

# Phase 1 Report: Preliminary and Background Market Review

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Newfoundland and Labrador

**Board of Commissioners of Public Utilities**

Dated: November 3, 2022  
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Classification: CLIENT-COMMERCIAL

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# Introduction

As of December 31, 2020 the Province of Newfoundland & Labrador is home to 379 retail gasoline stations<sup>1</sup> and twelve cardlock locations supplied by nine bulk fuel plants and seven primary fuel terminals<sup>2</sup>. A refinery exists in the Province; however, as of 2020 the refinery is currently inactive and expected to be converted to a renewable fuels production facility. In 2019, the Province consumed 884 million litres of gasoline, 298 million litres of diesel fuel for transportation use, and 124 million litres of light fuel oil - heating fuel for residential use<sup>3</sup>.

Fuel prices have been regulated in Newfoundland & Labrador since 2001. In 2004, the Newfoundland and Labrador Board of Commissioners of Public Utilities (Board) became responsible for price regulation of petroleum products throughout the Province. Under the authority for price regulation in the Petroleum Products Act, the Board regulates the price of motor fuels (gasoline and diesel) and heating fuels (furnace oil, stove oil, and propane) in Newfoundland & Labrador by setting the maximum price for which these petroleum products can be sold.

Maximum fuel prices are published weekly, every Thursday. The benchmark price is based on an average of the NYMEX (New York Mercantile Exchange) commodity market data for the preceding seven-day period (Wednesday through Tuesday). A total allowable mark-up for each fuel is added, plus a differential based on location (pricing zone), if applicable to reflect the costs associated with the storage and distribution of the fuel products, taxes are added, and lastly, any allowed service costs are added. Intervention adjustments to the benchmark price may be implemented when there is significant volatility in market prices caused by such factors as natural disasters, infrastructure problems, significant demand imbalances with supply, or geopolitical events.

The total allowable mark-up set by the Board is meant to cover all costs in getting products from their source to the end consumer and provide a reasonable allowance for return on investment for participants in the supply chain. This mark-up only changes if the Board initiates a change or approves a change from an application by a retailer or wholesaler.

Due to the vast geography of Newfoundland & Labrador, the Province is divided into several pricing zones to reflect each region's unique logistical infrastructure associated with the transportation and storage of fuel products from one region to another (ferry, marine tanker, drum, tractor-trailer/tank wagon costs, volumes of sales/product turnover, etc.). Failure to account for these regional discrepancies could result in supply disruptions if the rate of return becomes economically infeasible for fuel suppliers. This includes the Board's decision to suspend price adjustments in some areas of Labrador during the winter months due to the winter freeze-up affecting shipments. In 2021 and

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<sup>1</sup> Service NL

<sup>2</sup> Kent Group 2017 Infrastructure report

<sup>3</sup> Statistics Canada, table #25-10-0030-01

2022, the Board implemented suspensions to the maximum price adjustment during the spring following a 2020 Petroleum Product Pricing Review for Labrador.

As outlined in the Petroleum Products Regulations, the Board uses data published on a daily basis from Platts U.S. Marketscan to obtain pricing for gasoline, diesel, furnace oil, stove oil, ultra-low sulphur kerosene, and jet fuel. In the winter months, the Board uses a blend of two products for furnace oil (75 percent jet fuel with 25 percent ultra-low sulphur diesel) to improve performance in the cold climate. Similarly, diesel fuel is blended during winter months to improve pourability in cold temperatures and meet sulphur content requirements (25 percent ultra-low sulphur diesel and 75 percent ultra-low sulphur kerosene). Weekly propane data is received from Oil Price Information Service based on the Sarnia rack price in Ontario.

## About Kalibrate

Kalibrate provides excellence in data analytics and consulting services relating to the downstream petroleum industry. Our predecessor companies are Kent Marketing Services Limited, established in 1970 and MJ Ervin & Associates, established in 1990. Kalibrate is frequently engaged within the market to provide regulatory analysis, industry research, petroleum market and price analysis, margin analysis, strategic analysis and planning, performance benchmarking and expert analysis and testimony.

Kalibrate has been contracted to conduct a petroleum products review that has been separated into three phases. Phase One of the review sought to review the overall state of the market as a preliminary market scan prior to an in-depth evaluation of margins in the province. As part of the preliminary market scan macro market conditions were reviewed to determine the impact of recent events on refined fuel prices. A comparison of regulated and unregulated prices in Canada was undertaken, as well as a full review of the markets surrounding all refined fuels regulated in the province.

# Macro Market Review

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## Capacity Changes

The province of Newfoundland and Labrador was home to the North Atlantic Refinery located in Come by Chance, which had a refining capacity of 130,000 barrels per day (bpd) of crude oil and has been inactive since March 2020. In November 2021 the refinery was sold to Cresta Fund Management and renamed Braya Renewable Fuels<sup>4</sup> (Braya), with the intent to convert the facility into a biofuel refinery with operations commencing in August 2022. Instead of using crude oil, the refinery will use feedstocks such as soybean oil, canola oil, used cooking oils, and animal fats to produce diesel and aviation fuel with an anticipated output of 18,000 bpd<sup>5</sup>. However, the fuel produced at the refinery will be exported outside of Newfoundland and Labrador to markets in Europe, Canada, and the United States. As a result, fuel for local consumption will need to be imported into Newfoundland and Labrador<sup>6</sup> from markets such as Eastern Canada and Petroleum Administration for Defense Districts (PADD) 1 in the United States.

Eastern Canada is supplied by 7 refineries with a total capacity of 1,065 thousand bpd (kbpd) as outlined in Table 1<sup>7</sup>. Apart from the refinery located in Come by Chance, NL, refinery capacity for Eastern Canadian refineries has remain unchanged the past two years. As of September 2022, no capacity changes were planned for any of the Eastern Canadian refineries.

Refining capacity in PADD 1 totaled 869,900 barrels per day (bpd) as of April 2022, a decrease of 28.9% from 1,224,000 bpd from April 2020. This decrease was mainly a result of the Philadelphia Energy Solutions refinery permanently shutting down in 2020 following a major explosion in June 2019<sup>8</sup>. The refinery had a throughput capacity of 335,000 bpd and with its closure, PADD 1 is now serviced by 7 refineries as seen in Table 1<sup>9</sup>.

The remaining refinery capacity reductions occurred at PBF Energy's refineries in Delaware City, DE and Paulsboro, NJ where the companies undertook reconfigurations in October 2020 to idle refinery components as a result of ongoing fuel demand impacts caused by the COVID-19 pandemic<sup>10</sup>. These components included crude units, coker, fluid catalytic cracking units, and other smaller units. The

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<sup>4</sup> Energy, Oil & Gas ([Braya Renewable Fuels - Energy, Oil & Gas magazine \(energy-oil-gas.com\)](https://www.energy-oil-gas.com))

<sup>5</sup> CBC ([New Come By Chance CEO says refashioned refinery will be a leader in decarbonization effort | CBC News](https://www.cbc.com)), February 2022

<sup>6</sup> CBC ([Come By Chance refinery sold, will become biofuel operation by mid-2022 | CBC News](https://www.cbc.com)), November 2021

<sup>7</sup> EIA ([International - U.S. Energy Information Administration \(EIA\)](https://www.eia.gov)), July 2022

<sup>8</sup> Forbes ([After Explosion, Philadelphia Refinery To Be Permanently Shut Down \(forbes.com\)](https://www.forbes.com)), February 2020

<sup>9</sup> EIA ([East Coast \(PADD 1\) Number and Capacity of Petroleum Refineries \(eia.gov\)](https://www.eia.gov)), January 2022

<sup>10</sup> Oil & Gas Journal ([PBF Energy to reconfigure US East Coast refining system | Oil & Gas Journal \(ogj.com\)](https://www.ogj.com)), October 2020

resulting reductions have led to an additional 71,200 bpd of capacity removed from PADD 1's operating capacity.

*Table 1 - Eastern Canada and PADD 1 Refineries*

<b>Owner</b>	<b>Refinery Name</b>	<b>Location</b>	<b>Capacity (1000 bbl/d)</b>
Imperial	Nanticoke Refinery	Nanticoke	112.0
Imperial	Sarnia Refinery	Sarnia	121.0
Shell	Corunna Refinery	Sarnia	75.0
Suncor	Sarnia Refinery	Sarnia	85.0
Suncor	Montreal Refinery	Montreal	137.0
Valero Energy Corporation (Ultramar)	Jean-Gaulin Refinery	Quebec City	235.0
Irving	Irving Oil Refinery	Saint John	300.0
<b>Total Eastern Canadian Capacity</b>			<b>1,065.0</b>
PAULSBORO REFINING CO LLC	Paulsboro	New Jersey	105.0
ERGON WEST VIRGINIA INC	Newell	West Virginia	23.0
PHILLIPS 66 COMPANY	Linden	New Jersey	272.1
MONROE ENERGY LLC	Trainer	Pennsylvania	208.0
AMERICAN REFINING GROUP INC	Bradford	Pennsylvania	11.8
DELAWARE CITY REFINING CO LLC	Delaware City	Delaware	180.0
UNITED REFINING CO	Warren	Pennsylvania	70.0
<b>Total PADD 1 Capacity</b>			<b>869.9</b>

Source: Energy Information Agency, July 2022.

PADD 1 immediately impacts the overall price of refined fuels across the entire East Coast as the New York Harbour price is taken directly from PADD 1. Changes in price due to changes in supply and demand in the PADD 1 region will have an immediate impact on the prices observed in Newfoundland and Labrador as well as the other Atlantic provinces in Canada.

## Upcoming Outages, Changes and Modifications

Due to a global shortage of distillate fuels, refineries have been increasing output over the summer of 2022. Unleaded gasoline has continued to be produced as a by-product of the increased production of distillate fuels. While refinery shutdowns and an overall loss of capacity continue to be a theme for the industry, the trend is expected to ease in 2023. With the addition of the Exxon Mobil refinery in Beaumont, Texas, coker addition at the Valero refinery in Port Arthur, Texas and the restart of WIP refinery on the US Virgin Islands offsetting the planned shutdown of the Lydonn Bassel refinery in Houston, Texas, the mainland US is set to see refining capacity remain close to flat in 2023, and to grow when including offshore production. This marks the first increase in refining capacity since 2019<sup>11</sup>. However, this increase will not offset the losses seen in the last several years and is not expected to have a positive influence on supply to the North American or Global markets.

Incoming changes in 2023 that will result in increased capacity in North America will only replace capacity that is shuttered and will not result in an increase of refined fuel supply for the continent. As a result the price variations witnessed in 2022 as a result of a lack of excess supply will continue to be present in the market.

## Fuel Regulatory Changes

### CANADA

The *Clean Fuel Regulations* were registered in June 2022 by the Government of Canada with the goal of increasing incentives for the development and adoption of clean fuels, technologies, and processes to reduce pollution by reducing the carbon intensity of fuels such as gasoline and diesel 15% by 2030. The *Clean Fuel Regulations* will require producers and importers to reduce the carbon intensity of gasoline and diesel produced and sold in Canada. Beginning in 2023, the carbon intensity reduction requirement will start at 3.5 gCO<sub>2</sub>e/MJ and increase by 1.5 gCO<sub>2</sub>e/MJ each year, until reaching 14 gCO<sub>2</sub>e/MJ in 2030.

The Government of Canada is investing \$1.5 billion towards a Clean Fuels Fund, with the intent to increase support for domestic production and adoption of low-carbon fuels. By establishing a credit market, regulated producers and importers of gasoline and diesel must buy or create credits to

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<sup>11</sup> EnergyIntel ([US Refining Capacity to Creep Higher in 2023 | Energy Intelligence](#)), August 2022



comply with reduction requirements. The intended outcome should increase demand for low carbon intensity fuels, including those derived from canola and other agricultural crops<sup>12</sup>.

At this time the Atlantic provinces are not expected to introduce legislation above and beyond the changes being made at the federal level.

## ONTARIO

The province of Ontario established the *Cleaner Transportation Fuels Regulations* in November 2020 and requires that fuel suppliers blend 10% of renewable content in gasoline from 2020 to 2024. The requirement increases to 11% in 2025, 13% in 2028, and 15% in 2030. Additionally, the renewable content must emit fewer greenhouse gas emissions than fossil gasoline on a lifecycle basis by 45% before 2030 and 50% from 2030 onward. Fuel suppliers must also continue to blend 4% renewable content in diesel, and the renewable content must emit 70% fewer greenhouse gas emissions than fossil diesel on a lifecycle basis.

## QUEBEC

In December 2021, the province of Quebec released a low carbon intensity transportation fuel regulation mirroring Ontario and other jurisdictions. Beginning on January 1, 2023, gasoline and diesel fuels sold in Quebec must incorporate clean fuels to reduce greenhouse gases. Gasoline will require 10% low-carbon fuel content in 2023 and increase to 15% by 2030. Diesel will require 3% low-carbon fuel content in 2023 and increase to 10% by 2030. Additionally in both fuel pools, low-carbon content volume requirements will be adjusted by a carbon intensity factor, with volume bonuses awarded if the carbon intensity of low-carbon fuels in the year is more than 45% below gasoline carbon intensity, or 70% below the diesel carbon intensity. In 2028, the bonus will apply after 50% for gasoline and 75% for diesel<sup>13</sup>.

