



bcuc
British Columbia
Utilities Commission

Patrick Wruck
Commission Secretary

Commission.Secretary@bcuc.com
bcuc.com

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3
P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

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Sent via eFile

BCUC INQUIRY INTO GASOLINE AND DIESEL PRICES IN BC EXHIBIT A2-2
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Re: British Columbia Utilities Commission – An Inquiry into Gasoline and Diesel Prices in British Columbia – Project No. 1599007 – Navius Research Independent Consultant Report

British Columbia Utilities Commission (BCUC) staff submit the following independent consultant report for the record in this proceeding:

Navius Research
Jurisdictional Scan of Regulation and Oversight on
Gasoline and Diesel Prices in Canada and North America

As per Order G-112-19, please provide comments on the BCUC Consultant Report, if any, by **Thursday, June 27, 2019.**

Sincerely,

Original signed by Ian Jarvis for:

Patrick Wruck
Commission Secretary

/aci
Enclosure



Jurisdictional Scan of Regulation and Oversight on Gasoline and Diesel Prices in Canada and North America

Final Report

SUBMITTED TO

The British Columbia Utilities Commission
June 20th, 2019

SUBMITTED BY

**Michael Wolinetz and
Noel Melton**
Navius Research Inc.
355 Burrard Street, unit 410
PO Box 48300 Bentall,
Vancouver BC V7X 1A1

Phone: 778-970-0355
Email: Michael@NaviusResearch.com

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Executive Summary

Introduction

Navius Research has produced this expert report to support the BCUC's inquiry into retail and wholesale gasoline prices in British Columbia. This report contains:

- An overview of gasoline and diesel wholesale and retail price regulations and price transparency measures that have been used in North America over the past two decades.
- A summary of the degree to which the British Columbian fuel market is transparent, in comparison to other jurisdictions in North America.
- A set of market conditions that may indicate an uncompetitive market (either due to a lack of competition or anti-competitive behaviour) and should be considered when deciding whether regulated price transparency, or ultimately price regulation, is needed.

In this context, “price transparency” refers to the availability of data that would allow a suitably skilled analyst to explain the prices observed in the market. An “uncompetitive market” refers to a fuels market where prices are the result of a lack of competition or anti-competitive behaviour.

If there is a lack of competition, prices can be the result of ‘conscious parallelism’ that can occur in a market with few players and a repeated process of price setting for a homogenous product such as gasoline or diesel. Over time, firms may observe that if they do not lower their prices, other firms will likely not lower their prices. The market may reach an equilibrium where prices are higher than they would be in a fully competitive market, with each firm conscious of the fact that lowering their prices could trigger a price war, where their margins will decline without materially increasing their market share (Khemani and Shapiro, 1993). Conscious parallelism is not purposely organized, nor is it illegal.

In contrast, anti-competitive behaviour includes illegal and purposeful collusion to keep prices high or abuses of market power. The Competition Bureau of Canada notes that these abuses could include acts other than price collusion such as buying up competitors' customers or suppliers, using discount brands to discipline or keep out competitors, cutting off essential supplies to rivals, and using long-term contracts to stop customers from changing suppliers (Competition Bureau of Canada, 2018).

Price Regulation and Transparency Measures in Canada and the United States

Over the past two decades, the Atlantic Provinces have used price regulation to control maximum prices and reduce price volatility. PEI, Nova Scotia and Quebec also use minimum price floors to protect small retailers and prevent predatory pricing, where a large firm takes a temporary loss to drive out smaller competitors, after which it controls more of the market. None of these regulations are paired with extensive price transparency measures. The regulations need to check for compliance and are set based on a benchmark price for fuels from a larger proximal market, such as New York, which is paired with reasonable margins for wholesaling and retailing. To our knowledge, there is no detailed collection of input, outputs, and costs from the fuel suppliers, wholesalers or retailers in the Canadian market.

This type of reporting exists in California, as required by the Petroleum Industry Information Reporting Act. It also exists in Hawaii under the Energy Industry Information Reporting Program, dating from the brief period (2005-2006) when Hawaii had a wholesale price cap known as the Gas Cap Law. Under both these programs, refiners, producers, transporters, marketers, pipeline and fuel terminal operators must report product and input volumes, prices, transportation modes and sources on a weekly to monthly basis. To date California has not used this information to regulate prices, but it is currently undertaking an investigation into potentially anti-competitive acts in the state fuels market.

The evidence on the impact of the Canadian regulations mostly indicates that the prices ceilings likely have not resulted in lower prices for consumers. The Hawaiian Gas Cap Law was perceived to be a failure and was eliminated less than a year after it was implemented.

Price Transparency in British Columbia Compared to Other Jurisdictions

Price transparency in British Columbia is on par with most jurisdictions in North America, excluding California and Hawaii. Crude oil, gasoline and diesel, and some biofuel prices are available daily from reputable subscription sources. Nonetheless, these sources do not provide the details on the specific agreements and transactions between market entities, or of their specific costs of doing business. Therefore, while it may be possible to estimate typical gross margins for the market, gross margins for specific entities and net margins (i.e. profits) can only be estimated.

The data collection in Hawaii and California add transparency, but they still do not capture all business costs for each market entity. Therefore, even with greater regulated price transparency, there will likely still be some unknowns.

Market Conditions that May Indicate a Need for Regulated Price Transparency or Price Regulations

The report concludes with a discussion of market conditions that may indicate a need for regulated price transparency or price regulation. The market conditions are based on experiences in other jurisdictions and empirical and experimental (i.e. modelled) research on the formation of transportation fuel prices (primarily gasoline).

The presence of these market condition may indicate a problem that needs to be monitored with regulated price transparency or ultimately corrected with price regulation. However, the existence of any one market condition does not prove there is collusion or a lack of competition in the market. Likewise, the absence of these market conditions does not prove the market is fully competitive. Ultimately, the weight of evidence that relates to these market conditions can only inform a decision as to whether to regulate price transparency or prices themselves.

The market conditions that may indicate the need for price transparency and regulation are that:

- There is high or increasing market concentration and evidence of simple price setting strategies, such as firms following a price leader rather than trying to strategically maximize profits from both sales volumes and margins.
- There are few or no “independent” entities in the market.
- The price of crude oil is not a strong explanatory variable of the wholesale price of fuels.
- The wholesale price of fuels in relevant US markets is not a strong explanatory variable for the wholesale prices in nearby Canadian markets.
- The wholesale price of fuels is not a strong explanatory variable of retail prices.
- There is a lack of price cycling, which is understood as firms undercutting each other to gain market share, until one firm relents and raises prices, thereby “resetting” the market.
- Price responses to changes in wholesale or crude oil prices are “asymmetric”, meaning prices rise more rapidly than they fall when the price of inputs change.

