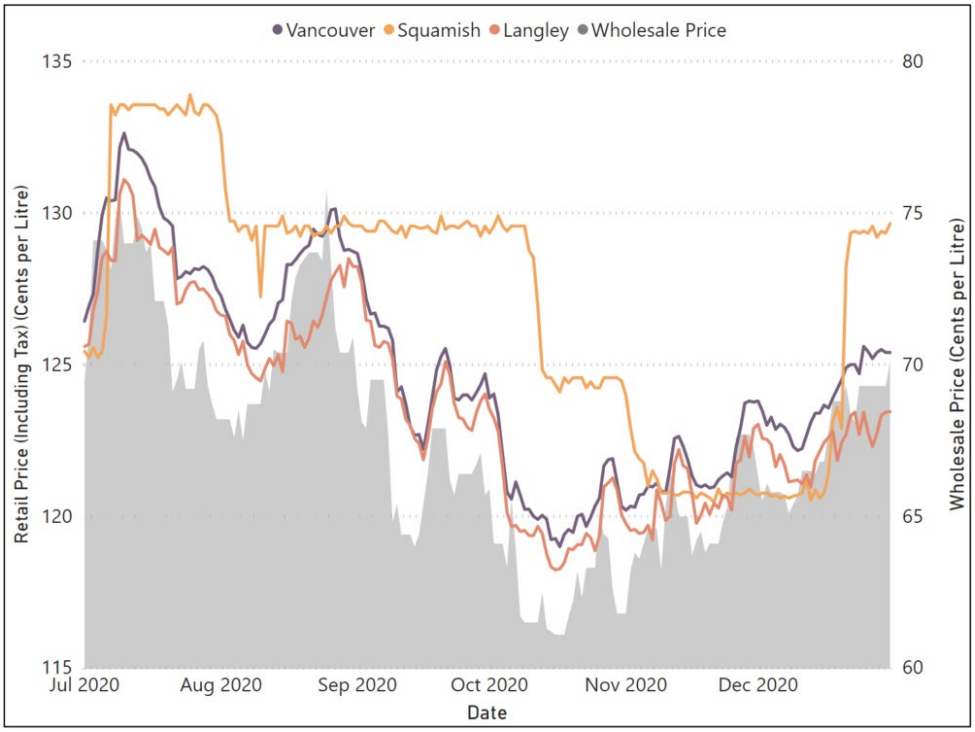
Wholesale Price Effect on Retail Price

To understand the effect of wholesale price fluctuations on retail prices fluctuations, ***Figure 8*** presents both the wholesale price and the retail prices, for regular gasoline for sample cities in the Vancouver region (e.g., Langley, Squamish, and Vancouver).

This comparison is based on the BCUC assumption that the stations in the Vancouver region pay the same wholesale price for regular gasoline and diesel (as discussed above and presented in ***Figure 2*** and ***Figure 3***).

As shown in ***Figure 8***, retail price fluctuations at gas stations in Langley and Vancouver reflect, on a daily basis, their corresponding daily wholesale prices. On the other hand, retail prices at gas stations in Squamish appear to be somewhat less responsive to changes in the wholesale price.

Figure 8 – Daily Average Retail Price and Wholesale Price for Regular Gasoline for Sample Cities in the Vancouver Region



Further exploring the Vancouver region, ***Figure 9*** and ***Figure 10***, present the average monthly retail prices for sample cities in this area.

As shown, Squamish exhibits a slightly higher average monthly retail price at gas stations for regular gasoline; however, a lower average monthly retail price at gas stations for diesel.

Figure 9 – Monthly Average Retail Price for Regular Gasoline for Sample Cities in the Vancouver Region