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<sup>12</sup> Government of Canada ([What are the Clean Fuel Regulations? - Canada.ca](#)), July 2022

<sup>13</sup> Advanced Biofuels Canada ([Government of Québec releases final low-carbon fuel regulation - Advanced Biofuels Canada](#)), December 2021

## UNITED STATES

The United States maintains the Renewable Fuel Standard, which originated with the *Energy Policy Act of 2005* that requires transportation fuel sold in the United States to contain a minimum volume of renewable fuels. The Renewable Fuel Standard required increasing amounts of renewable fuel to be blended each year, escalating to 36 billion gallons by 2022. Renewable fuels eligible for blending with transportation fuel includes conventional biofuel (derived from starch feedstocks), and advanced biofuel (derived from cellulosic or advanced feedstocks<sup>14</sup>).

### Potential Impacts to Eastern Canadian Supply Chains

Newfoundland and Labrador primarily receives transportation fuels from PADD I, see Figure 1, via marine tanker, and small amounts imported by rail from Quebec. This leaves the region's costs and supply chains tightly bound to marine shipping costs. The rail system that supplies some western regions of Labrador is also competing with other goods and commodities for access to the region and is susceptible to any labour action related to rail workers.

#### Petroleum Administration for Defense Districts

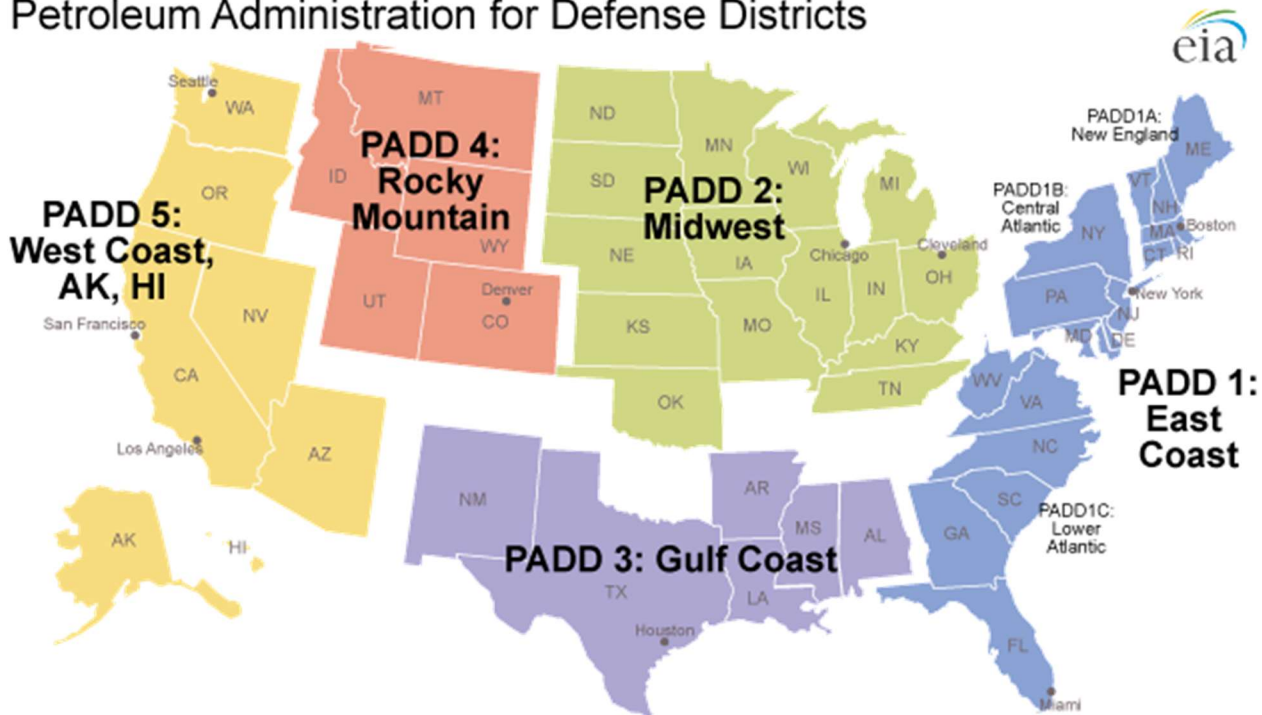


Figure 1 - US PADD Map - source EIA

<sup>14</sup> US Department of Energy - Advanced Fuels Data Center ([Alternative Fuels Data Center: Renewable Fuel Standard \(energy.gov\)](https://www.energy.gov/alternative-fuels-data-center/renewable-fuel-standard))

At this time there are no identifiable risks to supply or supply costs. It is expected that marine transport costs will remain fairly stable in the coming months and recent rail strike action has resulted in longer term contracts that should help stabilize supply to the region.

## Covid Impacts

The impact of the COVID-19 pandemic on petroleum markets since early 2020 has been substantial. During the peak shutdown phase in April 2020 gasoline demand in Canada declined 43.1 percent compared to the same month in the previous year, while diesel fuel demand was down 20.3 percent<sup>15</sup>. This amounted to an unprecedented decrease in demand and had a significant impact on refinery activity and petroleum inventory levels. Consequently, prices for petroleum products dropped sharply, particularly during the early months of the pandemic, which had a corresponding impact on product margins (refiner, wholesale, and retail margins).

In Newfoundland and Labrador, gasoline demand declined 8.7% in 2020 compared to 2019 values, while diesel sales declined 2.4% in the same time period<sup>16</sup>.

In April 2020 during the initial phase of COVID-19 lockdowns, regular unleaded gasoline prices averaged 81.4 cents per litre while diesel prices averaged 95.8 cents per litre. Recent prices in August 2022 have seen regular unleaded gasoline prices average 184.4 cents per litre, while diesel prices have also increased to an average of 202.9 cents per litre<sup>17</sup>.

## Ukraine and Russia War

### IMPACT ON GLOBAL CRUDE OIL AND FUEL SUPPLY CHAINS

The ongoing war between Russia and Ukraine since February 2022 has altered the global crude oil supply market as the international community has imposed sanctions on Russian crude oil exports in an attempt to weaken the Russian economy. Following the US ban on Russian crude oil imports on March 8, 2022 and European Union sanctions, Russian crude oil exports have increased to Asian buyers, specifically India and China.

West African imports into the European Union have increased 660,000 bpd, or 17% in April 2022 compared to 2018-2021 average as exports from Nigeria, Angola, and Cameroon increased to meet European demand. Conversely, West African exports to India have nearly halved with 280,000 bpd delivered in April 2022 compared to 510,000 bpd in March 2022 as India switched to Russian oil imports.

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<sup>15</sup> Statistics Canada ([Petroleum products supply and disposition, monthly, inactive \(statcan.gc.ca\)](https://www150.statcan.gc.ca/n1/pub/28-263-x/2020001/article/00001-eng.htm))

<sup>16</sup> Statistics Canada ([Sales of fuel used for road motor vehicles, annual \(statcan.gc.ca\)](https://www150.statcan.gc.ca/n1/pub/28-263-x/2020001/article/00001-eng.htm))

<sup>17</sup> Kalibrate ([charting.kalibrate.com](https://charting.kalibrate.com))

Supply from North Africa and the United States has also increased to Europe, with increases of 30% and 15%, respectively, for May 2022 compared to March 2022 numbers<sup>18</sup>.

## NEW TRENDS

In June 2022, the European Union imposed sanctions that will ban seaborne imports of crude oil as of December 5, 2022 and ban petroleum product imports from Russia as of February 5, 2023. The sanctions also ban European Union countries from providing shipping insurance, brokering services, or financing for oil exports from Russia to third countries<sup>19</sup>.

The G7 countries are set to cap the price of Russian oil on December 5, 2022 in an attempt to limit Moscow's ability to fund its operations. The price of Russian oil could be capped at \$40 - \$60 per barrel, which may work in the long-term but could boost oil prices in the coming months as Russia is the second largest exporter of crude oil<sup>20</sup>.

## Conclusion

The market has experienced some irregular impacts since the start of 2020, from the full shutdown of major economies to a recovery that is being impacted by a war with a major resource supply country.

The Eastern seaboard market will remain tightly linked to these global events as they carry forward. The Atlantic market is in close proximity to Europe and dynamics from that market will continue to influence prices in Newfoundland and Labrador.

Incoming clean fuel regulations will mean that ethanol markets, and by relation corn and wheat markets in the US, will increase in importance when it comes to fuel pricing.

The overall continued tightness in the North American refined fuel supply market will continue to influence prices in the province. Small changes and outages will have a larger influence on prices if demand continues to grow until consumers begin to change patterns and the expected decline in demand arrives.

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<sup>18</sup> Reuters ([Analysis: How the Ukraine conflict is reshaping global oil markets | Reuters](#)), May 2022

<sup>19</sup> Center for Strategic & International Studies ([Big Challenges for Russian Oil Price Cap | Center for Strategic and International Studies \(csis.org\)](#)), September 2022

<sup>20</sup> Reuters ([Explainer: The G7's price cap on Russian oil begins to take shape | Reuters](#)), September 2022

# Jurisdictional Overview

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Canada is home to five provinces that currently regulate fuel prices using a variety of methods and regimes. Newfoundland and Labrador, Nova Scotia, New Brunswick, Prince Edward Island and Quebec all regulate the price of fuel.

This report focuses on the provinces in Atlantic Canada and the regulations in those provinces.

## Prince Edward Island

Fuel prices in Prince Edward Island are regulated by the Island Regulatory And Appeals Commission (IRAC). The petroleum panel reviews three prices weekly: the daily price for each regulated petroleum product, the average week to date price and a volume weighted year to date average.

Prince Edward Island currently establishes a rack price based upon a series of market factors including the use of the Charlottetown Rack price for fuels. This establishes an accepted wholesale price, and then applicable taxes are added and the legislated retail mark-up can be applied. The legislated retail mark-up varies from 7 to 8 cents per liter for Self Serve and 7 to 10.5 cents per liter for Full Serve.

Prince Edward Island sets maximum and minimum prices for motor fuels and only a maximum price for furnace oil and propane. The province also incorporates a forward averaging component to their prices.

Prices in Prince Edward Island are set every Friday for refined fuels, and propane prices are set every second Friday.

Prince Edward Island does not have a published threshold value for the interruption of scheduled pricing. The province seeks to ensure that prices are “fair and just” and has given IRAC the capacity to intervene on pricing when they deem it necessary.

## PEI Summary

General Pricing Model	Minimum and maximum price based on daily price for gasoline and diesel; Maximum price only for furnace oil and propane, weekly average, and year-to-date average which is accounted into forward averaging adjustment
Products regulated	Gasoline, Diesel, Propane and Furnace Oil
Geographic Pricing Zones	One - all of PEI
Benchmark Pricing Mechanism	Charlottetown Rack and New York Mercantile Exchange
Adjustment frequency	Every Friday (except for Propane)
Mid-grade gasoline premium	3.5 cpl as of 2022-10-21
Premium-grade gasoline premium	6.9 cpl as of 2022-10-21
Extraordinary adjustments or interruptions methodology	Based on daily review of petroleum prices for gasoline, diesel, and furnace oil; applies to rising or falling prices

## Nova Scotia

The Nova Scotia Utility and Review Board sets minimum and maximum prices for petroleum products sold in Nova Scotia, with the jurisdiction to conduct investigations and hearings respecting the boundaries of the zones across the province, fixed wholesale prices, maximum retail prices and minimum and maximum retail mark-ups.

Nova Scotia currently establishes a benchmark price, wholesale price, a maximum retail price as well as a maximum and minimum retail mark-up. The wholesale price is based on a legislated mark-up from the established benchmark. After applicable taxes and a variable transportation cost, a retail mark-up of 5.4 to 7.4 cents per liter plus a credit card processing mark-up of 0.4 cents per liter for gasoline and 0.8 cents per liter for diesel is applied to arrive at the established price.

Prices in Nova Scotia are revised every Friday.

Nova Scotia has separated the province into six different zones with variable transportation costs being allowable in each zone to be combined into the total price of fuel.

Nova Scotia has a cap-and-trade system in place for its carbon levy costs, therefore the cost of carbon are estimates based off estimates from the Government of Nova Scotia.

Nova Scotia has an Interrupter policy that allows for prices to be revised outside of their scheduled weekly release when the calculated price deviates more than six cents per liter from the current posted price. Typically two days of sustained change is required to trigger the extraordinary price adjustment.

On September 9, 2022 Nova Scotia added an additional 0.4 cents per liter for gasoline and 0.8 cents per liter for diesel to their retail mark up to accommodate rising credit card fees.

### Nova Scotia Summary

General Pricing Model	Minimum and maximum price based on average of the average of daily high and low reported product prices from New York Harbour
Products regulated	Gasoline and diesel
Geographic Pricing Zones	Six
Benchmark Pricing Mechanism	New York Harbour on New York Mercantile Exchange
Adjustment frequency	Weekly on Fridays
Mid-grade gasoline premium	3.0 cpl
Premium-grade gasoline premium	6.0 cpl
Extraordinary adjustments or interruptions methodology	Two days or more of pricing change exceeding a 6 cpl difference from current posted prices; applies to falling or rising prices

### New Brunswick

The New Brunswick Energy and Utilities Board regulates the maximum prices for motor fuels and heating fuels. Prices by the Board are set based upon a seven-day average of commodities traded on the New York Mercantile Exchange (NYMEX).