- Available data indicates returns on capital are above industry normal or what is needed to attract new investment.
- An economic model of the market indicates that fuel prices are above what they would in a competitive market.

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1. Introduction

The government of British Columbia has asked the British Columbia Utilities Commission (BCUC) to conduct an inquiry into gasoline and diesel prices in British Columbia. To support its analysis and its response to the government's request, the BCUC has contracted Navius Research to undertake a jurisdictional scan of gasoline and diesel price regulation and price transparency measures in North America.

In this report, we adopt the definition of price transparency used in the state of Hawaii, which began regulated price transparency in the mid-2000's. A transparent market "is one where market observers can see the various elements of the market and readily explain why prices are at their current level" (Finizza et al., 2003). Furthermore, price transparency requires understanding the various inputs and product flows, costs and prices within a petroleum market. Transparency is created from these data by analysts that can transform them into relevant facts, insights and trends that can be communicated to the intended audience, such as an energy regulator or government agency.

In that regard, this report provides:

- An overview of gasoline and diesel wholesale and retail price regulations and price transparency measures that have been used in North America over the past two decades. This section contains a brief summary of the evidence regarding the impact of these regulations on prices.
- A summary of the degree to which the British Columbian fuel market is transparent, in comparison to other jurisdictions in North America.
- A set of market conditions that should be considered when deciding whether regulated price transparency, or ultimately price regulation, is needed.

These market conditions are indicators of an improperly functioning fuels market where there is a lack of competition or anti-competitive behaviour.

If there is lack of competition, prices can be the result of 'conscious parallelism' that can occur in a market with few players and a repeated process of price setting for a homogenous product such as gasoline or diesel. Over time, firms may observe that if they do not lower their prices, other firms will likely not lower their prices. The market may reach an equilibrium where prices are higher than they would be in a fully competitive market, with each firm conscious of the fact that lowering their prices could trigger a price war, where their margins will decline without materially increasing

their market share(Khemani and Shapiro, 1993). Conscious parallelism is not purposely organized, nor is it illegal.

In contrast, anti-competitive behaviour includes illegal and purposeful collusion to keep prices high or abuses of market power. The Competition Bureau of Canada notes that these abuses could includes acts other than price collusion such as buying up competitors' customers or suppliers, using discount brands to discipline or keep out competitors, cutting off essential supplies to rivals, and using long-term contracts to stop customers from changing suppliers (Competition Bureau of Canada, 2018).

2. Price Regulation and Price Transparency Measures in Canada and North America

2.1. Overview

This section describes the fuels price regulations that have been used over the past two decades in Canada and the United States. Based on the available information, this section summarizes the why the regulations exist and what market conditions led to regulation, what problems the regulations are intended to solve, and the extent to which these measures require or result in price transparency. Again, transparency in this report refers to making information available to a market observer, such that he or she could readily explain the observed prices. This section concludes with a brief summary of the evidence on the effectiveness of these regulations in reducing prices for consumers.

Regulated petroleum price controls in Canada originally emerged in the 1970's and 80's. To maintain control over prices, the federal government had to tightly control exports and subsidize imports of crude oil. Reduced investment and activity in oil production eventually prompted de-regulation of the market in the mid 80's (Suvankulov et al., 2012). Provincial price controls were implemented in PEI in the late 80's, with price controls emerging in the Atlantic Provinces and Québec in the late 1990's and into the 2000's.

Fuel price controls were imposed in the United States in the 1970's, in response to several supply shocks in the Middle East and OPEC's decision to reduce supply and increase price. The controls in turn caused supply shortages and their failure has generally resulted in fuel price regulation being used for specific purposes rather than general control of the price.

Since then, fuel price regulation in the United States has primarily been limited to "sales-below-cost laws", which prohibit sellers from setting prices below their cost of doing business. The goal of these laws is to prevent large firms from temporarily taking a loss in a given market to drive other firms out of business and gain market power. More than a dozen states have or have had these laws over the past two decades, where the application of these laws have been associated both with higher and lower gasoline prices (Anderson and Johnson, 1999) (Skidmore et al., 2005). Other states have legislation designed to prevent price gouging during states of emergency, prevent preferential pricing between refiners and their branded retailers, and sometime reduce oil refiner participation and control in the retail fuel market (Brown et al., 2003). The

exception to this trend is Hawaii, which briefly had a wholesale gasoline price cap, known as the Gas Cap Law, which began in 2005 and ended in 2006.

2.2. Details by Jurisdiction

Table 1 summarizes the characteristics of the significant fuel price controls and transparency measures implemented in Canada and the United States over the past two decades, where the experience in the United States is limited to Hawaii's brief use of wholesale price caps.

In Canada, price controls have been developed by the Atlantic provinces as well as Québec. They apply to gasoline and diesel, as well as (to varying extents) other refined petroleum products used for non-motive purposes, such as heating fuel. In general, these policies were motivated by rising fuel prices and/or price volatility, along with perceived price gouging by consumers. Specifically, consumers complained of quickly changing prices through the day and week, price spikes related to seemingly unconnected fuel markets (e.g. hurricanes in the gulf coast), and the closure of many rural and low volume retail sites (Arya, 2011). The stated objective of price controls are generally to establish "fair" prices for both consumers and suppliers, and in some cases to reduce price volatility.

PEI was the first Canadian province to implement price controls, establishing both minimum and maximum retail prices for gasoline and diesel in 1988. It was followed by Québec, which implemented a minimum price in 1997. Québec's imposition of a minimum price (but no maximum) is unique in Canada and followed the occurrence of predatory pricing by large retailers that was deemed a threat to independent retailers (Clark & Houde, 2011). Maximum retail prices were established by Newfoundland and Labrador (2001) and New Brunswick (2006), while Nova Scotia established both a minimum and maximum price in 2006.