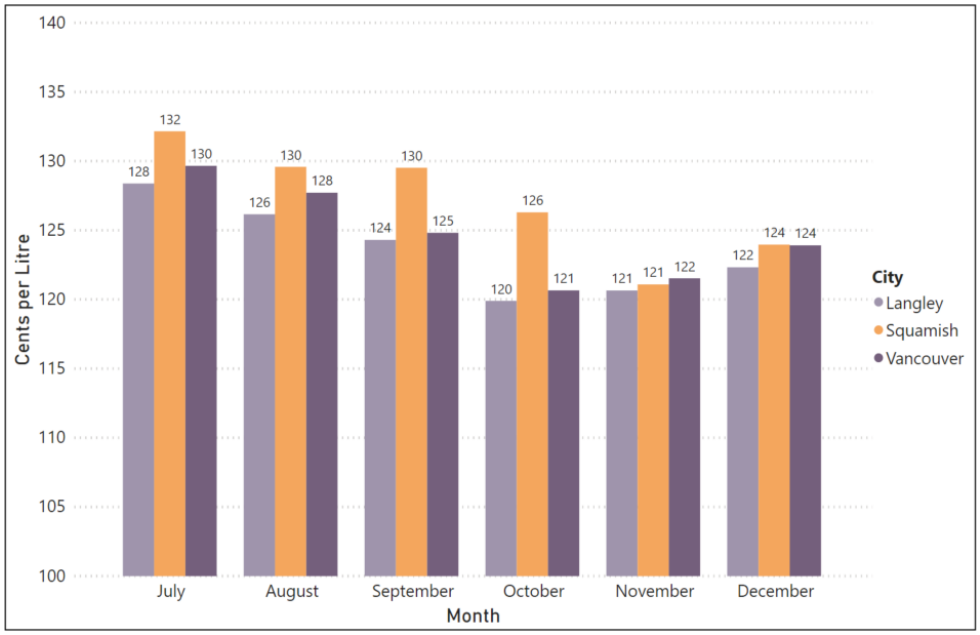
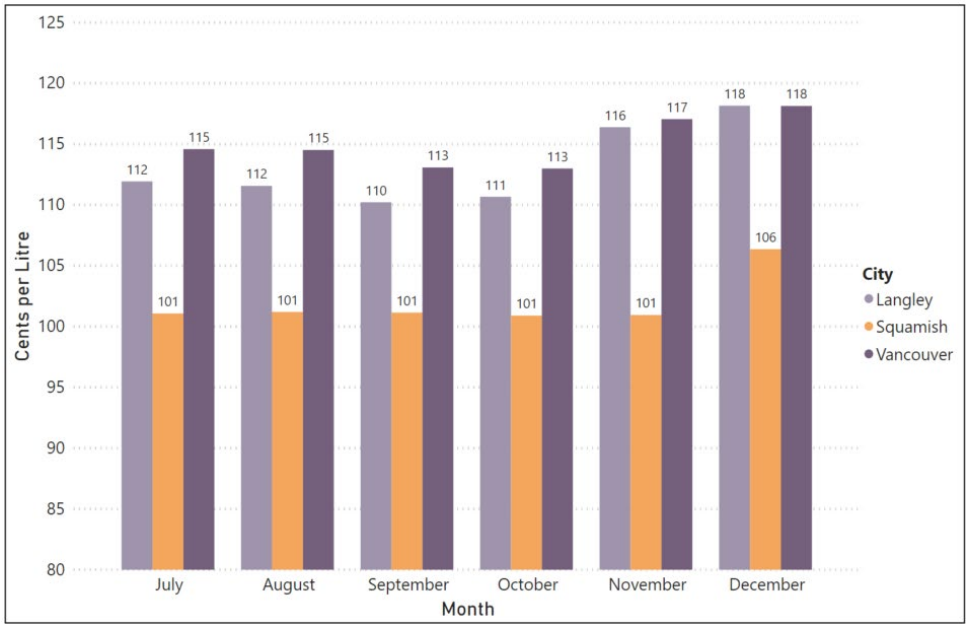


Figure 10 – Monthly Average Retail Price for Diesel for Sample Cities in the Vancouver Region



Retail Pricing Timing

In addition to daily and monthly fuel price differences, within-day retail price fluctuations can also be seen. One example of this is that some sample cities exhibit retail prices uniformly changing throughout the day.

Figure 11 shows this for Vancouver where the retail price for regular gasoline appears to be at its highest in the morning (e.g., 10:00 a.m.), and then marginally decreases throughout the day (e.g., at its lowest by 10:00 p.m.).

However, the same uniform trend is not seen for diesel pricing in Vancouver.

Figure 12 shows the average percentage change in retail pricing relative to 10:00 a.m. for all of the sample cities. This figure shows a distinct clustering of pricing behaviour by region where, in general, retail prices decline throughout the day in the Vancouver area, increase throughout the day in the Interior, and remain relatively unchanged in the Vancouver Island/Coastal area.