Prices in New Brunswick are established based on the New York Harbour price and are revised weekly on Thursdays. In the province maximum wholesale prices, delivery cost and retail mark-ups for both self serve and full serve are regulated. The benchmark for gasoline is set based on the higher of E-10 or UNL 87. The maximum margin for wholesale is 6.51 cents per liter for motor fuel, 5.5 cents per liter for furnace oil and 25 cents per liter for propane. After applicable taxes are added retail margins are set at 7.33 cents per liter for motor fuels (with an additional 3 cents per liter available if full serve), 23.56 cents per liter for furnace oil and 25 cents per liter for propane. HST is applied after retail and wholesale margins and other applicable taxes are added.

New Brunswick also allows for fuel delivery costs of 3.5 cents per liter for motor fuels (5 cents per liter for the Gran Manan), 5 cents per liter for furnace oil and 10 cents per liter for propane.

New Brunswick has an extraordinary price adjustment mechanism that comes into effect when the net change in the price of fuel would exceed 6 cents per liter in a single day for gasoline and diesel, the change in price can be an increase or decrease in calculated prices. New Brunswick does not account for cumulative change over a series of days and only compares day to day prices. New

Brunswick has set the threshold for intervention on furnace oil at 5 cents per liter, either increase or decrease.

New Brunswick only has one zone for fuel pricing but does make an exception for the increased price of delivery to Gran Manan.

### New Brunswick Summary

General Pricing Model	Maximum price based on weekly average spot price for refined petroleum products at New York Harbour, volume of sales, storage costs, and inventory turnover rates
Products regulated	Gasoline, diesel, furnace oil, propane
Geographic Pricing Zones	One - all of New Brunswick
Benchmark Pricing Mechanism	New York Harbour on New York Mercantile Exchange and Sarnia for Propane
Adjustment frequency	Weekly on Thursdays
Mid-grade gasoline premium	3.0 cpl
Premium-grade gasoline premium	6.0 cpl
Extraordinary adjustments or interruptions methodology	6 cents per liter for automotive fuels and 5 cents for heating fuels; applies to falling or rising prices

### Newfoundland and Labrador

Prices in Newfoundland and Labrador are set by the Board. The Board sets prices for gasoline, diesel, furnace oil, stove oil and propane for space heating in the province.

In Newfoundland and Labrador prices are established based upon several indices that are publicly traded using the published values provided by Platts US Marketscan. The price is based on the high and low prices that have been observed over the preceding week from Wednesday to Tuesday in the base indices.

For motor fuels the maximum wholesale mark-up allowed for regular gasoline ranges from 10.65 to 15.65 cents per liter and 10.07 to 14.07 cents per liter for diesel. The maximum allowed retail mark-up ranges from 10.28 to 12.67 cents per liter for gasoline and for diesel the maximum allowed retail mark-up is 14.03 cents per liter.

For heating fuels the maximum wholesale mark-up ranges from 9.11 to 11.11 cents per liter for furnace oil and 8.11 to 15.61 cents per liter for stove oil. The maximum retail mark-up ranges from 16.27 to 18.27 cents per liter for furnace oil and 12.90 to 20.28 cents per liter for stove oil. The total allowed mark-up for propane ranges from 51.09 to 71.59 cents per liter.



Newfoundland and Labrador have a total of 26 pricing zones for automotive fuels, comprised of 14 base zones and 12 sub-zones, and 29 pricing zones for heating fuels, comprised of 14 base zones and 15 subzones. Zone differentials are set for each zone.

Prices in Newfoundland and Labrador are set each Thursday. There is an exception for extraordinary price adjustments when the differential between the calculated price and benchmark price exceeds 6 to 8 cents per liter at the discretion of the Board.

Propane prices in Newfoundland and Labrador are also regulated. Propane prices are based on the posted Sarnia price from the Oil Price Information Service.

### Newfoundland and Labrador Summary

General Pricing Model	Maximum prices are established by the Board based on an average of high and low prices over the last week for several base indices
Products regulated	Gasoline, Diesel, Furnace Oil, Stove oil and Propane for space heating
Geographic Pricing Zones	Fourteen Base zones with an additional twelve sub zones for gasoline and diesel. Fourteen base zones and fifteen subzones for heating fuels
Benchmark Pricing Mechanism	New York Harbour on New York Mercantile Exchange and Sarnia for Propane
Adjustment frequency	Weekly on Thursdays
Mid-grade gasoline premium	3.0 cpl
Premium-grade gasoline premium	6.0 cpl
Extraordinary adjustments or interruptions methodology	At the discretion of the Board and reviews are triggered when the calculated benchmark price differential exceeds 6 to 8 cents per liter.

Table 2 provides a summary of all regulated taxes, mark-ups and levies.

All Values in cents per Liter	Wholesale Markup	Retail Mark Up	Provincial Tax	Federal Tax	Carbon Levy	HST	GST	Comments
<b>Prince Edward Island</b>								
Gasoline	5.00	7.0 to 8.0 SS 7.0 to 10.5 FS	8.47	10.00	11.05	15%	n/a	Includes forward averaging adjustment
Diesel	5.00	7.0 to 8.0 SS 7.0 to 10.5 FS	14.15	4.00	13.41	15%	n/a	Includes forward averaging adjustment
Furnace Oil	21.5 Combined Margins		n/a	n/a	n/a	n/a	5%	Includes forward averaging adjustment
Propane	Maximum retail prices are set based on company/retailer on an individual tailored basis							
<b>New Brunswick</b>								
Gasoline	6.51	7.33 SS to 10.33 FS	10.87	10.00	11.05	15%	n/a	3.5 Delivery Cost; On Gran Manan 5.0 Delivery
Diesel	6.51	7.33 SS to 10.33 FS	15.45	4.00	13.41	15%	n/a	3.5 Delivery Cost; On Gran Manan 5.0 Delivery; additional winter blending adjustment
Furnace Oil	5.50	23.56	n/a	n/a	n/a	15%	n/a	5.0 Delivery Cost; additional winter blending adjustment
Propane	25.00	25.00	n/a	n/a	n/a	15%	n/a	10.0 Delivery Cost
<b>Nova Scotia</b>								
Gasoline	9.65	5.8 to 7.8 (includes 0.4 for Credit Card fees)	15.50	10.00	Prices are set based on a cap and trade system and vary	15%	n/a	Forward averaging adjustment and transportation cost of 0.6 to 2.3; No maximum Full Serve Price
Diesel	10.65	6.2 to 8.2 (includes 0.8 for Credit Card fees)	15.40	4.00		15%	n/a	Forward averaging adjustment and transportation cost of 0.6 to 2.3; additional winter blending adjustment; No maximum Full Serve Price
<b>Newfoundland and Labrador</b>								
Gasoline	10.65 to 15.65	10.28 to 12.67	7.5	10	11.05	15%	n/a	Zonal storage and delivery costs from 0.48 to 32.99
Diesel	10.07 to 14.07	14.03	9.5	4	13.41	15%	n/a	Zonal storage and delivery costs from 0.48 to 33.29; additional winter blending adjustment
Furnace Oil	9.11 to 11.11	16.27 to 18.27	n/a	n/a	n/a	15%	n/a	Zonal storage and delivery costs from 0.90 to 17.30; additional winter blending adjustment; HST applied at point of sale for furnace oil
Stove Oil	8.11 to 15.61	12.9 to 20.28	n/a	n/a	n/a	15%	n/a	Zonal storage and delivery costs from 0.90 to 37.20; HST applied at point of sale for stove oil
Propane	51.09 to 71.59 Combined Margins		n/a	n/a	n/a	15%	n/a	Zonal storage and delivery costs from 1.20 to 33.20; HST applied at point of sale for propane

Table 2 - Jurisdictional Overview

## Forward Averaging

Newfoundland and Labrador and New Brunswick are currently the only Atlantic provinces that are not using a forward averaging adjustment. The other Atlantic provinces have enacted a program that includes forward averaging as a means to ensure that prices remain fair to wholesalers and retailers by ensuring that margins are maintained.

The process of forward averaging for fuels compares the prices that have been able to be charged by wholesalers and retailers and compares that to the physical acquisition prices paid between price adjustments. During periods of rapid price change it is possible that wholesalers or retailers may not be able to maintain profitable margins. Forward averaging allows for an adjustment that will ensure, over the larger timescale, margins are maintained.

The current models utilized have not resulted in dramatic pricing changes in the regions that use Forward Averaging, prices continue to stay within expectations. Newfoundland and Labrador does have the capacity to intervene in the market at their discretion to ensure that margins are maintained.

The issue of forward averaging will be further reviewed by Kalibrate in Phase II of this review.

## Credit Card Fees

Currently Nova Scotia is the only province in Atlantic Canada that has a variable margin adjustment available to compensate for changes in credit card processing fees. Industry standard is for credit card processing fees to be assigned as a fixed percentage of any transaction based on the after-tax total purchase price. As fuel prices and taxes increase it should be expected that credit card processing fees will also increase.

Standard credit card fees are paid by retailers on the basis of the total transaction value, including tax, and range from 1% to 3%.

The issue of credit card fees will be further reviewed by Kalibrate in Phase III of this review.

## Regulated Market Comparison

We compared the regulated markets in Canada<sup>21</sup>, evaluating both the price movements in relation to each other and to the average price movements of all the unregulated markets combined. All market prices were compared excluding tax to ensure that differences in provincial tax regimes would not be accounted for in the comparison of prices.

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<sup>21</sup> See Appendix A for a detailed explanation of analysis techniques

Figure 2 shows that the average unregulated price (shown in blue) typically falls within the range of regulated prices in the country. There have been moments during extreme price movements that average unregulated prices exceeds the regulated prices.

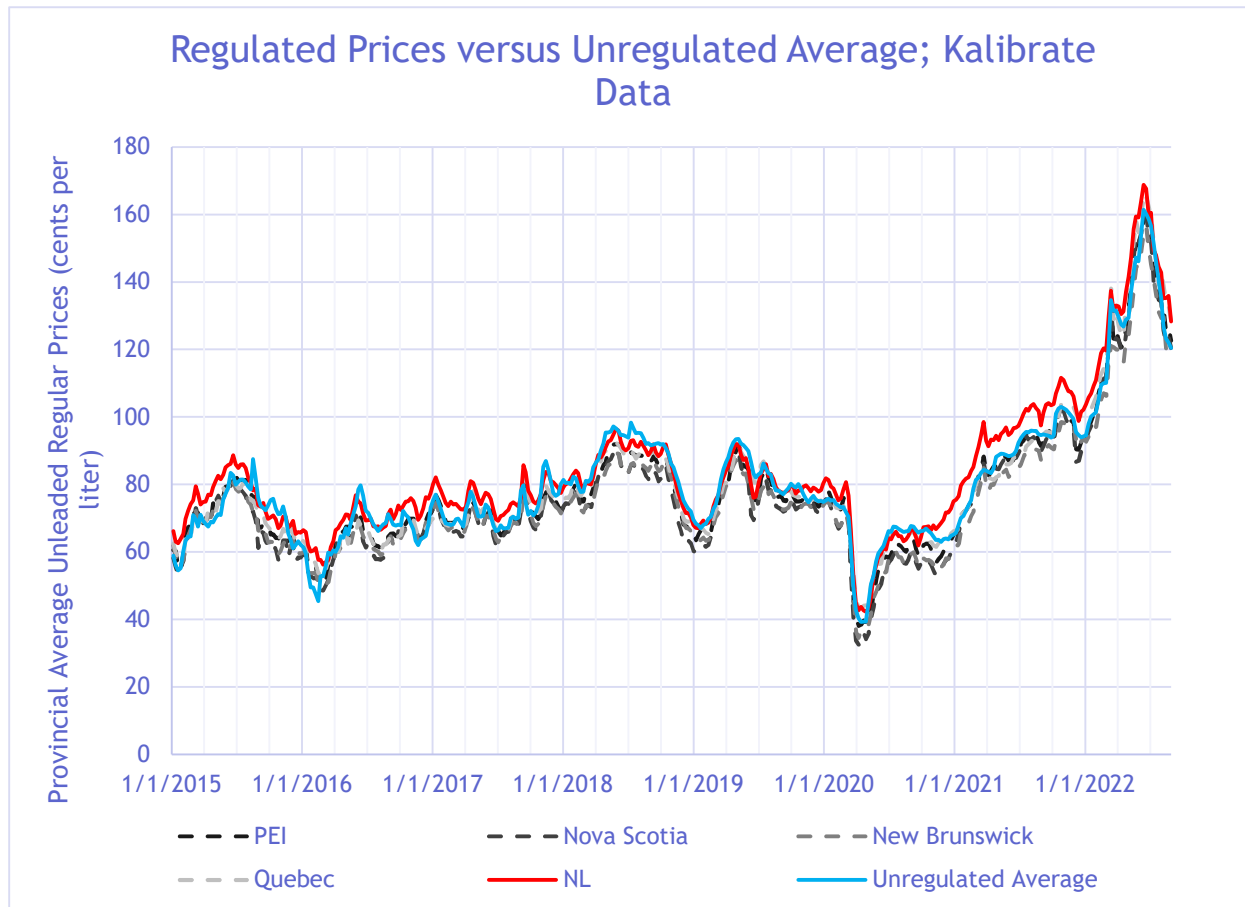


Figure 2 - Regulated Prices versus Unregulated Average

Analysis of the pricing trends since the start of 2015 shows that the markets, regulated and unregulated, move in relative unison and appear to move with a similar trend. The markets that are currently regulated are not at a price disadvantage to the unregulated markets, see Figure 3.