The Hawaiian Gas Cap Law began in 2005 and created a gasoline wholesale price cap, based on an average of gasoline spot market price in Los Angeles, the US Gulf Coast and New York. The impetus for the cap came from the fact that fuel supply was highly concentrated, with only two refiners and one wholesaler capable of importing fuel paired with the observation that fuel prices in Hawaii are generally higher than elsewhere in the continental United States (Finizza et al., 2003). The cap lasted for less than a year. A hurricane on the gulf coast and a refinery outage in California resulted in a relatively high price cap, whereas these incidents previously would not have significantly affected the Hawaiian market. The price cap allegedly became a price target and Hawaii experienced rising gasoline prices while most of the United States experienced falling prices. The resulting political pressure led to the end of the price

regulations, but with ongoing price transparency regulation (State of Hawaii PUC, 2005 and 2006).

Most of these regions use a similar method to set prices, which includes starting with wholesale prices as measured by a nearby market (e.g. New York Harbor spot price in the case of Atlantic Canada or an average of prices in different markets for Hawaii). This approach works best if there is a large market that is a good indicator of likely prices in a given province (e.g. the New York market would be a poor indicator of prices in BC).

Jurisdictions add wholesale margins, retailing margins and taxes to the benchmark price to create the retail price ceiling (or floor). The resulting retail prices are set province-wide in PEI and New Brunswick and regionally/by zone in Newfoundland, Nova Scotia and Québec, to account for different transportation costs and retail costs. Similarly, the Hawaiian regulation also set regional price caps to account for transportation between the different regions in the state.

Margins would ideally be based on detailed financial information provided to regulators by fuel distributors and retailers. Although most of the Atlantic provinces allow energy companies to request changes to margin allowances, it is not clear that they have processes in place to regularly collect financial data (i.e., to provide price transparency to government). Efforts around price transparency are directed at making prices known to consumers, rather than providing insights on price formation to a market analyst.

Hawaii's policy differs in this respect, requiring fuel distributors and suppliers to produce monthly reports on petroleum product imports and exports, inventories, production, retail and wholesale transactions, and gross margins, described in greater detail in section 3.2. Again, while the actual price caps existed for less than one year, the price transparency measures have continued.

Table 1: Summary of price regulations and transparency measures in North America

	Prince Edward Island	Québec	Newfoundland and Labrador	New Brunswick	Nova Scotia	Hawaii
Regulatory body	Island Regulatory & Appeals Commission (IRAC)	Régie de l'énergie	Public Utilities Board	New Brunswick Energy and Utilities Board	Nova Scotia Utility and Review Board	The Hawaii Public Utilities Commission and the Department of Business, Economic Development, and Tourism
Enabling legislation	Petroleum Products Act	Petroleum Products Act	Petroleum Products Act	Petroleum Products Pricing Act	Petroleum Products Pricing Act	Act 77 which was codified as Chapter 486H, HRS
Duration	1988-present	1997-present	2001-present	2006-present	2006-present	2005-2006, with ongoing price transparency reporting
Covered fuels	Gasoline, diesel, stove oil, furnace oil and most propane products	Gasoline, diesel and light fuel oil	Motor fuels, heating fuel, propane heating fuel	Gasoline, diesel and heating fuels (furnace oil and propane)	Gasoline, diesel, propane, heating fuels	Gasoline and Diesel
What are they regulating	Minimum and maximum retail prices, based on the sum of Charlottetown rack price, wholesale margins, taxes and retail margins. Updated twice a month.	Minimum retail price, based on the sum of loading ramp price, transport cost, taxes and retailer operating costs. Updated weekly.	Maximum retail price, based on the sum of New York Harbor benchmark price, allowed mark-up, provincial zone differential and taxes. Updated weekly.	Maximum retail price, based on sum of New York Harbor spot price, wholesale and retail margins, delivery costs and taxes. Updated weekly.	Minimum and maximum retail prices, based on the sum of New York Harbor spot price, wholesale margins, transportation allowance, taxes and retail margins. Updated weekly.	Wholesale prices, based on an average of Los Angeles, Gulf Coast and New York product spot prices. Updated weekly.

	Prince Edward Island	Québec	Newfoundland and Labrador	New Brunswick	Nova Scotia	Hawaii
Goals of regulation	<p>To "ensure at all times a just and reasonable price for heating fuel and motor fuel to consumers and licensees within the province."</p> <p>-Petroleum Products Act, Part 1 "Purpose"</p>	<p>The objectives are to:</p> <p>(1) to ensure the continuity and security of the petroleum products supply;</p> <p>(2) to ensure the quality of petroleum products;</p> <p>(3) to ensure control of the sale price of petroleum products.</p> <p>-Petroleum Products Act, Chapter 1</p>	<p>The PUB is responsible for ensuring fairness in marketing of petroleum products throughout the province in accordance with the Petroleum Products Act.</p>	<p>To "achieve a fair balance between low, stable prices and ensuring that wholesalers and retailers can recover fair margins and delivery costs on their sales."</p> <p>-New Brunswick Energy Resource Development</p>	<p>The purpose of these regulations is to ensure just and reasonable prices for specified petroleum products, taking into consideration all the following objectives:</p> <p>(a) preserving availability of specified petroleum products in rural areas;</p> <p>(b) stabilizing prices of specified petroleum products;</p> <p>(c) minimizing the variances in prices of specified petroleum products across the Province.</p> <p>-Petroleum Products Pricing Regulations, "Purpose of regulations"</p>	<p>To protect consumers from uncompetitive wholesale fuel prices.</p>
Price transparency measures (if any)	<p>Minimum and maximum prices (including margins) are posted online.</p>	<p>The Régie tracks and publishes gasoline and diesel prices by region, as well as analyses about pricing and market developments</p>	<p>Maximum prices are published online.</p>	<p>Maximum prices are published online.</p>	<p>Minimum and maximum prices (including margins) are posted online.</p>	<p>Fuel distributors and suppliers report monthly on petroleum product imports and exports, inventories, production, retail and wholesale transactions, and gross margins.</p>
Source	www.irac.pe.ca	www.regie-energie.qc.ca	www.pub.nf.ca	www.nbeub.ca	https://nsuarb.novascotia.ca	Hawaii PUC (2005, 2006)

2.3. Impact of the Regulations

It is difficult to determine the impact of these regulations, given that there is no perfect counterfactual to compare with. In other words, if a region implements a regulation, one can not compare the resulting prices for gasoline and diesel with the that would have occurred in that same region, but without the regulation. Nonetheless, quantitative and statistical analyses can provide insights into the effects of the regulations. The weight of evidence indicates that the price ceiling regulations have not resulted in lower prices for consumers, though the conclusions are not unanimous.