Figure 11 – Daily Hourly Change for Regular Gasoline for Vancouver

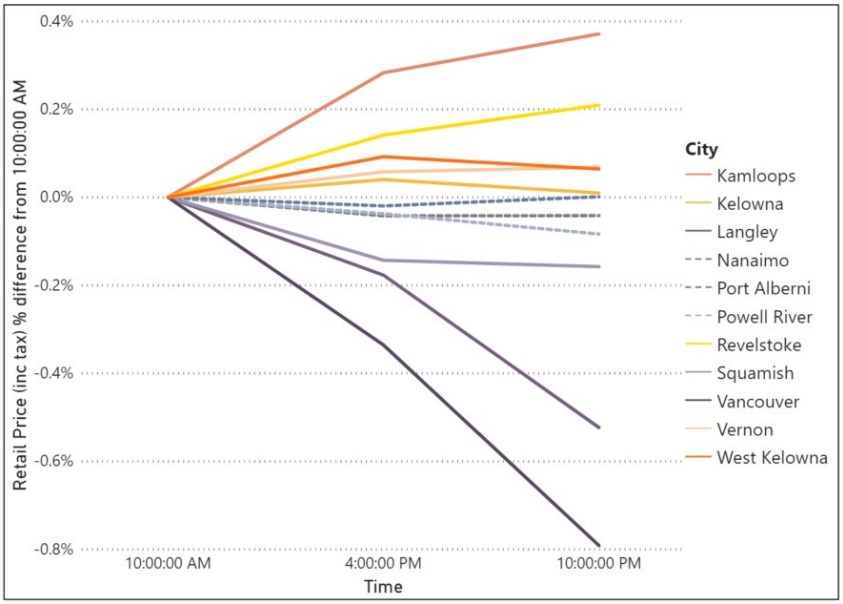


Figure 12 – Average Percentage Change of Retail Prices Relative to 10:00 a.m.

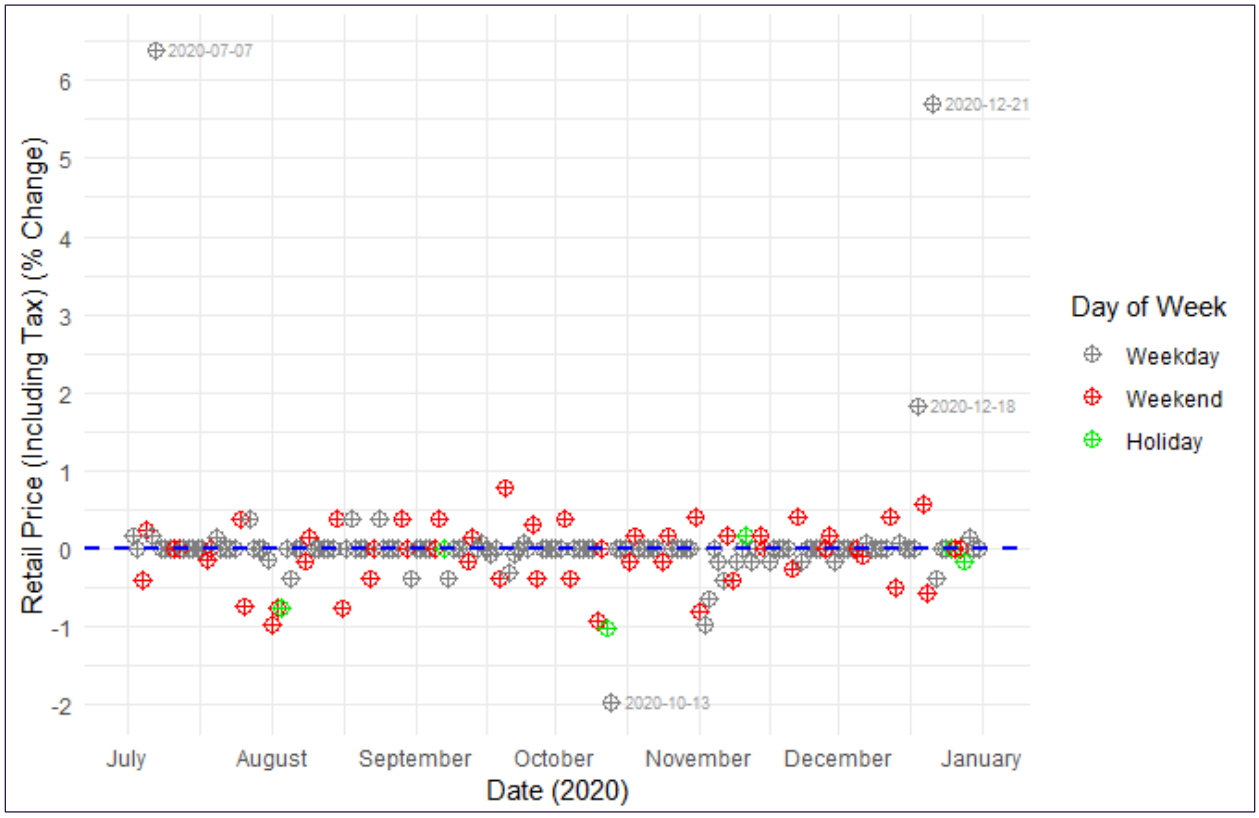
Another example of a timing pattern in retail fuel prices can be seen where a sample city exhibits pricing differences for weekends versus weekdays.