In Figure 3, the prices were indexed, starting with a basis of the first price in 2022 (January 4, 2022), to compare the efficiency of the market to relatively ascertain fair price. Frequently the regulated markets appear to avoid some of the extreme highs and lows observed in the unregulated markets. At the end of the adjustment period for these price changes both regulated and unregulated prices appear to settle on similar overall percentage changes.

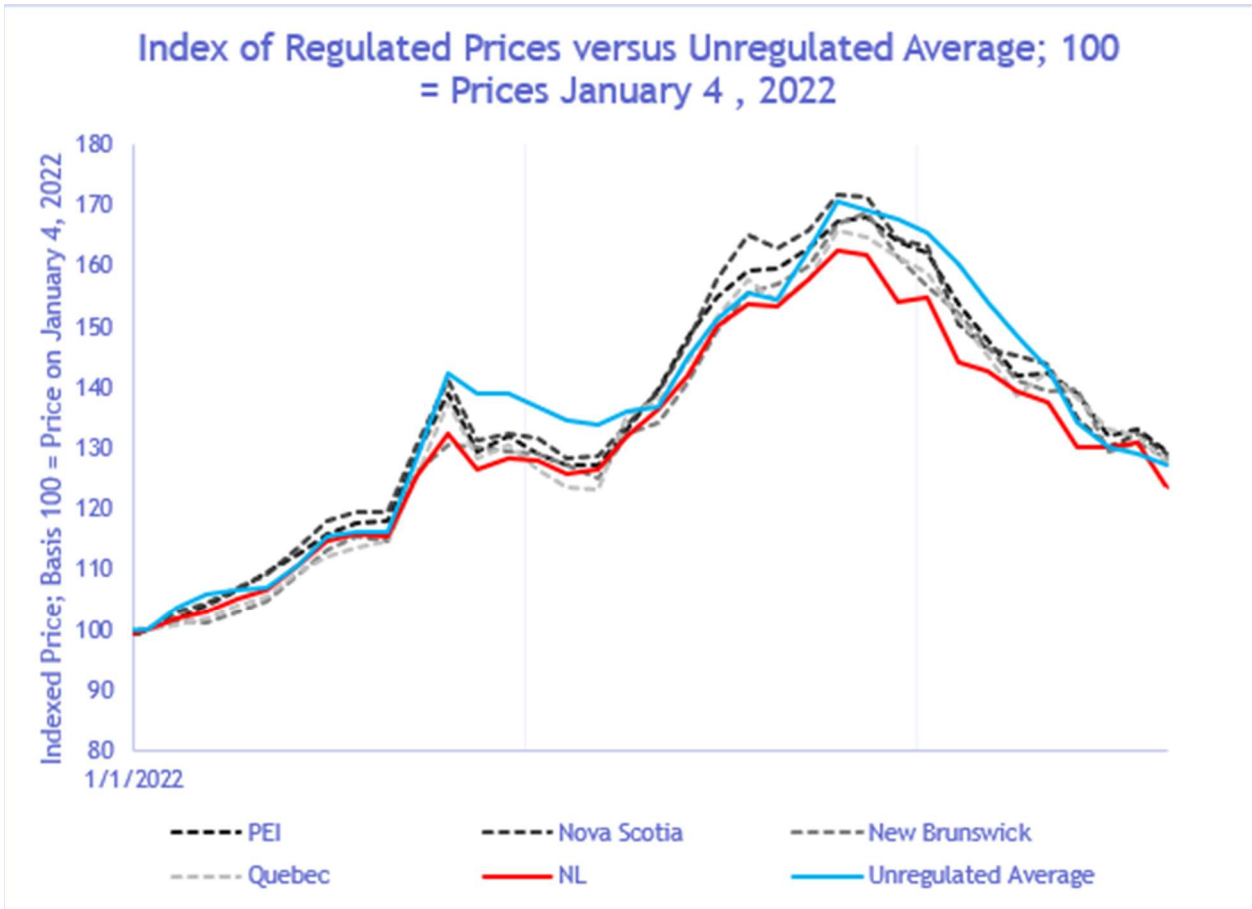


Figure 3 - Indexed Price Comparison; Regulated Markets versus Unregulated Markets (Kalibrate Data)

Due to location the regulated markets are subject to relatively higher storage and transportation costs than the unregulated markets and would, even in a completely unregulated market, be expected to present with higher prices than the unregulated markets.

The only observable differences in unregulated and regulated markets appears in the tendency for regulated markets to avoid extreme prices and maintain a more tempered price environment. The overall change in prices experienced within both markets remains the same and both pricing regimes converge on similar values over time. The extreme differences in markets typically does not exceed a 5% difference in price movement and is well within the spread of the unregulated markets themselves and is not deemed to be statistically significant.

Evaluating the pricing spread presented the values of the unregulated prices fall near or within the statistical boundaries of the regulated pricing spread. We feel that this shows that neither the regulated nor unregulated markets experience a pricing advantage when compared on an excluding tax basis.

# Review of Board Maximum Pricing

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## Regular Unleaded Fuel

The Board establishes maximum pricing for regular unleaded based upon New York Harbour pricing<sup>22</sup> (NYH). This establishes a strong link between the base pricing and the free market as NYH is one of the major markets to make up the Reformulated Blendstock for Oxygenate Blending (RBOB) pricing for fuel in the United States.

Brent<sup>23</sup> is an international crude benchmark price used in global trade. Given the high volume of trading in this futures market it is frequently the international standard for crude prices. Most international price forecasting agencies will forecast all other international benchmarks, including West Texas Intermediate (WTI), based on a differential to Brent. Brent has been used as a standard for crude pricing in the report as it best represents the state of global markets.

RBOB is a publicly traded fuel future that has a degree of correlation to crude prices and is a major component of the final blended gasoline fuel. RBOB is displayed and chosen as it represents both the price of crude and gasoline and can help in establishing the reasonably expected degree of price movement for gasoline in any North American market.

Evaluating the price movements of Newfoundland and Labrador against the NYH, Brent and RBOB can highlight any inefficiencies in the current Board price setting methodology, see Figure 4<sup>24</sup> and Figure 5.

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<sup>22</sup> Prices used by Kalibrate for NYH and RBOB provided by the U.S. Energy Information Administration

<sup>23</sup> Brent prices used by Kalibrate sourced from [ca.investing.com](http://ca.investing.com)

<sup>24</sup> January 1, 2019 was chosen as a basis to capture the market movement relating to Covid and the subsequent recovery

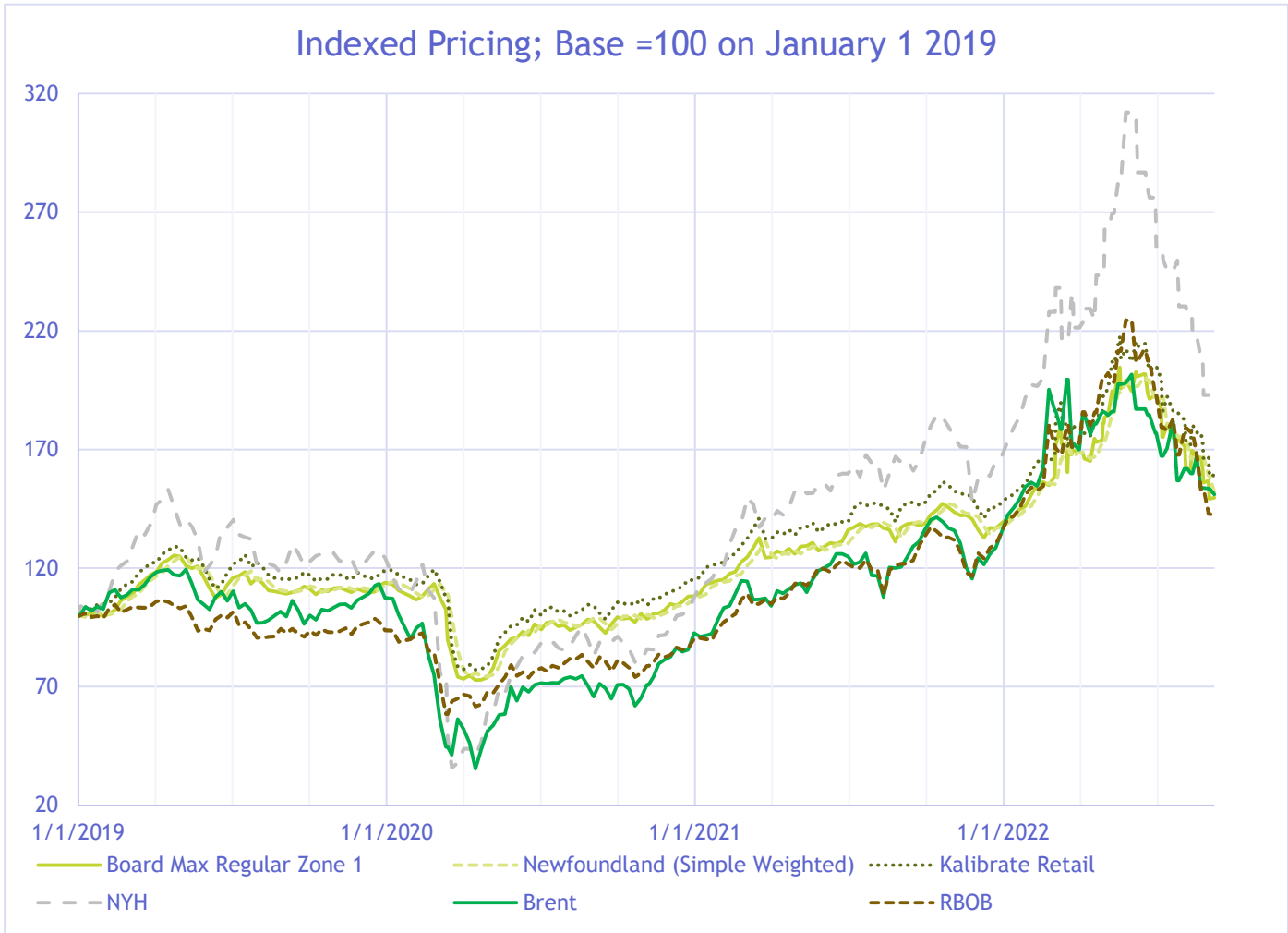


Figure 4 - Indexed Price Comparison (Kalibrate Data)

Pricing extremes seen in NYH are not directly translating to proportional movements in the retail fuel prices in Newfoundland and Labrador and even the extremes being seen in the crude market are not directly translating to the price of fuel in Newfoundland and Labrador.

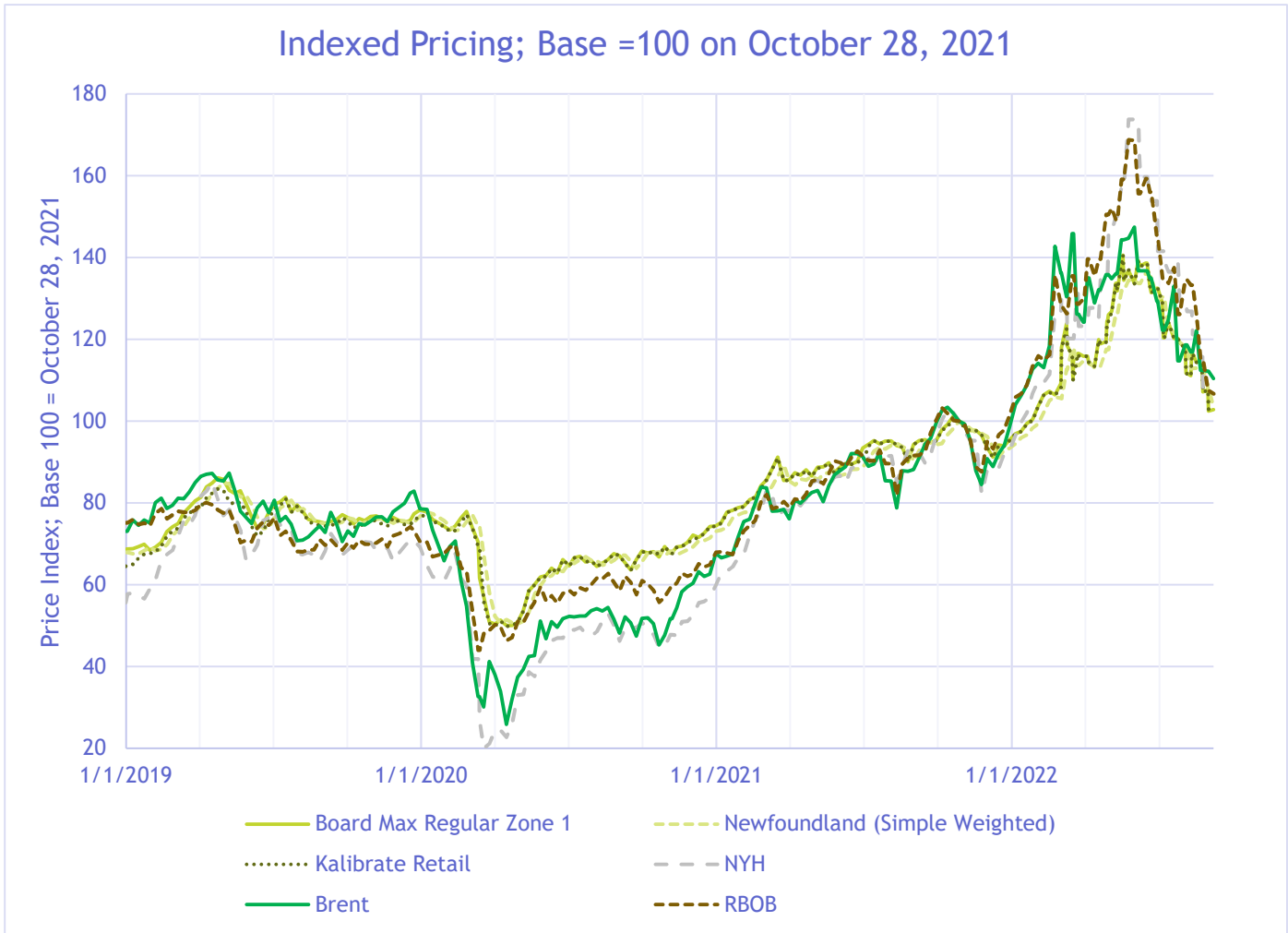


Figure 5 - Indexed Price Comparison; Base October 28, 2021 (Kalibrate Data)

The price movements of RBOB, NYH and Brent Crude all bound the movements in the pricing of regular unleaded fuel in Newfoundland and Labrador. This shows the efficiency of current board calculation in accommodating price movements in the base commodities<sup>25</sup>.