Sen et al. (2011), analyzed historic price data to compare how prices have varied in cities with price ceilings in Atlantic Canada compared with prices in control cities in Ontario and Québec. The implementation of price ceilings are significantly correlated with higher prices, hypothetically because the ceilings provide a focal point for price setting where there is conscious parallelism.

Research by the Atlantic Institute for Market Studies (2017), also concluded that the regulations have resulted in higher prices in Atlantic Canada. However, the argument is less compelling since it is based on pre- and post- regulation average prices and margins, rather than a comparison to a control group of cities over the period when the regulations were in effect. In other words, this study does not rule out the possibility that prices would have even been higher after the start of the regulation, even if the regulation has not been implemented.

In contrast, an empirical analysis of gasoline prices across Canada finds that price regulations in New Brunswick helped converge prices toward the Canadian average while reducing volatility, indicating that regulation in New Brunswick did reduce prices. That same study found that price regulations in Nova Scotia did not result in convergence with the Canadian average, indicating that the Nova Scotian regulation did not have the same success (Suvankolv, 2012).

In the case of Hawaii, we found no quantitative evaluation of the success or failure of the Gas Cap Law. The state Public Utilities Commission stated that in the absence of a comparison to a counterfactual reality without the regulation, it is impossible to know whether the Gas Cap Law benefited consumers (Hawaii PUC, 2006). Regardless, it was perceived as a failure and quickly removed.

3. Price Transparency in British Columbia Relative to Elsewhere in North America

3.1. Fuel Market Information Available for British Columbia

There is a substantial amount of publicly available data that describe the British Columbian fuel market, either for free or through a subscription. These data provide some price transparency, in that it allows an observer to gain some insights into what might affect prices in this market. The data cover prices and volumes for crude oil and finished products. Data providers include the Kent Group Ltd. and the Oil Price Information Service (OPIS). The available information and the extent to which there is price transparency in British Columbia has not changed in recent years (e.g. it has remained the same since 2015, when some market observers feel that fuel prices in British Columbia began to diverge from their expected levels).

The Kent Group provides:¹

- Daily crude oil prices for benchmark crudes (Brent, WTI) and Albertan crudes, including Western Canadian Select (a heavy crude blend), synthetic crude (produced from upgraded bitumen), light-sweet crude.
- A daily survey of gasoline and diesel retail prices by city, covering seven British Columbian location.
- Daily wholesale gasoline and diesel prices by city, with four British Columbian locations and two suppliers (Suncor and Shell). In this case, wholesale refers to “rack” pricing, which is the wholesale price that refineries charge to their clients (e.g. a distributor purchasing by the truckload from the fuel terminal).
- Retail gasoline and diesel sales volumes by individual retail sites, collected bi-monthly to quarterly and broken down by brand and fuel grade

¹ The Kent Group Ltd. ([link](#))

OPIS provides:²

- Daily wholesale rack prices for gasoline and diesel at eight British Columbian locations, as well as Edmonton, and relevant markets in Washington State (e.g. Anacortes, Seattle).
- Daily spot prices for gasoline and diesel fuels priced in the Pacific Northwest market (e.g. Anacortes). Spot prices apply to large volume wholesale transactions (e.g. ocean tanker volumes) in a given market (e.g. Pacific Northwest) but do not include transportation costs to fuel terminals where “rack” sales take place.
- Daily wholesale rack pricing for ethanol and biodiesel in Seattle, and for biodiesel in Vancouver.
- Daily retail prices at fuel numerous fueling stations, and specifically for diesel at truck stops.
- Frequent reports on benchmark crude oil prices (e.g. Brent and WTI)

Other data are available from several other sources. For example, rack prices are published by some fuel suppliers.³ Pipeline transportation costs and throughput is available for the Trans Mountain pipeline from the National Energy Board.⁴ The Port of Vancouver, provides an annual account of inbound and outbound shipments of gasoline and diesel to/from the United States, all foreign nations, and other domestic locations.⁵ International trade with countries other than the United States can be inferred from this data. Prices for other crude oils supplied to the British Columbia and Pacific Northwest market are also available. The US Energy Information Administration publishes monthly prices in North Dakota (Bakken crude oil)⁶ and the Alaska Department of Revenue publishes daily prices for Alaska North Slope (ANS) crude oil.⁷

² OPIS ([link](#))

³ E.g. see Shell Terminal Rack Price ([link](#))

⁴ National Energy Board, Pipeline Profiles: Trans Mountain ([link](#))

⁵ Port of Vancouver, Statistics Overview ([link](#))

⁶ EIA ([link](#))

⁷ Alaska Department of Revenue ([link](#))

There are still data gaps that keep the price of gasoline and diesel in British Columbia “opaque”. In his systematic review of the literature on gasoline pricing Eckert (2011) notes that the available price data does not fully represent the complexity of the market. There may be multiple rack prices depending on the relationship of fuel suppliers to the wholesale distributors and retailers. The price for unbranded retailers can be different from the potentially discounted price for branded retailers. Furthermore, it is difficult to discern distribution and marketing costs from retail and wholesale price data since the fuel can either be directly distributed by the refiner or by wholesalers who have a range of relationships with fuel suppliers (e.g., owned, leased, branded and contracted, or independent) (Eckert, 2011).

Additional unknowns include:

- The specific slate of crude oils used by refiners
- Actual transport costs by unregulated modes, such as boat, rail, truck; these can only be estimated based on assumed distances, volumes and typical transportation costs.
- The business costs of refining, wholesaling and retailing, aside from petroleum crude and product inputs costs
- The specific supply agreements between various market players, including the durations, volumes, exclusivity and discounts in these agreements.
- Renewable fuel procurement and handling costs, including costs for ethanol, biodiesel and hydrogenated renewable diesel; these can only be estimated based on relevant market prices (e.g. Vancouver spot price for ethanol) and typical transportation and handling costs.

3.2. Fuel market Information Available for Other Regions in North America

OPIS’ or similar reporting is available for most markets across North America. In that regard, price transparency in British Columbia is the same as elsewhere on the continent. In general, the Canadian regulations described earlier in this report have not documented any additional measures to ensure price transparency: regulators must track the benchmarks relevant to each regulation (e.g. gasoline priced in New York Harbour), monitor the regulated parties to ensure compliance and set reasonable margins (E.g. for transportation to rural regions). Most transparency measures

included in these regulations are designed to better inform consumers of current prices. In contrast, the Hawaiian Gas Cap Law involved substantial efforts to improve price transparency, and these efforts continue even though the price cap was removed. As well, California, and Washington State to some extent, monitor the fuel market, thereby increasing price transparency, even though the states do not currently regulate prices.

