

Clean Fuel Standard CASE STUDY: BRITISH COLUMBIA

Snapshot of macro effects for B.C.:

Direct compliance costs:	\$601 million (\$281 per employed person)
Capital removed from economy:	\$2.2 billion
Job losses:	2,016
Increase in cost of gasoline:	19.4%
Increase in cost of natural gas:	3.7%
Main sectors affected:	Wholesale and retail sales (613 jobs) Banking, Finance and Professional Services (828 jobs) Entertainment, including Restaurants (380 jobs) Trucking, Courier and Storage (180 jobs) Other Petrochemicals (190 jobs)

Household Effects

In 2016, 15.9 million Canadians commuted regularly to work, and of that number about 75% drove cars while the remainder took some form of transit. This reflects a national pattern that jobs in Canada are concentrated in a small number of large cities like Toronto, Vancouver and Montreal, requiring daily commuting from surrounding areas. Associated with this concentration of economic activity, residential housing prices have gone up significantly over the years. By 2019 the average price of a detached home in Vancouver was \$1,107,719 (Global news, 2020). For many people in B.C., inability to afford housing within Vancouver requires moving to the surrounding, mid-size cities such as Surrey, New Westminister, and commuting to work. Thus transportation fuels like gasoline are an essential energy source for many Canadians, and affordability of transportation fuels directly affects peoples' ability to access the labour market.

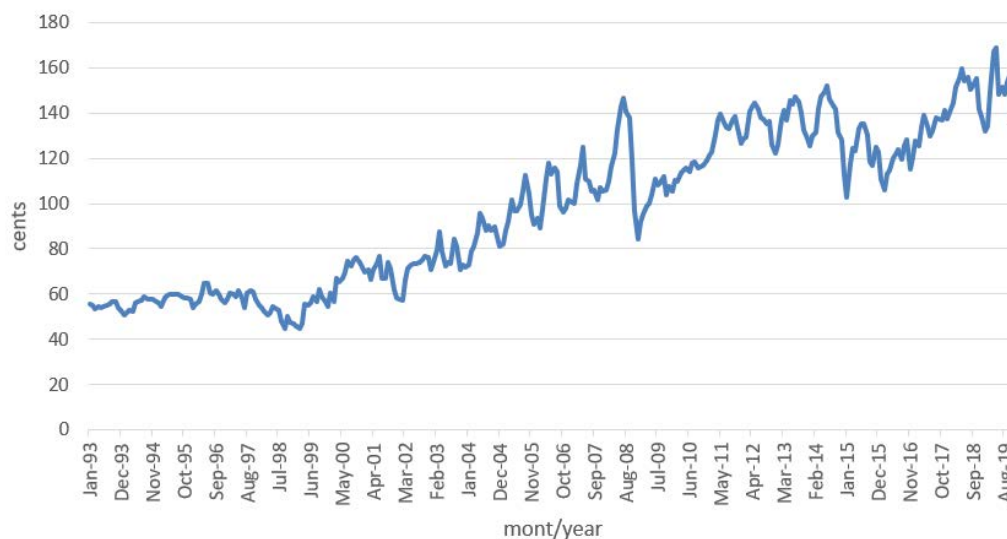


Figure 1. Nominal gasoline price in BC, 1993-2019.

Source: Statistics Canada 2020c

Figure 1 shows the historical price of gasoline in Vancouver since 1993.¹ According to Statistics Canada, 2016 Census of Population, there were 1,881,970 households in B.C. The average annual gasoline price in Vancouver was \$1.50 per litre in 2018 (Statistics Canada, 2020c). Our analysis indicates that a CFS that achieves the stated goals would lead to a 6.5% increase in the price of gasoline, which implies the average purchase price would have been \$1.60 per litre of gasoline in 2018. Gasoline sales in B.C. in 2018 totaled 5.02 billion litres. Had the same volume of gasoline been purchased at the higher price the additional cost would have been just over \$500 million or \$267 per household per year.

In practise people adjust their fuel purchases downward to mitigate this impact, but in doing so they forego the benefits of fuel use, which in the case of Vancouver can include losing access to a large part of the regional job market. Compare to other provinces, B.C. is projected to have one of the highest gasoline price increase from CFS. One of the main reasons for B.C. to be hit harder is because B.C. already has layers of other environmental programs and mandates like the one enacted in 2011, known as B.C. clean fuel standard. As a result, introducing national level CFS that covers beyond transportation fuels will make gasoline even more expensive in B.C..

Next, we estimate the impact on average household and restaurant business from an increase in the price of natural gas. Figure 2 shows that natural gas accounts for the majority (58.1%) of heating in homes, making it a critical energy source for the province.

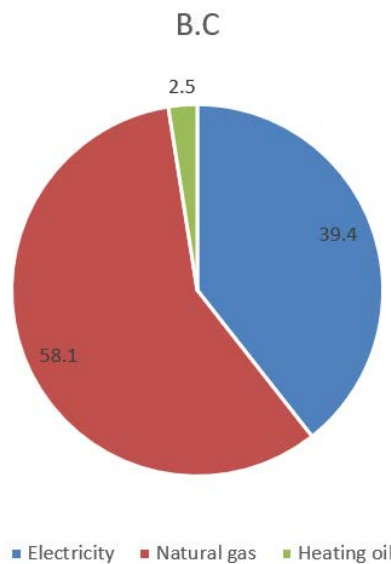


Figure 2 Percentage of energy source used by households in B.C., 2015.
Source: Statistics Canada (2020h)

¹Due to the availability of gasoline price data by major cities, the cost estimate of households on additional gasoline expenses at the provincial level uses major city-level average prices as a proxy for the corresponding province.

Our analysis shows that a CFS would increase the price of natural gas by 7.9%. The average household in B.C. spent \$257 on natural gas in 2019. Under the CFS the same volume of gas purchase would have cost \$277, or \$20 more every year. In practise households and businesses would have reduced their gas usage to mitigate some of this cost increase, but in doing so they would have had to forego some home heating or appliance usage, reducing consumer welfare in the process.

Small Business Effects

B.C. is home to 15% of the total food-related establishments in Canada (Natural Resources Canada, 2013). According to Natural Resources Canada (2013), the energy intensity for food service businesses, measured in Giga joules per square meter, is about 1.85 GJ/m² annually in the region. In B.C., about 44% of the total energy consumed by the commercial and institutional sectors was natural gas. Based on data from Natural Resources Canada we estimate that 59% of the total energy consumed by food service businesses is natural gas. We also assume a restaurant size of 600 m², which is the average size of a sample of Harvey's and Swiss Chalet establishments in Sarnia, Ontario. (Energy Innovators Initiative, 2003). Using the average natural gas price in B.C., the additional cost for a typical restaurant would be \$179 per year to purchase the same quantity of fuel at the higher price. In practice establishments would have to cut their natural gas usage, either by cutting back on heating or reducing gas appliance usage, both of which would be challenging for restaurants and could entail costs of other kinds. It is also plausible that an increase in the price of gasoline and natural gas could lead to a rise in the price of other essential energy sources like electricity, which would further contribute negatively to B.C. businesses and households.

Aggregate Industry-wide Effects

An increase in the price of fossil fuels from proposed CFS will hurt industries in B.C. Overall, the proposed CFS is expected to create compliance costs of \$509 million. The private sector will experience a reduction in valuation of capital stocks of approximately \$12.8 billion. This is the value of capital at risk of leaving B.C. in order to protect rates of return on investments, and about 20,000 jobs will be lost as a result of CFS.