In addition, the price movements for Newfoundland and Labrador were compared to the rest of the provincial averages in Canada and the Canadian average across the same time period, see Figure 6.

<sup>25</sup> A reference date of January 1, 2019 and October 28, 2021 were selected for modeling the indexed movements of the Canadian average fuel price, NYH pricing and the average Newfoundland and Labrador price. At the reference date the index will have a value of 100%, see Figure 5. The date of October 28, 2021 was selected based upon the rapid rise that was observed during that time to help visualize the relative movements more efficiently.



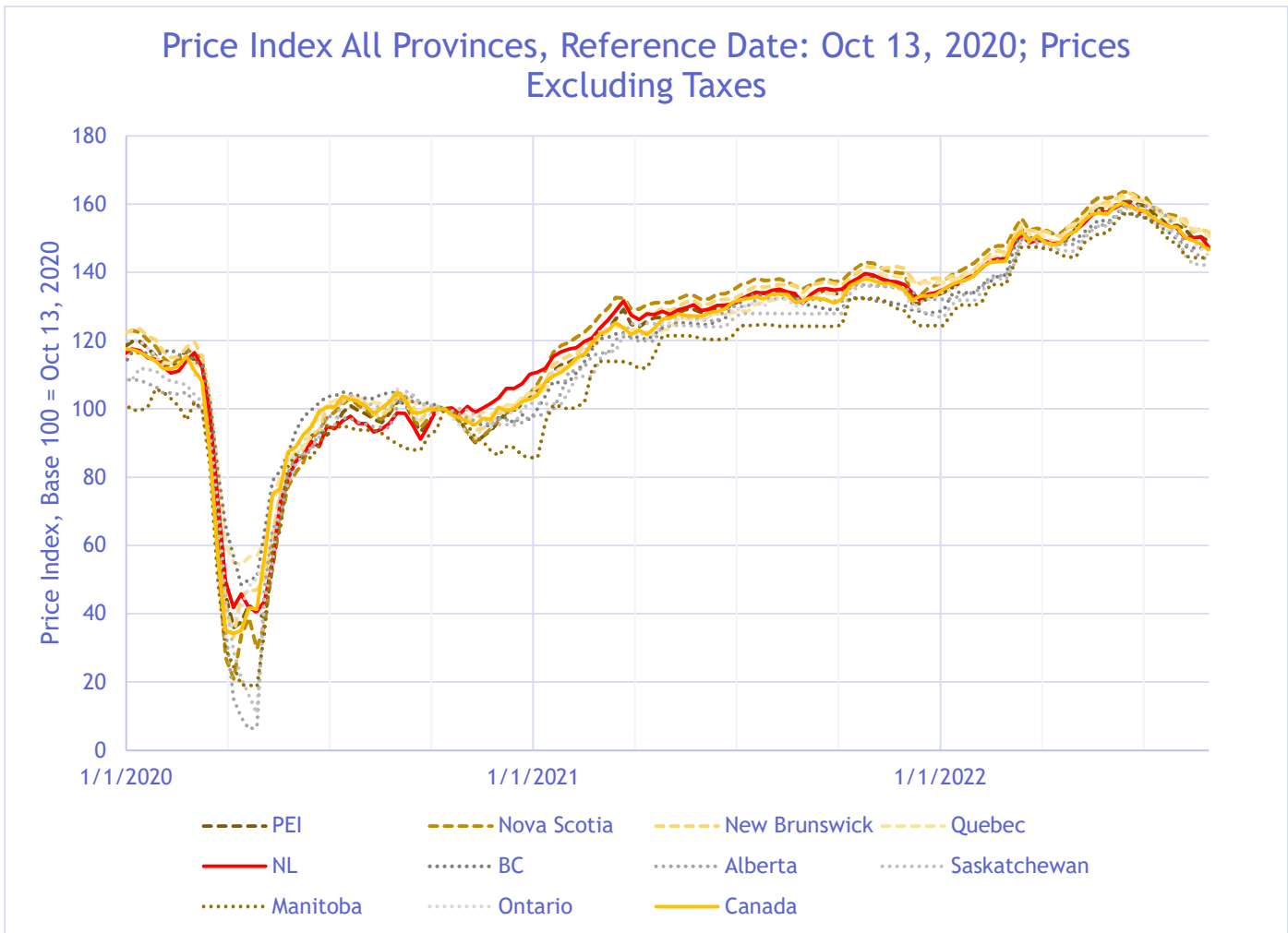


Figure 6 - All Canadian Markets Index - Reference Date Oct. 13, 2020 (Kalibrate Data)

Prices were evaluated excluding taxes to eliminate any discrepancies in how provinces may have taxed or changed the taxation of fuels over the evaluation period. Prices were normalized to October 13, 2020 to accommodate the changes in margin in Newfoundland and Labrador and minimize any data aberrations that may have resulted.

Figure 6 displays that the pricing in Newfoundland and Labrador changes in a fashion that is similar to all other regulated and unregulated markets in Canada. Based on this evaluation, we determine that the current method used by the Board is moving prices in the region efficiently and with an appropriate magnitude that is well within reasonable expectations and the movements of the free market.

Figure 7 shows the average pricing in Newfoundland and Labrador to the average price of regular unleaded across Canada, in both regulated and unregulated markets. Since the beginning of 2017 retail prices for regular fuel have moved in unison with the rest of the country. Price fluctuations

even during times of rapid price movement have remained in line with what the rest of the country is observing.

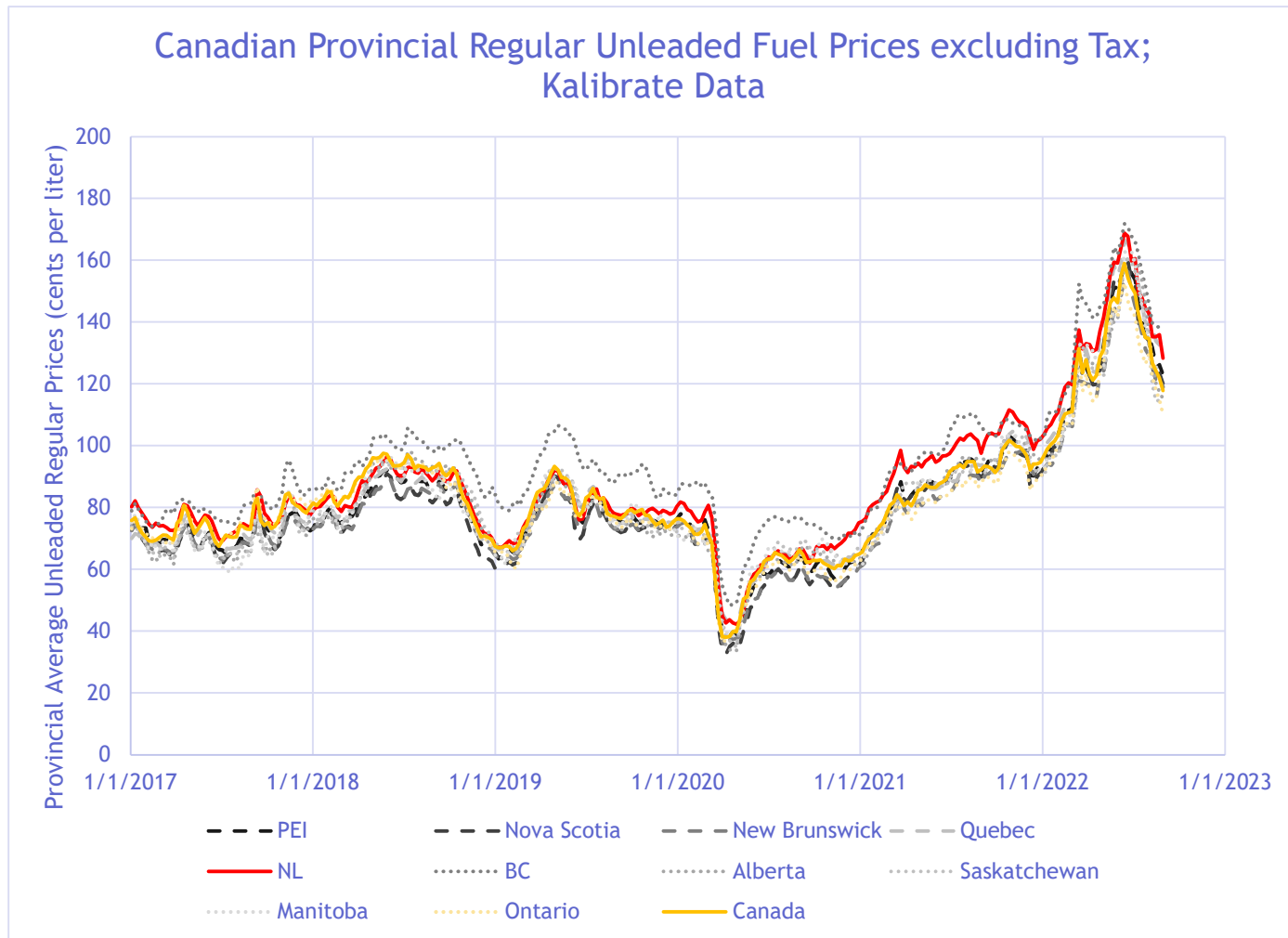


Figure 7 - Canadian Provincial Fuel Prices (Kalibrate data)

Data was separated into regulated and unregulated markets, with the dashed lines indicating regulated markets and the dotted lines representing the unregulated markets across Canada. The resulting data cloud can be difficult to interpret. Also included is a breakdown of the statistical deviation of the data from the Canadian average price. The P10, P25, P50, P75 and P90 spreads are presented in Figure 8.

Statistical spreads and confidence intervals are used to evaluate whether or not the values being observed fall within reasonable expectations. Over 4,000 data points were evaluated to create a statistically significant dataset that allows a confident determination of the reasonableness of the data to be made.

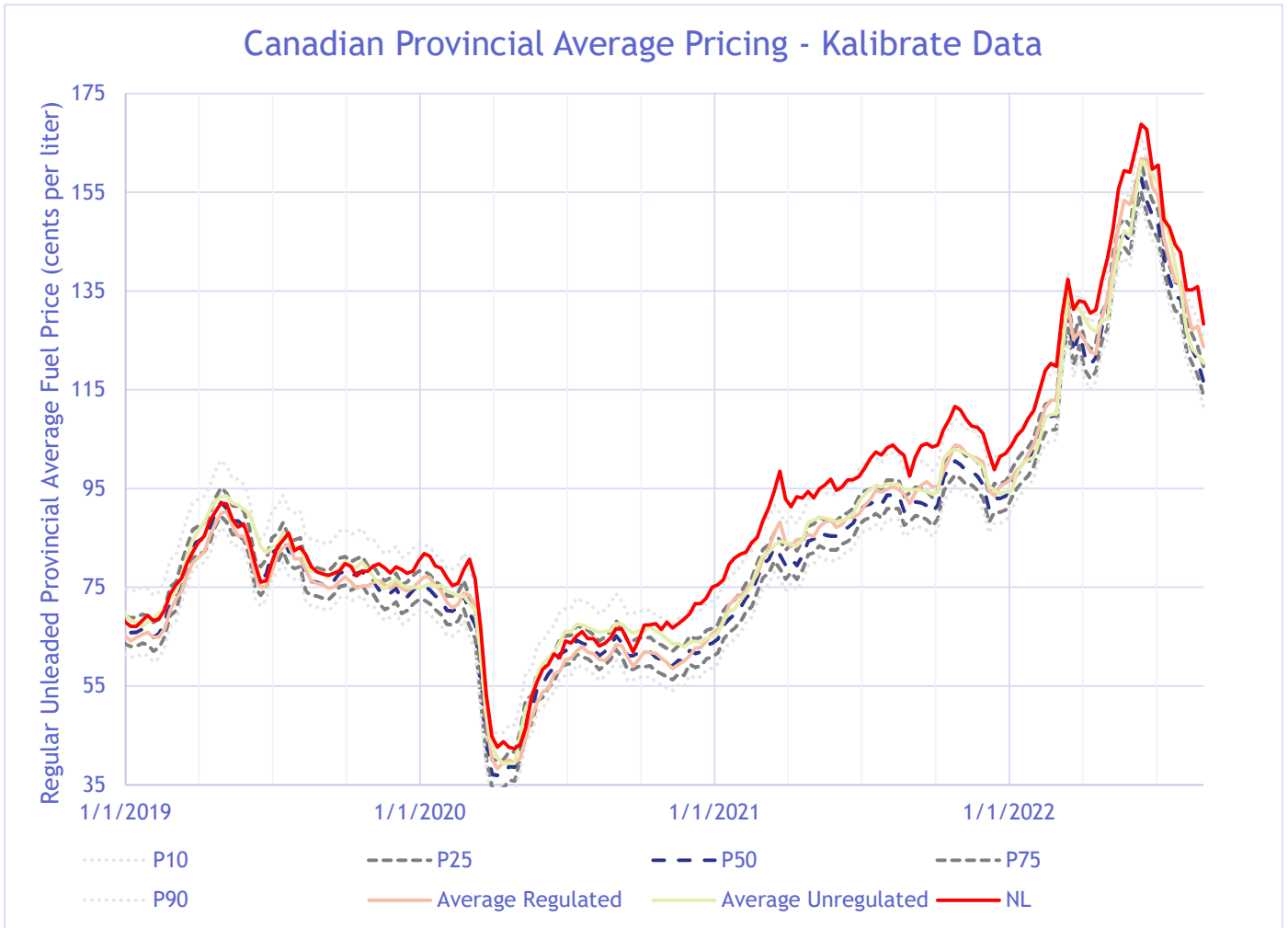


Figure 8 - Canadian Pricing Statistical Spread (Kalibrate data)