Hawaii

At the time of the Gas Cap Law, the government of Hawaii started the Petroleum Information Monitoring and Analysis and Reporting (PIMAR). The program collected weekly data from 25 different fuel supplies and distributors operating in Hawaii. The data included petroleum product imports and export volumes and values, product inventories, fuel production, retail and wholesale transactions, and gross margins. This information was provided to the government, the Public utilities Commission (the state energy regulator) and their analysts. Some of the information is publicly available, but only in a redacted and aggregated form. Despite this enhanced reporting, the data still did not provide an understanding of the overall costs of doing business for various actors within each segment of the market (i.e. to calculate net margins, profits or return on capital with certainty) (State of Hawaii PUC, 2007). In 2009, PIMAR was replaced with the Energy Industry Information Reporting Act (EIIRA) (State of Hawaii PUC, 2010). The corresponding data collection program (EIIRP) requires monthly reporting of essentially the same data as PIMAR, with the required forms and reporting instructions posted on-line by the Hawaii Department of Business, Economic Development and Tourism.⁸

California

The California Energy Commission (CEC) provides its own monitoring and analysis of the state fuels market. It has done direct price monitoring and ongoing analysis of supply to ensure reliable supply for economic activity and in case of emergency, with the intended audience being the CEC and the state government. The information is primarily gathered by subscription (e.g. OPIS retail, wholesale and spot prices for the market). It is also gathered under the Petroleum Industry Information Reporting Act (PIIRA), where refiners, producers, transporters, marketers, pipeline and terminal operators must report product volumes, prices, transportation modes and sources on

⁸ Available from: <https://dbedt.hawaii.gov/economic/eiirp/>

a weekly, monthly, and annual basis.⁹ PRIIRA was in place prior to the Hawaiian PIMAR and EIIRP initiatives, which were in fact inspired by California's data collection.

Up until 2017, the California Petroleum Market Advisory Committee also studied and reported on the state of the petroleum market to the CEC. The committee is a panel of experts from outside the CEC that was formed to study the state petroleum market, notably high prices and price volatility for gasoline and diesel. It used publicly available data and information provided by stakeholders (excluding refiners, who cited anti-trust issues). The committee did not collect additional data that were not publicly available. In its final report to the CEC, the committee ultimately did not agree upon any specific policy would address fuel price issues in California.¹⁰

Recently, the CEC communicated to the governor that market manipulation may be one reason for higher fuel prices in California and is launching a five-month long investigation (McGreevy, 2019). This initiative may lead to greater regulated price transparency for the purposes of the investigation.

Washington

Currently, Washington State produces the Quarterly Gasoline Report which uses public information to communicate to consumers the factors that contribute to gasoline prices.¹¹ The state did temporarily increase price transparency by commissioning a year-long study of gasoline prices in 2007-2008, but not through regulation. The State of Washington 2007-2008 Gas Price Study found that production capacity constraints and transport costs were responsible for the price increases that led to the investigation, not price manipulation. The study used subscription data (OPIS), surveyed independent wholesalers (voluntary: who they buy from, sell to, how they determine prices, supply contracts, etc.), and gathered stakeholder and public comment (Leffler, 2008).

⁹ California Energy Commission Petroleum Industry Information Reporting Act. ([link](#))

¹⁰ Petroleum Market Advisory Committee. ([link](#))

¹¹ Washington State Quarterly Gasoline Report ([link](#))

4. Market Conditions that Might Indicate a Need for Regulation

In the context of this discussion, regulation refers to either regulated price transparency or price regulation. The market conditions discussed below are based on experiences and conditions in other jurisdictions and based on empirical and experimental (i.e. modelled) research on the formation of transportation fuel prices (primarily gasoline).

The presence of these market condition may indicate a problem that needs to be monitored with regulated price transparency or ultimately corrected with price regulation. However, the existence of any one market condition does not prove there is anti-competitive behaviour, such as collusion, or a lack of competition in the market. Likewise, the absence of these market conditions does not prove the market is fully competitive. For example, prices cycling through the week is generally seen as a sign of strong price competition, but the existence of price cycles does not mean a market is fully competitive. Ultimately, the weight of evidence that relates to these market conditions can only inform a decision as to whether to regulate price transparency or prices themselves.

The market conditions that may indicate the need for price transparency and regulation are that:

- There is high or increasing market concentration and evidence of simple price setting strategies, such as firms following a price leader rather than trying to strategically maximize profits from both sales volumes and margins.
- There are few or no “independent” entities in the market.
- The price of crude oil is not a strong explanatory variable of the wholesale price of fuels.
- The wholesale price of fuels in relevant US markets is not a strong explanatory variable for the wholesale prices in nearby Canadian markets.
- The wholesale price of fuels is not a strong explanatory variable of retail prices.

- There is a lack of price cycling, which is understood as firms undercutting each other to gain market share, until one firm relents and raises prices, thereby “resetting” the market.
- Price responses to changes in wholesale or crude oil prices are “asymmetric”, meaning prices rise more rapidly than they fall when the price of inputs change.
- Available data indicates returns on capital are above industry normal or what is needed to attract new investment.
- An economic model of the market indicates that fuel prices are above what they would in a competitive market.

4.1. Market Concentration and Price Leadership

Market concentration refers to the quantity of market share held by the leading firms that participate in that market. Typically, it is expressed in terms of the fraction of a market held by a given number of firms. For example, based on operating capacity, about 80% to 90% of fuel supplied to the Vancouver-area market¹² is controlled by four firms (National Energy Board, 2018), which is generally considered to be a highly concentrated market, though the calculation should be based on the volumes or value of fuels sold. High market concentration can lead to a lack of competition, especially when market concentration in the retail market is paired with concentration in the wholesale market through vertical integration (i.e. refiner owned retail sites) and long-term and/or exclusive supply contracts (Eckert, 2011). However, the concentration in the British Columbian market is not unusual for Canada. Nationally, the four firm concentration ratio based on Canadian operating capacity is 72% (National Energy Board, 2018), but regional markets could be more concentrated, depending on the size of the market share of American refineries that also participate in those regional markets.

