

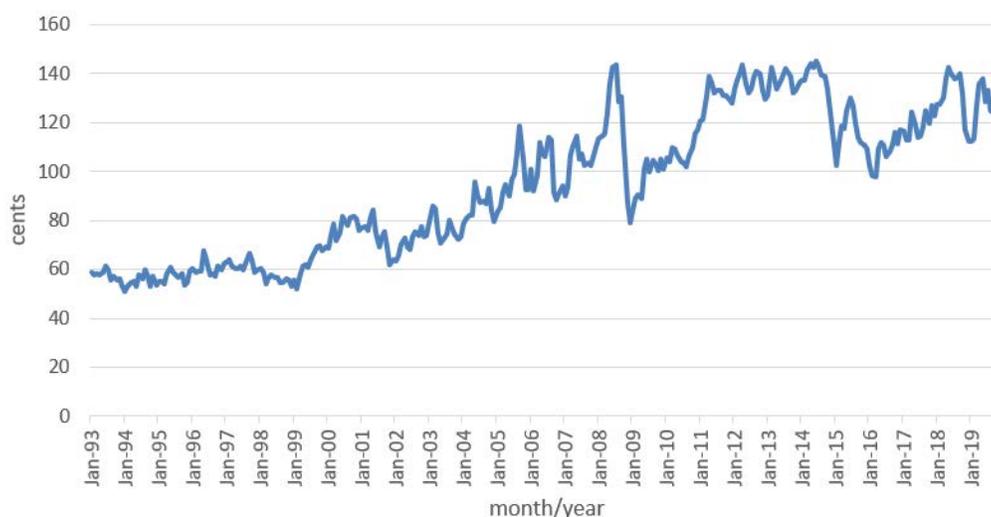
# Clean Fuel Standard CASE STUDY: QUEBEC

## Snapshot of macro effects for Quebec:

Direct compliance costs:	\$1.3 billion (\$332 per employed person)
Capital removed from economy:	\$3.3 billion
Job losses:	2,325
Increase in cost of gasoline:	10.1%
Increase in cost of natural gas:	4.2%
Main sectors affected:	Wholesale and retail sales (915 jobs) Banking, Finance and Professional Services (1,496 jobs) Entertainment, including Restaurants (838 jobs) Other Petrochemicals (239 jobs) Construction (204 jobs) Air, Rail and Bus Transportation (308 jobs)

## Household Effects

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 Quebec was \$406,332 (Newswire, 2019). According to Royal LePage (2019), the Greater Montreal Area had the highest price increase in 2019 in the housing market among Canada’s three biggest metropolitan areas. This is one of the reasons why from 1996 to 2016, “..the number of traditional commuters grew to 347,800 from 236,100, an increase of 47.3% (CBC, 2019). 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.

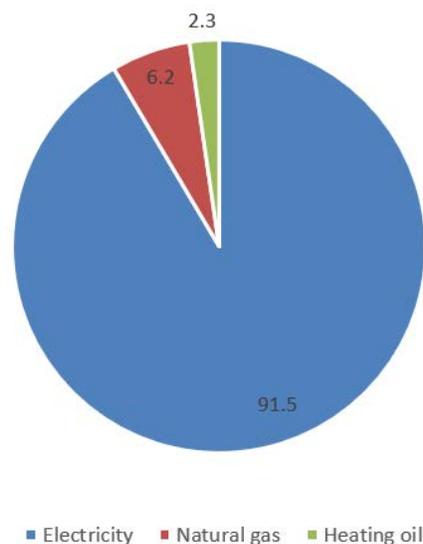


**Figure 1.** Nominal gasoline price in Quebec, 1993-2019.

Source: Statistics Canada 2020c

Figure 1 shows the historical price of gasoline in Montreal since 1993. According to the Statistics Canada 2016 Census of Population, there were 3,531,665 households in Quebec. The average annual gasoline price in Montreal was \$1.32 per litre in 2018 (Statistics Canada, 2020c). Our model estimates that of the 17% increase in production costs about 10.1% would be passed on to consumers in Ontario which implies the average purchase price would have been \$1.45 per litre of gasoline in 2018. Gasoline sales in Quebec in 2018 totaled 8.9 billion litres. Had the same volume of gasoline been purchased at the higher price the additional cost would have been \$1.2 billion or \$336 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 Montreal can include losing access to a large part of the regional job market. We estimate the reduction in gasoline consumption would only have been about 2.2%.

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 6.2% of heating in homes.



**Figure 2** Percentage distribution of energy used for heating by households in Quebec 2015.  
Source: Statistics Canada (2020h)

CERI (2019) estimated that the CFS would increase the price of natural gas by at least 60%. Since this is inconsistent with other goals of the policy we analysed the effects of a 5% increase the production cost of natural gas, of which about 4% is passed on to consumers. The average household in Quebec spent \$193 on natural gas in 2019. Under the CFS the same volume of gas purchase would thus have cost \$201, or \$8 more every year. By contrast a 60% increase would cost about \$116 per 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.

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<sup>1</sup>Due 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.

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### **Small Business Effects**

Quebec is home to 25% 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 1.67 GJ/m<sup>2</sup> annually in the region. In Quebec, about 30% of the total energy consumed by the commercial and institutional sectors was natural gas. Based on data from Natural Resources Canada we estimate that 45% of the total energy consumed by food service businesses is natural gas. We also assume a restaurant size of 600 m<sup>2</sup>, 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 Quebec, the additional cost for a typical restaurant would be \$60 per year to purchase the same quantity of fuel at the higher price.