Figure 8 shows that prior to October 2020 Newfoundland and Labrador typically experienced prices that were in the top quartile for Canada (approximately P25 values). In October of 2020, following a change made by the Board to wholesale mark-ups, the price of fuel in Newfoundland and Labrador moved to the top 10% of values. This deviation from previous values represents an intentional increase from the average Canadian pricing by the Board.

Our analysis show prices in Newfoundland and Labrador fall within the expected values due to the proximity between the hub and the market that is being accessed.

The Western provinces, with the exclusion of BC, stretching all the way to Thunder Bay in Ontario are all linked to the Western Canadian refining complex, and all transact at a wholesale value that is driven by prices in Edmonton. This results in a lower price in these regions, pulling prices in the Canadian market lower on average.

The Eastern Provinces, including Atlantic Canada, and British Columbia are subject to prices coming out of the United States from PADD I and PADD V respectively. Both hubs are at the furthest extents from the American refining hub and crude distribution hub located at the Gulf Coast. Both refined products and crude must travel the furthest distance to reach these markets and as a result, prices increase as products move along the branches.

The current method utilized by the Board for calculating the price for retail value based on the assigned margins is both efficient and reasonable based on the data reviewed to date.

We also evaluated the deviation from Board established maximums to the publicly available Kalibrate pricing data that best represents Zone 1, Avalon Peninsula, see Figure 9.

Figure 9 does not highlight any regions of concern or highlight any periods of extreme or prolonged duration from Board established pricing.

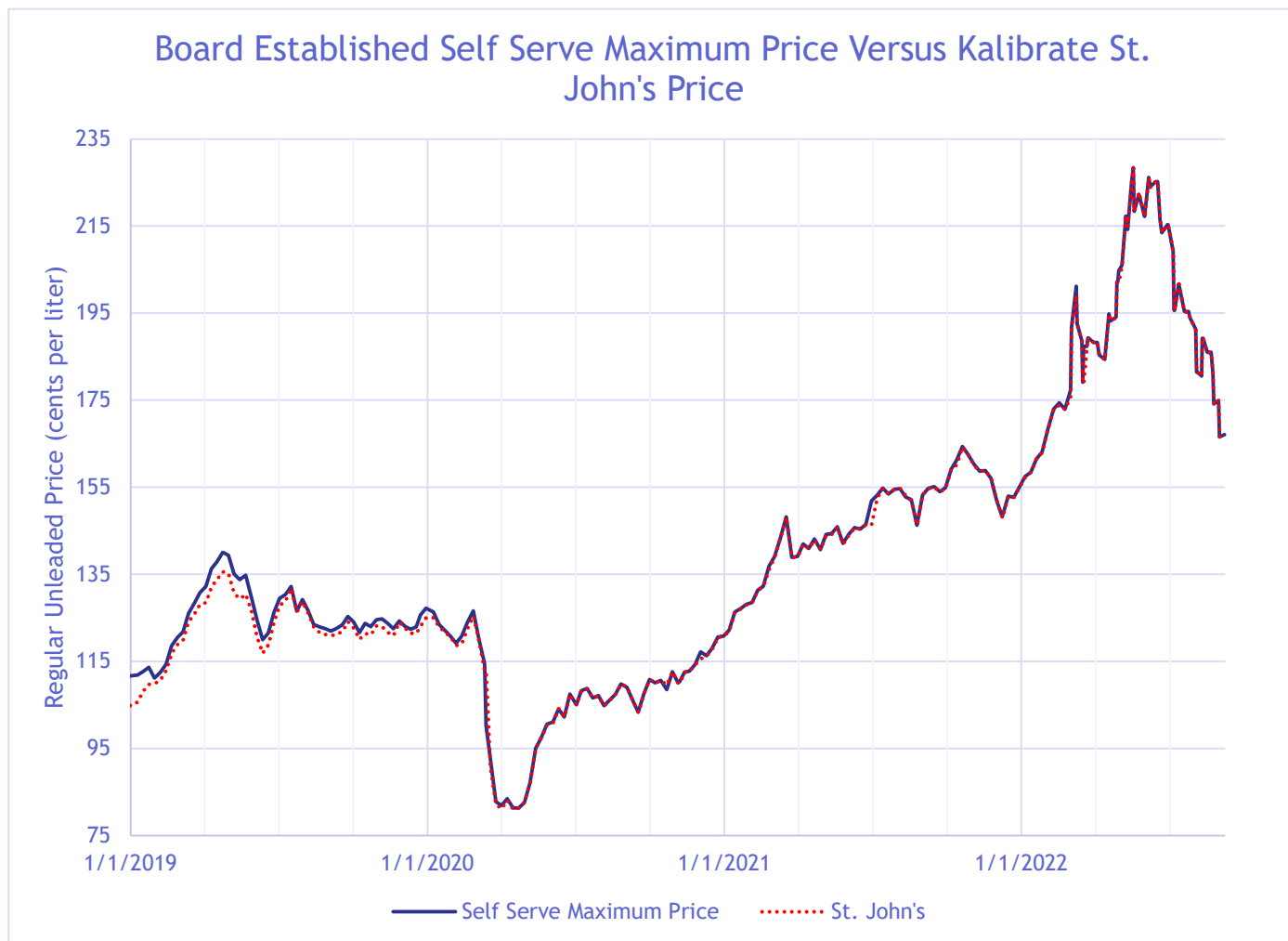


Figure 9 - Comparison of Zone 1 Board Maximum to Kalibrate Pricing

## Mid-Grade and Premium Unleaded Fuel

The Board sets the maximum price for mid-grade fuel based upon a differential from regular unleaded fuel. The approved wholesale maximum differential relative to regular is 1.85 cents per liter for mid-grade and 3.7 cents per liter for premium. The approved retail maximum differential relative to regular unleaded is 3.0 cents per liter for mid-grade and 6.0 cents per liter for premium.

Regular, mid-grade and premium retail prices were plotted together in Figure 10 and show that as expected premium and mid-grade prices in Newfoundland and Labrador have moved in unison with the price of regular fuel and within expected retail values being charged.

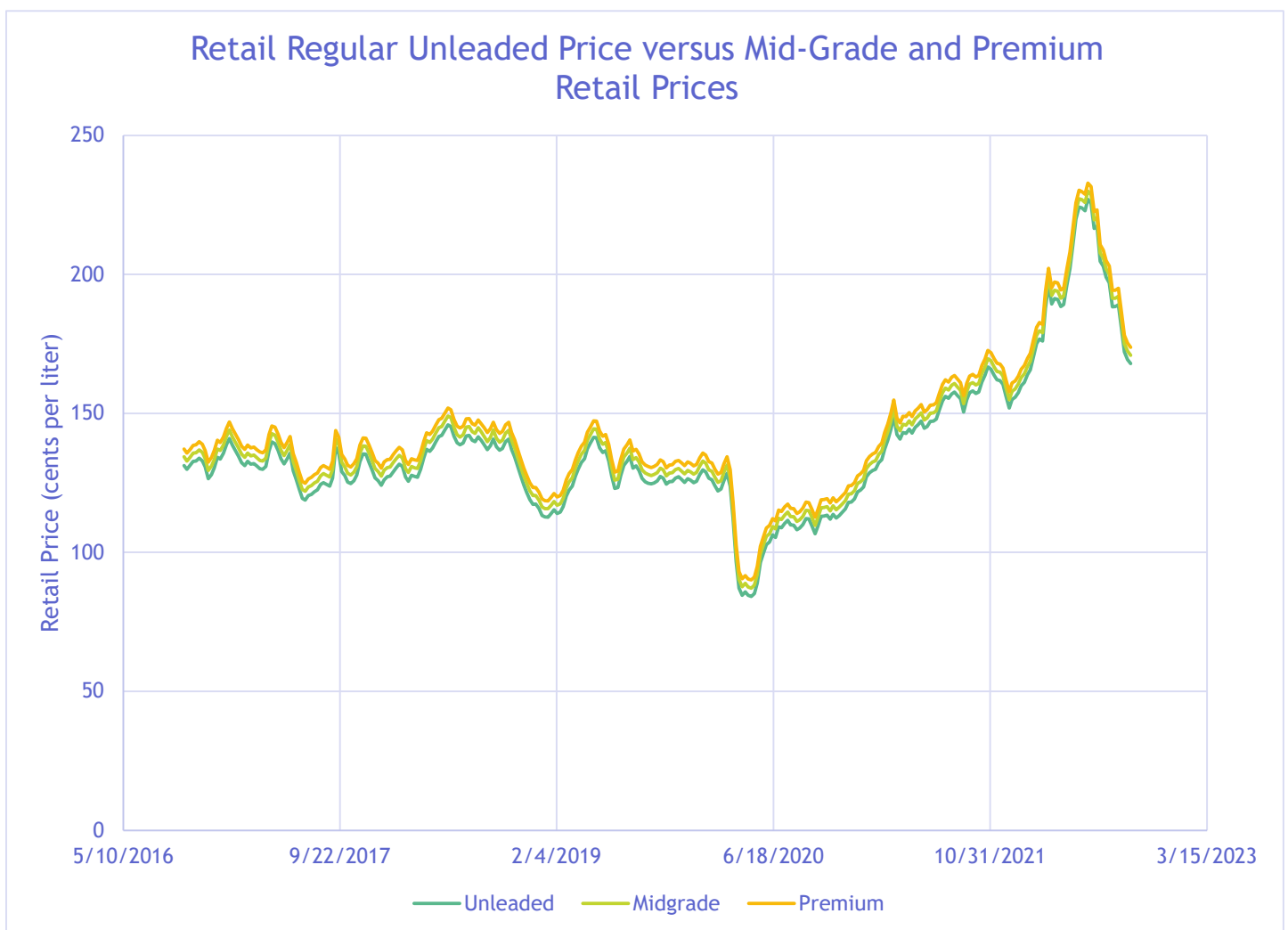


Figure 10 - Regular Unleaded Fuel Price versus Premium and Mid-Grade Retail Prices (Kalibrate Data)

## Diesel Fuel

The average retail price for diesel in Newfoundland and Labrador was compared to the Brent futures contract and the published price of diesel from PADD 1A, New York Harbour (source EIA), see Figure 11.

The comparison was done by indexing the prices to the first published price in 2022: January 4, 2022.