Market concentration has previously prompted The Competition Bureau of Canada to act, as in 2009 when Petro-Canada and Suncor merged. The Bureau found that the merger would create an unacceptable level of market concentration in the greater-Toronto area, considering both the control of refineries and import/distribution infrastructure. The number of refining firms supplying the market would fall from six to five, while the terminal at the end of the pipeline from Montreal would be almost

¹² Vancouver Island and the Lower-Mainland extending from Pemberton to Metro Vancouver to Hope

completely controlled by the new merged entity. The Bureau required the merged parties to guarantee access to another wholesaler at the terminal for ten years and guarantee to provide wholesale volumes to non-integrated retailers (i.e. to the independents not affiliated or owned by any of the refineries) (Competition Bureau of Canada, 2013).

Concentration was also one of the key drivers of the Hawaii Gas Cap Law. The state fuel market was supplied by two refiners and one independent wholesaler with import capacity (i.e. a wholesaler that is not affiliated with oil companies and could offload and store significant quantities of fuels imported from the Pacific Rim). Furthermore, the ability of the independent wholesaler to sell to other wholesalers, distributors and retailers on spot basis was constrained by the potential buyers' exclusive supply arrangements with the refiners. On this basis, regulators and the public suspected that there was uncompetitive market, though illegal collusion was not proven in court (Finizza et al., 2003).

Despite concerns over market concentration, it does not necessarily lead to uncompetitive behaviour. For example, in game theory, the example of the two-person "game" known as the prisoners' dilemma has a rational outcome that does not involve a cooperative strategy to maximize the benefit to each player. In the prisoners' dilemma, two players who can not communicate are accused of the same crime. If both players say nothing, they both go free. This is the cooperative strategy. If one informs on the other, the informer gets a light sentence, while the other goes to prison for life. If both inform on each other, they both get a light sentence. This is the uncooperative strategy. Not knowing what the other player will do, the rational choice for each player is to inform on the other, or in other words, not cooperate. By analogy, a two-firm market could also be non-cooperative and competitive.

The difference between the prisoners' dilemma example and price setting in the fuels market, is that price setting is a repeated "game". Each firm can learn about the other's behaviour based on past actions. The negative consequence of trying to be cooperative and maintaining a high price is small: Other firms may undercut the cut, resulting in a temporary loss of market share until a new price is set. In this case, one model of oligopolistic competition may occur, where the entity with the greatest market share becomes a price leader. Other firms follow the price changes of the price leader rather than trying to set prices to maximize their own profits from both the price and quantity of fuel sold.

Research indicates that although many fuel market participants use complex pricing strategies, there are still instances where price leadership is used (Eckert, 2011).

Furthermore, the information available to sellers mitigates the risk of price leadership because sellers see prices and can react to them much faster than consumers can. The price leader has little risk in raising their price: They can backtrack before incurring a substantial loss if others do not follow. Likewise, followers have little risk of following: They can also backtrack before losing too many sales if the price leader changes course (OECD, 2003).

Consequently, evidence of simple price setting strategies, such as following a price leader, may also indicate a problem with a fuel market that requires greater transparency. Alternatively, price transparency may reveal simple price setting strategies, demonstrating a lack of competition. If market concentration is found to be too high, then the Competition Bureau of Canada might be able to act to reduce concentration, as it did in the case of the Suncor and Petro-Canada merger. Alternatively, the BCUC could regulate either wholesale or retail prices, depending on where the concentration and lack of competition exists.

4.2. “Independent” Entities in the Market

Following on from the example of Hawaii, the fuel market may need regulated price transparency or price regulations if:

- There are few or no independent wholesalers who can import fuels to the regional market from other regional markets.
- There are few or no independent retailers that might buy from an independent wholesaler/importer.
- Many or all wholesalers and retailers have long-term and exclusive supply contracts with refining/oil companies.

In all these instances, there is less opportunity for price arbitrage (i.e. taking advantage of lower prices in other markets) and likely greater concentration of the fuel supply market. Note that independent firms are not intrinsically more competitive than the oil and refining companies and their affiliates. Rather, their presence results in less market concentration and less market power for any given company and is generally associated with greater price cycling (Noel et al., 2007), which typically indicates greater price competition (Eckert, 2011). Furthermore, independents in less concentrated markets generally have aggressive pricing strategies and are more likely to undercut prices (Byrne and Ware, 2011).

As in the case of market concentration, who the regulator is and what is regulated will depend on which segment lacks independent entities, what are the reasons for that situation, and how it affects prices (e.g. Is it an impact on just wholesale or just retail margins, or both). Again, as in the case of the Suncor and Petro-Canada merger, the Competition Bureau could intervene to require companies to divest some of their assets to other firms (e.g. distribution terminals, wholesaling or retailing operations) or guarantee market access to independent firms (e.g. minimum required wholesale volumes). Alternatively, the BCUC could intervene to regulate the segment of the market that lack competition, either with wholesale or retail price controls or both.

4.3. The Relationship Between the Price of Crude oil and Wholesale Fuel Prices

In addition to looking at market concentration and the presence of independent entities, problems with the fuel market can be assessed using statistical tests for typical pricing relationships. In 2001, the Conference Board of Canada developed a suite of statistical tests and used them to study the function of Canadian fuel markets and to look for potentially uncompetitive markets (Conference Board of Canada, 2001). At the time, none of the tests indicated a problem. These tests were used again by the Competition Bureau of Canada in 2005 to look for evidence of anti-competitive acts or behaviours, who again found no issues with Canadian fuel markets (Competition Bureau of Canada, 2013).

The first statistical test reviewed the relationship between crude oil prices and wholesale prices. The wholesale price of fuels is comprised of the crude oil input cost at the point of refining (i.e. includes the crude oil transportation costs), the refining margin (refining cost and profit) and the cost to transport finished fuels to the wholesale terminals. The price of crude oil is consistently the most important driver of the overall wholesale price in the literature (Eckert, 2011) and should be the strongest explanatory variable for the wholesale price. If that is not the case, or there is a weakening on the relationship, that could indicate a problem with the fuel market.

However, it is important to consider the marginal crude oil supply in a given market when testing this relationship. The marginal crude oil is the most expensive crude stream entering a market. A properly functioning wholesale market would allow the price to rise until demand is satisfied, and that might entail using a higher cost crude oil (e.g. from a more distant market, or a higher priced market). In a competitive market, the price of the marginal crude oil supply will have the strongest relationship with the wholesale price.