For example, ***Figure 13*** presents the daily percentage change for retail pricing of regular gasoline at gas stations in Squamish in the afternoon (e.g., 4:00 p.m.). As shown, the daily percentage change for regular gasoline appears to typically fluctuate more on weekends (red dots) than on weekdays (gray dots).

Figure 13 also shows that some days exhibit larger variations in a daily percentage change in the retail price than others (e.g., July 7, 2020). One potential explanation for variation in the daily percentage change of the retail price for regular gasoline may be related to demand-side fluctuations.

The following dates were observed as BC holidays: July 1, 2020 (Canada Day); August 3, 2020 (BC Day); September 7, 2020 (Labour Day); October 12, 2020 (Thanksgiving); November 11, 2020 (Remembrance Day); December 25, 2020; and December 28, 2020, (Boxing Day).

Figure 13 – Daily Percentage Change for Regular Gasoline for Squamish



Further Exploration

During the course of this analysis, we identified a number of areas that we believe warrant further exploration to enhance transparency and the retail customers' understanding of the fuel market. These items are listed below.

Price of Fuel

- Establishing the actual price of fuel purchased by retailers and the origin of that supply. In this report the BCUC assumes the wholesale price paid by retailers is equal to the publicly posted rack price from the nearest terminal facility.
- Gathering information on the relationship between retailers and their suppliers to better understand their pricing relationship and whether this relationship affects retail prices.
- Measuring the effects of intra-day price fluctuations on the overall price of fuel and the benefits and costs to consumers.
- Studying the impact the volume of fuel sold by gas stations and the number of stations per city have on retail prices.

A preliminary analysis of the number of stations per sample city and retail prices points towards higher retail gasoline prices and retail margins in cities with fewer stations.

The same relationship was not observed for diesel. Due to data limitations the analysis was not included in the report, but additional data could help generate further insights in this area.

Market Concentration

- Exploring the impact market concentration and supplier diversity within a particular city have on pump prices.
- Studying the market dynamics of areas that exhibited negative retail margins (i.e. retailers are selling below cost) to understand how negative retail margins reflect the market competitiveness in a particular region and how this may affect the market competitiveness of neighbouring regions.

Industry Engagement

- By Order in Council No. 474/20, the Lieutenant Governor in Council established the Fuel Price Transparency Regulations (FPT Regulations), requiring fuel importers, wholesalers, terminal owners/operators, and those who supply to retail dealers to submit regular reports to the BCUC starting in November 2020.
- Also in August 2020, the BC government issued a Special Direction to the BCUC requiring retail dealers of reportable fuels to submit fuel data to the BCUC as part of a retail fuel data collection pilot (Retail Pilot). The Retail Pilot will be used to inform the development of regulations for fuel retailers by the BC government.

- The BCUC intends to engage with all retail dealers to collect information to enhance transparency regarding these fuel price matters and the general trends noted by customers, which are supported by empirical evidence collected in this exercise.
- Additional information collected from retail fuel providers will be reported by the BCUC to build understanding and clarity in fuel pricing.
- The ongoing collection of fuel data from players in the different components of the fuel supply chain in BC will also enable the BCUC to explore the above noted areas of interest and publish future periodic market reports. Such reports will generate further insights into the fuel market in BC.

Appendix

Table A1 – Definitions of Fuel Components in Data Sample

Component	Definition
Crude Price	The main input in gasoline is crude oil. Crude prices are collected daily (weekdays only) from a number of crude oil reporting sources.
Refining Margin	Refining margin is the difference between the amount a refiner pays for crude oil and other components and the amount the refiner charges its customers in the wholesale market for gas and diesel.
Retail Margin	Retail (or marketing) margin is the difference between the amount a retailer pays for gas and diesel and the amount the retailer charges its customers for gas and diesel, excluding taxes.
Retail Price (excluding tax)	The price customers pay for gasoline at a gas station, excluding federal and provincial taxes.
Retail Price (including tax)	The price customers pay for gasoline at a gas station, including federal and provincial taxes.
Taxes	The following is a list of taxes paid on a litre of gas in BC: • BC motor fuel tax (Metro Vancouver) — 1.75 cents • BC motor fuel tax (outside Metro Vancouver) — 7.75 cents • BC carbon tax — 8.89 cents • BC Transportation Finance Authority tax — 6.75 cents • TransLink tax (Metro Vancouver) —18.5 cents • Transit tax (Victoria) — 5.5 cents • Federal excise tax — 10 cents • Goods and Services Tax – 5%
Wholesale Price	The price gas station owners or retailers pay for gasoline. This price includes the crude oil cost, distribution costs, refinery costs, profits and storage fees. Wholesale prices are generally based on prices set at the refinery gate or loading rack which are commonly referred to as “rack prices.” Each company sets its own rack price.