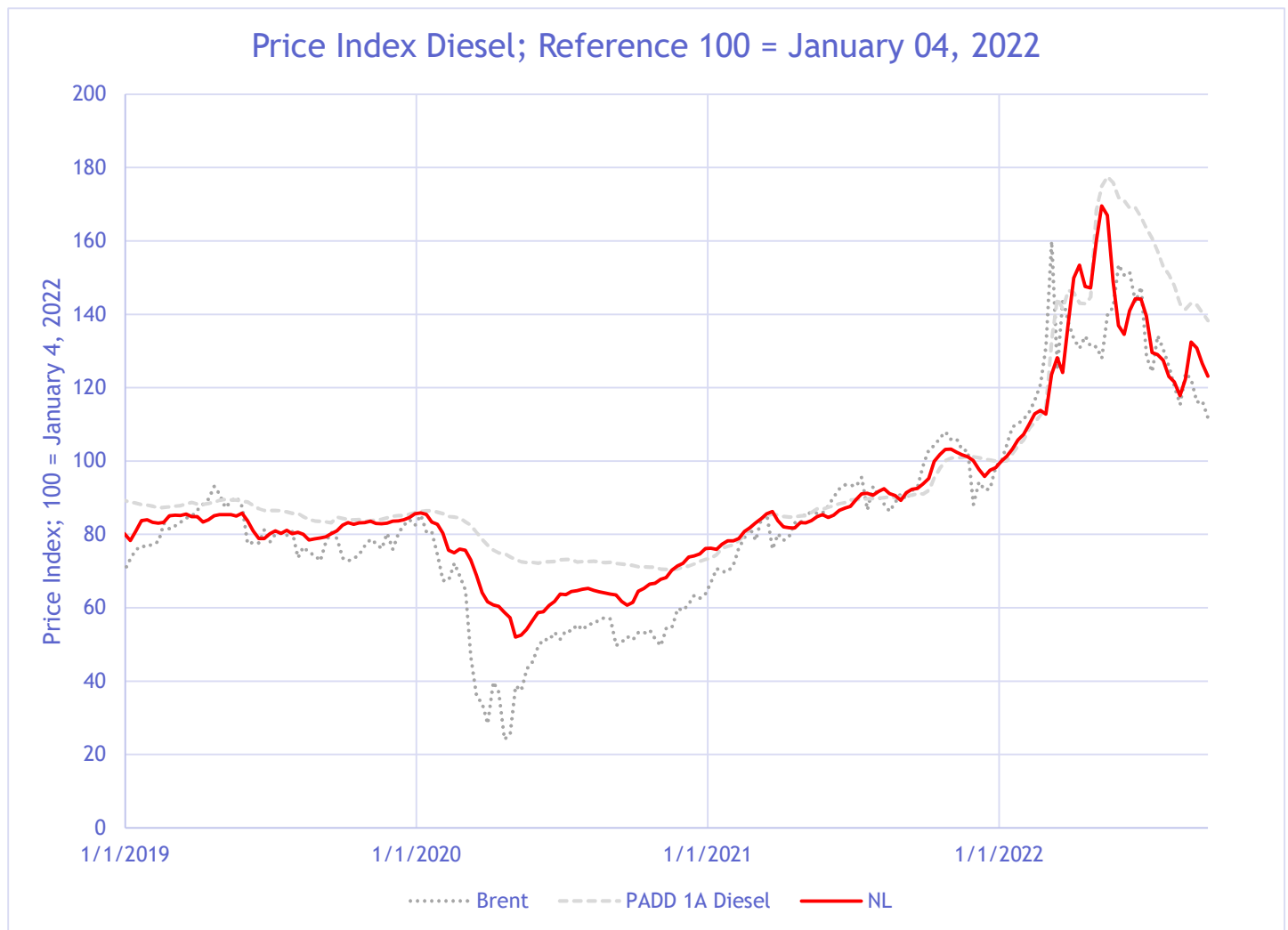


Figure 11 - Diesel Price Index – Kalibrate Data

It is expected that diesel prices in Newfoundland and Labrador will continue to appear higher than the PADD 1A price due to the cost of getting the fuel to the Newfoundland and Labrador market.

We also compared the retail price of diesel in Newfoundland and Labrador to published prices across Canada in all provinces, see Figure 12.

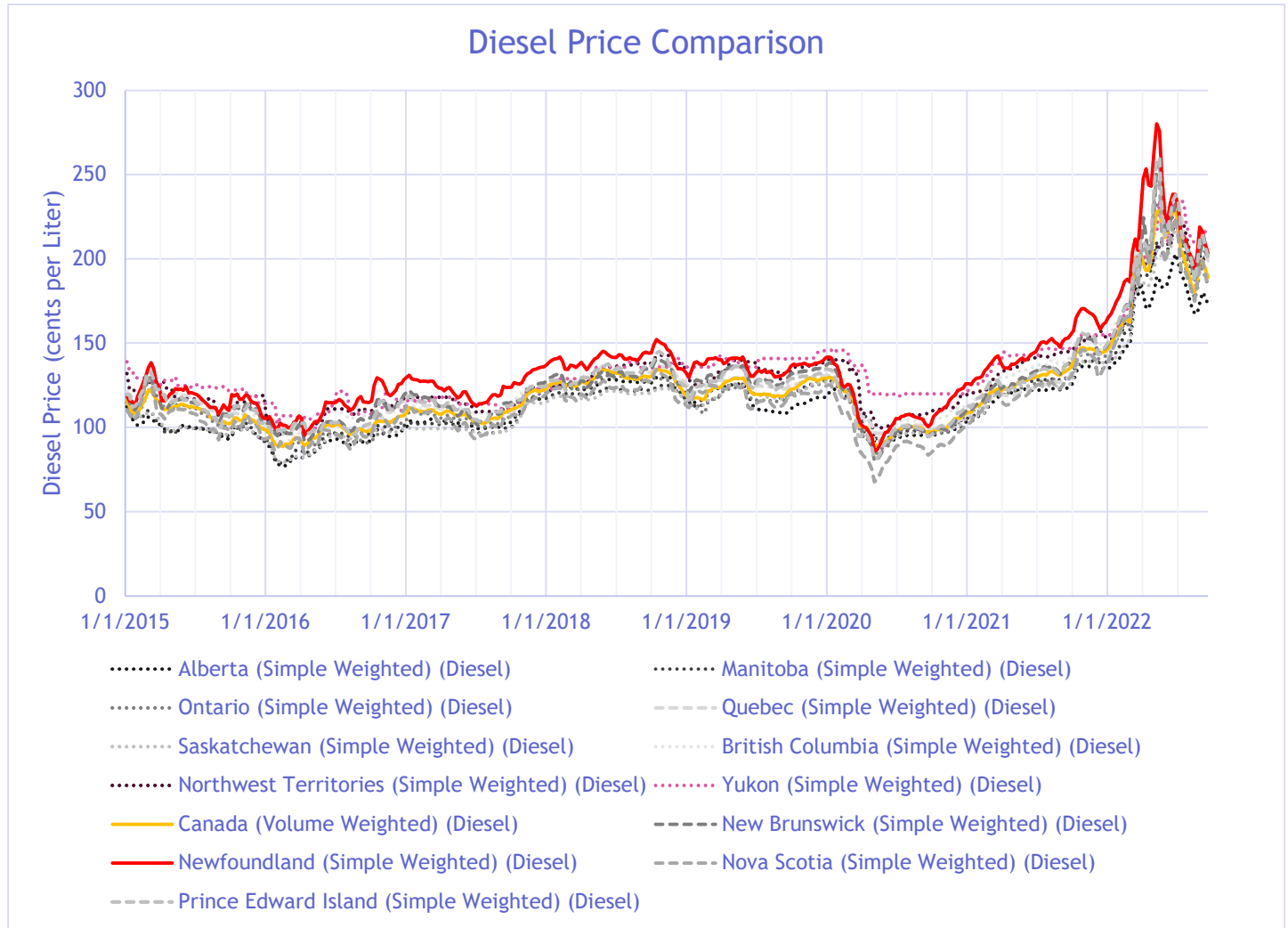


Figure 12 - Diesel Price Comparison by Province (Kalibrate Data)

Diesel prices in Newfoundland and Labrador are amongst some of the highest in Canada, but remain within a reasonable spread, see Figure 13, and have remained within the top 10% of values for the entirety of this analysis.

With the relative remoteness of the markets contained within the region and the difficulty of getting products to market within the region, the higher retail values are expected and will remain. We determine that the prices being charged do adequately represent the overall North American market and are moving within reason and at stable and predictable spreads to other markets.

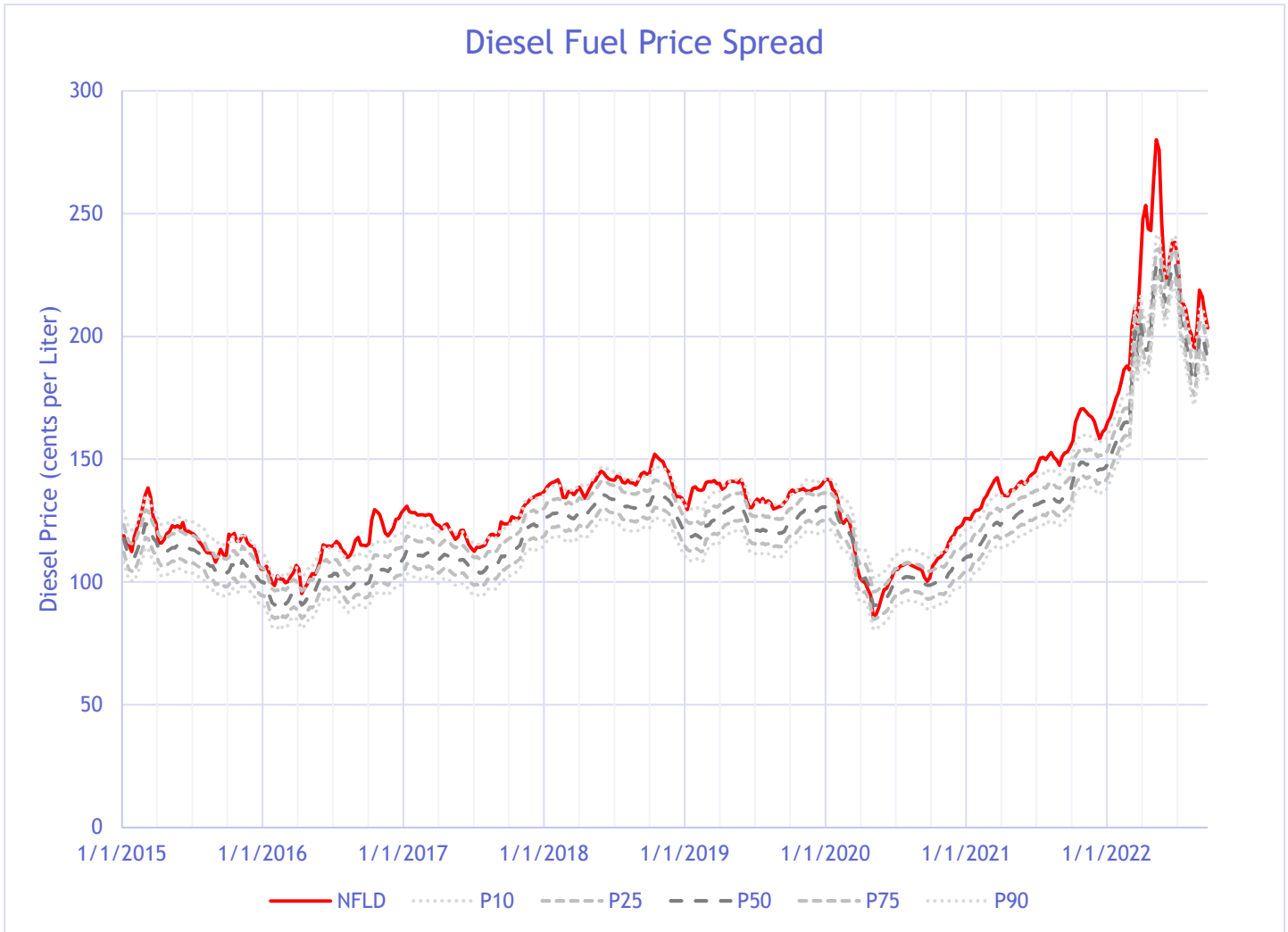


Figure 13 - Diesel Statistical Pricing Spread (Kalibrate Data)

## Heating Fuel

The price of heating fuel or furnace oil was analyzed. To evaluate the reasonableness of the retail price movements of heating fuel in Newfoundland and Labrador, we compared these movements to the pricing movements of NYMEX Heating Oil Futures (ca.investing.com) and Brent Oil Futures (ca.investing.com), see Figure 14.



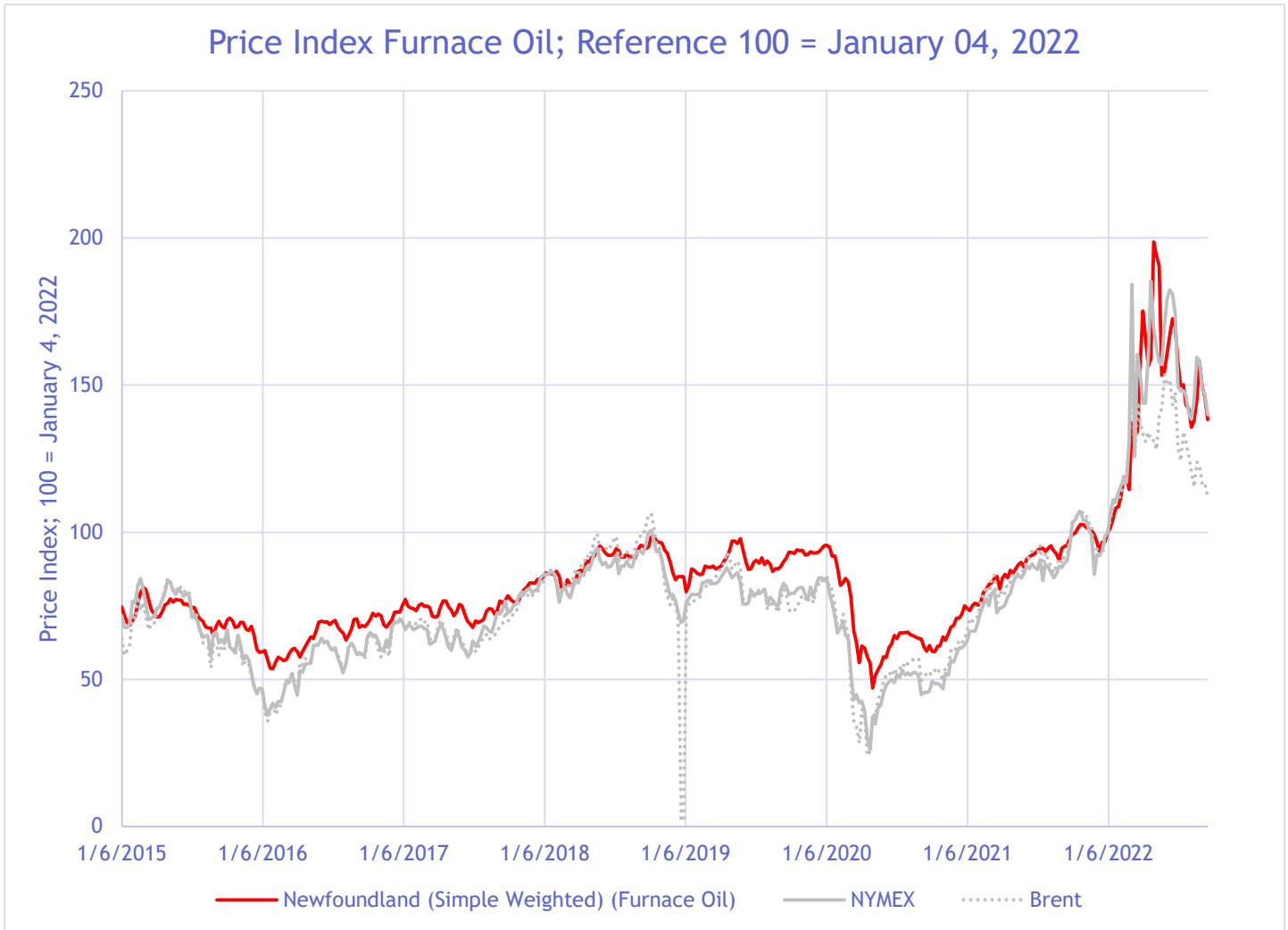


Figure 14 - Heating Fuel Index (Kalibrate Data)