In the case of the British Columbian fuel market, most fuels come from either Albertan light or heavy crude oil. However, the Washington State refineries that can also supply the Lower-Mainland also receive oil from North Dakota (Bakken) and Alaska (ANS) (Morningstar Commodities Research, 2017). In this case, ANS transported to the Washington refineries is likely the marginal crude oil supply. Other possibilities for the marginal supply would be oil imported by sea from elsewhere in the Pacific, or by rail. However, Port of Vancouver data indicates that almost no crude oil enters the market by ocean tanker, so other ocean imports are likely negligible (Port of Vancouver, 2019). Given the discount in “land-locked” crude oils, it is likely that oil delivered by rail would still be less expensive than ANS.

A weak relationship between crude oil prices and wholesale prices indicates that a regulator should focus on correcting wholesale prices. If the problem is a result of anti-competitive behaviour, then intervention should come from the Competition Bureau of Canada. If the problem comes from a lack of competition, then the intervention should come from the BCUC.

4.4. The Relationship Between US and Canadian Wholesale Fuel Prices

Because of cross-border trade in fuels, wholesale prices in Canada should be closely related to wholesale prices in the United States (Conference Board of Canada, 2001). Trade between markets should level out the price between them; If one market has higher prices, that should incentivize suppliers in other markets to sell more fuels in the higher priced market, which will raise and lower the respective prices until they are similar, net of transportation costs between them.

The Conference Board of Canada tested the relationships wholesale prices in Canadian markets and the price in New York Harbour, which in turn serves as a benchmark for many US markets. The results showed a strong relationship between them. Therefore, If US wholesale prices are not a strong explanatory variable of Canadian prices, or if the relationship is weakening, then there may be a problem in the Canadian market in question.

The example of the Hawaiian Gas Cap Law demonstrates that it is important to test this relationship for markets that are linked through trade while considering transportation costs and constraints. The Hawaiian wholesale price was benchmarked to markets that only have a small influence on its fuel market: New York, the US Gulf

Coast and Los Angeles. These markets experienced price fluctuations that should not have greatly affected Hawaii (State of Hawaii PUC, 2006).

Consequently, one should test the Canadian/US wholesale price relationship for markets that are closely linked by trade, for example the Lower-Mainland and the Seattle area. Furthermore, Washington state's prices, which could affect British Columbia's, are influenced by California's prices (Taylor and Fischer, 2003) because Washington's refineries can also sell into the California market, and there is little spare refining capacity on the West Coast (Morningstar Commodities Research, 2017).

A problem with the relationship between Canadian and US wholesale prices indicates that regulation of wholesale prices is needed. If there is anti-competitive behaviour, it would be the responsibility of the Competition Bureau of Canada, whereas a lack of competition would likely become the responsibility of the BCUC.

4.5. The relationship Between Retail Prices and Wholesale Prices

The retail market is generally expected to be relatively competitive on fuel prices (to the extent possible given wholesale prices). Because ancillary sales (e.g. convenience store items) form a large part of retail profits, there is an incentive to increase the number of customers visiting the fuelling station with competitive fuels pricing, thus maximizing overall retail profits, rather than just profits on fuel sales (Competition Bureau of Canada, 2013). Nonetheless, there have been incidents of anti-competitive behaviour in the Canadian retail fuels sector, for example in Québec and Ontario (Competition Bureau of Canada, 2013), so it is important to also investigate retail prices.

Retail prices are formed from wholesale prices plus taxes and margins for distribution and retailing. Taxes are fully transparent and the wholesale price accounts for almost all of the pre-tax retail price. Consequently, the variation in retail prices over the long run should be primarily defined by wholesale prices. Again, the Conference Board of Canada developed a statistical test for this relationship and found that in the year 2000, wholesale prices were a statistically significant and strong explanatory variable for retail prices in fuel markets across Canada (Conference Board of Canada, 2001). However, a different result or weakening of this relationship for a given market may indicate a problem. Note that it is important to test this relationship over the long run as retail prices may fluctuate over each day and week, even in a properly functioning market.

If regulation is used to address a problem in the retail market, it should apply to retail prices or margins. If there has been anti-competitive behaviour, as in the case of the retail price cartels in Québec and Ontario, then the Competition Bureau should investigate. Correcting a lack of competition would fall to the BCUC.

4.6. Price Cycling

Rapid fluctuations in gasoline and diesel prices over each day and throughout the week are known as “Edgeworth Cycles”. Within the model of Edgeworth Cycles, firms will incrementally undercut each other with many small price reductions as they compete for market share. Eventually, one firm will relent and stop trying to maximize profits with greater market share and will instead raise their prices to maximize profits with a higher margin. Other firms will follow that price increase since they no longer need to lower prices to be competitive, so the Edgeworth Cycle is characterized by fewer large price increases and many small price reductions. Because firms can easily know the prices used by their competitors (e.g. with drive-by checks or online information), it is not unusual for prices to be very similar across many retail stations and for price changes to happen almost concurrently.

Most research indicates that rapid retail price cycles that fit the Edgeworth Cycle model are the result of competition (Eckert, 2001). Canadian data from the 1990’s indicates that price cycles are more prevalent, larger and faster in less concentrated markets where there are more independent entities, while a lack of variability in prices tends to occur in markets with fewer firms (Noel et al., 2007).

In short, price volatility may be indicative of more competition. Even though some existing fuel price regulations are designed to reduce price volatility, a lack of price cycling may indicate a lack of competition in the market that merits greater price transparency or even price regulation.

Price cycling is generally a phenomenon of retail prices, so a lack of price-cycling likely indicates that some intervention is needed to correct the retail market. However, if a lack of price cycling is a result of retail price controls coming from wholesalers and/or refiners, then regulation of the wholesale market would be needed. Where the problem is a result of anti-competitive behaviour, it would be the responsibility of the Competition Bureau. A lack of competition would likely be the responsibility of the BCUC.

4.7. Asymmetric Prices

Prices are asymmetric when retail fuel prices change more quickly in response to increases rather than decreases in wholesale prices. Asymmetric pricing could also apply to the response of wholesale prices to crude oil prices. In either case, asymmetric pricing may indicate a problem with the market that merits greater transparency.

The Conference Board of Canada developed and applied a statistical test for asymmetric pricing in Canada and at the time, found no evidence of the phenomenon (Conference Board of Canada). However, signs of asymmetric pricing were previously observed in the Vancouver market where wholesale prices seemed to deviate from the average of other markets for longer periods (Jaccard, 1996). In the case of the retail-pricing cartels that were discovered in Québec, the main mechanism of collusion was delaying reductions in retail prices when wholesale and crude oil prices declined, thereby securing a period of higher margin sales (Clarke and Houde, 2013). Lastly, the literature reviewed by Eckert (2011) shows that there is statistical evidence of asymmetric pricing in some markets, where previously high prices provide a focal point for price setting among few market actors where there is conscious parallelism (Eckert 2011). For example, retail prices are slower to respond to wholesale prices in more concentrated rural Ontario retail markets (Byrne and Ware, 2011) and Canadian markets with fewer independent entities (Noel et al., 2007).

