

Clean Fuel Standard CASE STUDY: ALBERTA

Snapshot of macro effects for Alberta:

Direct compliance costs:	\$1.2 billion (\$508 per employed person)
Capital removed from economy:	\$5.0 billion
Job losses:	6,834
Increase in cost of gasoline:	10.1%
Increase in cost of natural gas:	4.1%
Main sectors affected:	Wholesale and retail sales (1,050 jobs)
	Banking, Finance and Professional Services (2,023 jobs)
	Entertainment, including Restaurants (855 jobs)
	Other Manufacturing (665 jobs)
	Natural Gas Production (1,014 jobs)
	Construction (507 jobs)

Household Effects

Jobs in Canada are concentrated in a small number of large cities like Toronto, Calgary, 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 Alberta was \$481,400 (CBC, 2020). According to CBC (2019), from 1996 to 2016, "...the proportion of suburban commuters in Calgary increased from 43 per cent to 56 per cent – the biggest growth in that category among the country’s largest cities”. 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 Alberta, 1993-2019.
Source: Statistics Canada 2020c

Figure 1 shows the historical price of gasoline in Calgary since 1993.¹ According to the Statistics Canada 2016 Census of Population there were 1,527,675 households in Alberta. The average annual gasoline price in Calgary was \$1.20 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 Alberta which implies the average purchase price would have been \$1.32 per litre of gasoline in 2018. Gasoline sales in Alberta in 2018 totaled 6.52 billion litres. Had the same volume of gasoline been purchased at the higher price the additional cost would have been just over \$782 million, or \$512 per household per year. In practice 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 Calgary 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 2.4%.

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 (79%) of heating in homes, making it a critical energy source for the province.

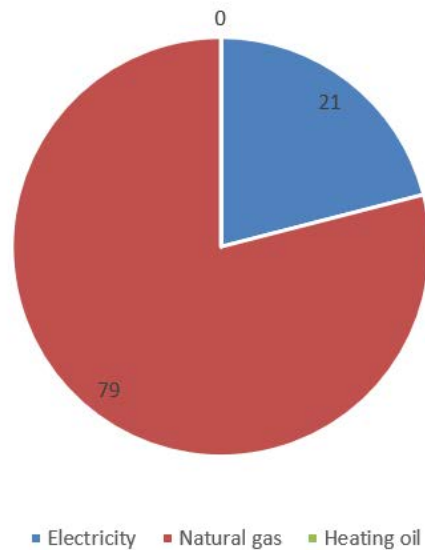


Figure 2 Percentage distribution of energy used for heating by households in Alberta, 2015.
Source: Statistics Canada (2020h)

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 analyzed 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 Alberta spent \$192 on natural gas in 2019. Under the CFS the same volume of gas purchase would have cost \$200, or \$8 more every year. By contrast a 60% increase would cost about \$115 per year. In practise households 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.

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.

Small Business Effects

Alberta is home to 7,854 micro, small and medium sized establishments (Statistics Canada, 2019). According to Natural Resources Canada (2013), the energy intensity for food service businesses, measured in Giga joules per square meter, is about 4.81 GJ/m² annually in the region. In Alberta, about 61% of the total energy consumed by the commercial and institutional sectors was natural gas. Based on data from Natural Resources Canada we estimate that 76% 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 Alberta the additional cost for a typical restaurant would be \$171 per year to purchase the same quantity of fuel at the higher price. In practise 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 Alberta businesses and households.