The movements of prices in Newfoundland and Labrador appear to be closely related to the pricing movements of the two other commodities. In April of 2022, NYMEX Heating Oil disconnected from Brent, showing an elevated price that remained in the refined commodities that is not present in Brent. The Newfoundland and Labrador price remained in line with the NYMEX pricing, showing that the current formula used for Heating Fuel in the province is closely linked to the physical realities of the heating oil markets and not solely reliant on the base commodities making for an efficient calculation.

Heating Fuel prices are not reported and calculated in all provincial markets due to the scarcity of data in some provinces. We compared all available provincial market averages to the average retail price being charged in Newfoundland and Labrador, see Figure 15.

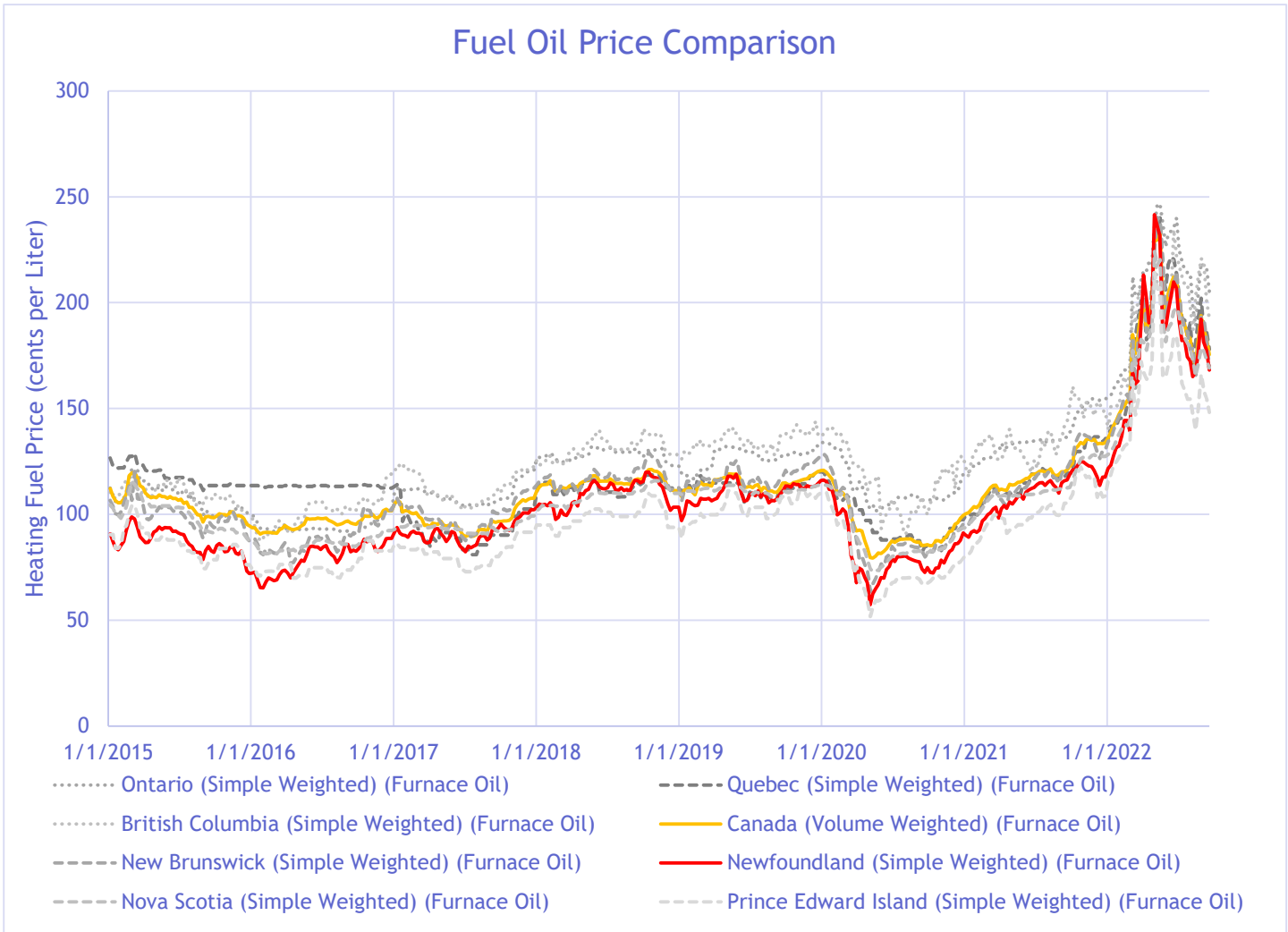


Figure 15 - Heating Oil Price Comparison (Kalibrate Data)

The markets which have been reported have been analyzed following the same steps to produce a statistical evaluation of the heating fuel prices in Newfoundland and Labrador, see Figure 16. Relative to the other markets that sell heating fuel, Newfoundland and Labrador typically is in the lower quartile (P75) of prices across Canada. The price in Newfoundland and Labrador has stayed near or below the Canadian average retail price for heating fuel.

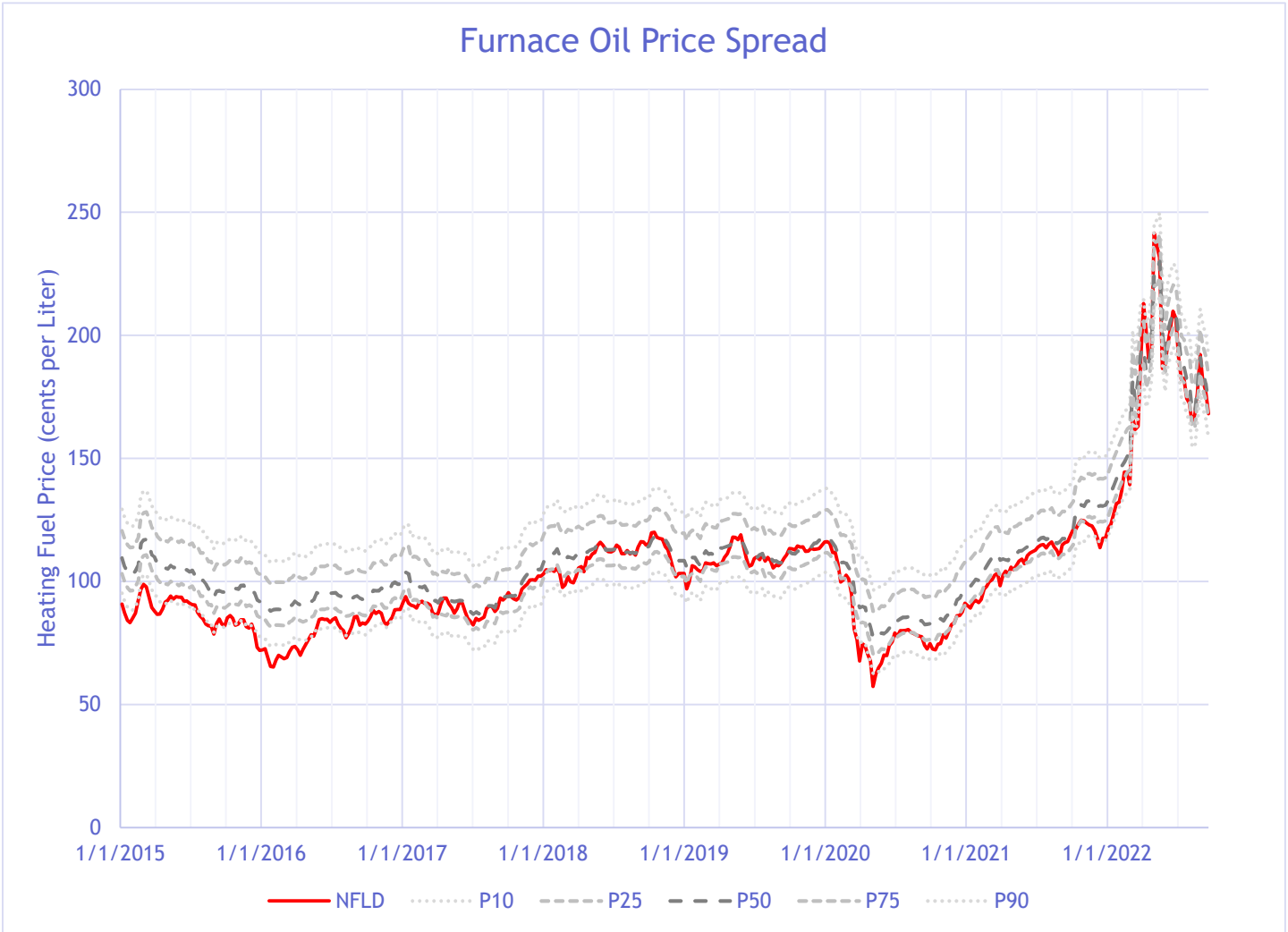


Figure 16 - Heating Fuel Price Spread (Kalibrate Data)

It is our opinion that the pricing mechanisms being used for heating fuel are adequately serving the market and providing a fair price.

## Conclusions

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The Phase I analysis of the current Board pricing mechanisms relative to other Canadian markets, both regulated and unregulated, has shown that the regulated market in Newfoundland and Labrador appears to operate efficiently and prices are being set at a reasonable magnitude relative to other markets.

It is our opinion that most of the retail prices being set by the Board and being charged by retailers on the average in Newfoundland and Labrador are above the average for Canada. The prices do fall closer to the Canadian average due to the regulated mark-ups for higher grade fuels and the cost advantage for Heating Fuel in the province.

The pricing mechanisms and the chosen times for changes in retail maximums are continuing to serve the market efficiently and allowing for the market to accommodate the extreme and rapid changing prices that have occurred over the last two years.

The changes that the market is expected to experience over the coming months and years based upon foreseeable events should not present a challenge any greater than the changes most recently experienced.

As part of Phase II Kalibrate will further review the current supply dynamics, pricing benchmark and existing wholesale mark-ups in Newfoundland and Labrador. Further in Phase III, Kalibrate will review the existing retail mark-ups and other related issues.

# APPENDIX A:

## Review of Analysis Techniques

### Price Indexing

A Pricing Index allows for the easy relative measure of change between any two points typically in time. In all pricing indices a relative or base date is chosen and the measured value on that date is assigned a value of 100. All price movements after that are expressed as a percentage of that value; for example an index reading of 90 means that the price is 90% of what it was on the reference date.

Pricing indices are used to compare the relative movement of related prices over time. As an example, this technique would allow the comparison of how the new retail price of a Porsche 911 and a Honda Civic have changed over the last decade and determine if the changes in pricing being seen are a result of equivalent change across the entire market or if the price of one of the items is changing more or faster than the other.

This technique also allows for the comparison of price regardless of unit of measure, prices of gasoline stated in gallons, liters or barrels can all be compared for relative price movement without having to convert units.

### Confidence Intervals (P10, P25, P50, P75 and P90)

In the statistical analysis of data in this report the probability of exceedance will be calculated and presented as P10, P25, P50, P75 and P90 values. Based upon the data analyzed a P90 value means that 90% of the values are expected to exceed that value, so it is the lowest possible estimate of values. The P75 means that 75% of the data is expected to exceed that value.

The use of these exceedance intervals allows for the determination of reasonableness of any values observed. If values are plotting at the P10 value that means that they are amongst the highest being observed, or at the P90 level they are amongst the lowest. Any values that are well outside of these confidence intervals for regular periods should be investigated to understand why they are consistently plotting outside of expectations.

It should also be acknowledged when reviewing the presentation of exceedance values in this report that the P50 values should not be expected to represent the average value, just the value where 50% of the values are above or below that measure.