However, even where asymmetry exists, it is not a guaranteed sign of an uncompetitive market, though it may still warrant intervention. Another accepted model of price asymmetry relates to consumer search effort: Consumers tend to search less for lower prices when prices have been high, putting less downward pressure on prices (Eckert, 2011). In this case, reducing the search effort required to find lower prices can reduce price asymmetry and increase competition in the market. For example, the Fuelwatch program in Western Australia requires retail stations to upload the price they will charge for the following day to a central database which is easily accessible by consumers. Critically, these prices are announced at 2pm the day before they are in place and must be kept for 24 hours so consumers can act on the available information. Analysis of this program has shown that it has mostly eliminated price asymmetry in Western Australia (Byrne et al., 2014).

Asymmetric pricing may occur in either retail or wholesale prices and if regulation is needed, the point of intervention should correspond to where prices do not behave symmetrically. Where this asymmetry is the result of collusion or other anti-competitive

behaviour, the Competition Bureau of Canada would intervene, as it has done before. If asymmetry is caused by a lack of competition, it could fall to the BCUC to correct the problem. Alternatively, if price asymmetry appears to be the result of price searching habits, then the government could implement a program like Western Australia's Fuelwatch to increase retail competition.

4.8. Returns on Capital

Excessive profits, either resulting from anti-competitive behaviour or a general lack of competition, will appear as very high returns on capital employed by firms on their annual financial balance sheets (or estimates thereof). While excessive returns on capital may indicate a problem in the fuel market, there are challenges in assessing this indicator. First, the necessary data may not be publicly available to evaluate the returns to capital for a firm's operations within a specific market. Instead, the available information, such as corporate annual reports, may cover all their "downstream" operations (i.e. downstream of crude oil production and transport). Second, what is considered "excessive" is subjective. An undersupplied or uncompetitive market will provide high returns on capital, but it is these returns that create the incentive for new investment.

In the research leading up to the Hawaiian Gas Cap Laws, the consultants retained by the Public Utilities Commission produced pro-forma financial statements for the Hawaiian refiners. They estimated the returns on capital employed to be 12% and 6% per year for the refineries, noting that industry-wide, the rate can range from less than zero to as high as 20% (Finizza et al., 2003). Similarly, the Conference Board of Canada found that Petro-Canada, Shell and Imperial Oil were earning between 1.7% and 15.7% returns on capital between 1993 and 1999 (Conference Board of Canada, 2001).

Excessively high returns on capital suggest a problem with the wholesale price, which includes returns to the large quantities of capital invested in refining capacity. Consequently, if regulation is used to address this problem, it should likely focus on the wholesale price.

4.9. Experimental Results

Experimental results produced from an economic model of the fuel market can supplement the empirical indicators described above to support a decision on regulating price transparency or regulating prices. For example, Slade (1987) built a

model of the Vancouver retail gasoline market where the agents within the model could use price setting behaviours that ranged from competitive through to cooperative (i.e. collusive). The results of the model were compared to actual market outcomes, indicating that although the observed prices were not the result of perfect collusion, they were higher than would be expected in a competitive market (Slade, 1987). Other experimental results summarized in Eckert (2011) indicate that market power is low in the case of Maui and Kauai, Hawaii, and Québec City, Québec.

While building a market model would require substantial effort and data, it could supplement the empirical indicators described above and provide insights on the greatest uncertainties and most important price setting dynamics in the British Columbian fuel markets.

5. Summary and Conclusion

This report has summarized the gasoline and diesel price regulation and price transparency measures that have been used in North America over the past two decades. Currently, Newfoundland and Labrador, Nova Scotia, New Brunswick and PEI have price ceilings, while PEI and Québec have price floors. Several jurisdictions in the United States have price floors, also known as “sales-below-cost” laws. The only recent example of a price ceiling in that country is the Hawaiian Gas Cap Law. The evidence on the impact of these regulations mostly indicates that the prices ceilings likely have not resulted in lower prices for consumers. The Hawaiian Gas Cap Law was perceived to be a failure and was eliminated less than a year after it was implemented.

Despite losing its price cap, Hawaii maintained the requirements for price transparency that were developed with the Gas Cap Law. These require all market entities to report to the government and energy regulator regarding the volumes and prices of petroleum products and inputs for all their transactions, as well as gross operating margins. This system of price transparency is based on a similar program in California that is also still in effect. British Columbia does not have the same level of price transparency as Hawaii or California. However, the oil and fuel market data available for British Columbia, primarily through subscriptions, is similar to what is available elsewhere in North America.

The presence of nine market conditions should be considered when determining whether the British Columbian needs to regulate further price transparency, or whether it needs price controls. However, the existence of any one market condition does not prove there is anti-competitive behaviour, such as collusion, or a lack of competition in the market. Likewise, the absence of these market conditions does not prove the market is fully competitive. These market conditions are that:

- There is high or increasing market concentration and evidence of simple price setting strategies, such as firms following a price leader rather than trying to strategically maximize profits from both sales volumes and margins.
- There are few or no “independent” entities in the market.
- The price of crude oil is not a strong explanatory variable of the wholesale price of fuels.

- The wholesale price of fuels in relevant US markets is not a strong explanatory variable for the wholesale prices in nearby Canadian markets.
- The wholesale price of fuels is not a strong explanatory variable of retail prices.
- There is a lack of price cycling, which is understood as firms undercutting each other to gain market share, until one firm relents and raises prices, thereby “resetting” the market.
- Price responses to changes in wholesale or crude oil prices are “asymmetric”, meaning prices rise more rapidly than they fall when the price of inputs change.
- Available data indicates returns on capital are above industry normal or what is needed to attract new investment.
- An economic model of the market indicates that fuel prices are above what they would in a competitive market

If there is an issue with a specific segment of the market, for example in the retail versus wholesale segment, price transparency or price regulations should focus on that segment. Similarly, the specific problems that are found may require a different regulator to intervene: Instances of collusion or anti-competitive behaviour would likely be dealt with by the Competition Bureau of Canada, while the discovery of a market that is simply lacking in competition might require regulation by the BCUC, or policy intervention by the provincial government to increase competition.

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