

May 13, 2008

## The price of gas How much will Quebecers have to tighten their belts?

Gas prices have been climbing at a dizzying pace since the beginning of the year. How will consumers deal with these increases? Québec households seem to be handling them better than in September 2005, when hurricanes Katrina and Rita sent prices soaring to over \$1.50/litre in some regions. We also haven't seen any grassroots boycotts this time around. How are these increases affecting consumers' budgets? How much of a dent does each one cent increase make in their pocketbooks? These are the questions this *Economic Viewpoint* will try to answer.

### THE PRICES OF GAS AND OIL

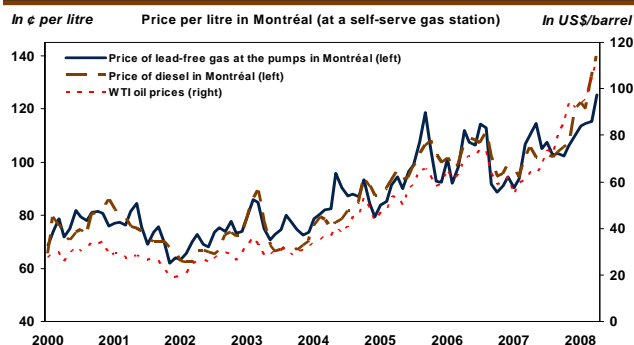
For a few years now, the price of crude has been the barometer of tensions in the energy market. Production, movement, weather (hurricanes, storms in the North Sea, etc.), politics, refining and speculation all affect price. And at over US\$120 ppb (for WTI: West Texas Intermediate)—the level reached in the last few days—tension is definitely at an all-time high.

At the same time, prices have been going up at the pump in Québec (graph 1). However, the prices of gas and diesel have not been rising as fast as crude. Thus, between 2000 and 2007, the average annual price of WTI rose 2.4 times whereas gas and diesel only went up 1.35 times.

From April 2000 to April 2008, the average monthly price of oil climbed from US\$25.80 to US\$112.34 ppb or 4.35 times. This calculation in current dollars allows us to make the comparison with gas prices during the same period. In April 2000, gas and diesel prices were, respectively, \$0.717 and \$0.722/litre and have practically doubled since.

In the last year the price of crude has exploded. In April 2007, WTI traded at an average of US\$63.97 ppb. One year later, that number had multiplied by 1.76 to \$112.34. As for gas, it was \$1.101/litre in Montréal in April 2007 but by last month had reached about \$1.25, a multiple of 1.14. This figure is an average since between April 1 and 30, the price of regular gas fluctuated between \$1.18 and just over \$1.30 in Montréal. By early May, it had easily surpassed even this level.

Graph 1 – Gas and diesel prices moving in step with crude since 2000



Sources: Datastream, Statistics Canada and Desjardins, Economic Studies

Graph 2 shows the large price fluctuations from one month to the next and from one year to the other. It also shows the clear upward trend in prices at the pumps in the last few years.

We see that retail prices have not climbed as fast as crude. That's because the strong Canadian dollar has absorbed some of the increase. As well, the prices of gas and diesel take into account more than just the cost of crude; they include the refiner's and retailer's margin, to which federal and provincial taxes are then added. Table 1 shows how these taxes are calculated. There are two types of taxes. The first is a fixed 10¢ federal excise tax and a 15.2¢ provincial tax on each litre of gas. The amounts for diesel are 4¢ and 16.2¢ respectively. In

**François Dupuis**  
Vice-President and Chief Economist

**Yves St-Maurice**  
Director and Deputy Chief Economist

**Mario Couture**  
Senior Economist

**Louis Gagnon**  
Senior

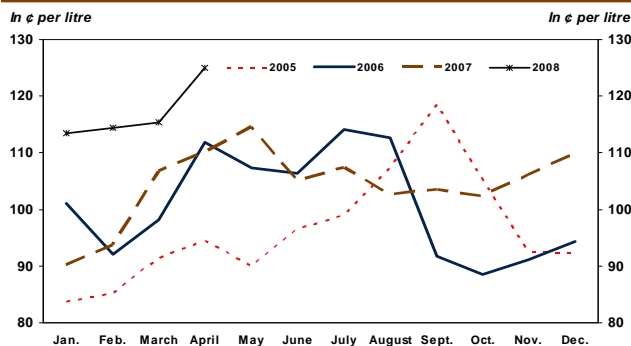
**Joëlle Noreau**  
Senior Economist

418-835-2450 or 1 866 835-8444, ext. 2450  
E-mail: [desjardins.economics@desjardins.com](mailto:desjardins.economics@desjardins.com)

**NOTE TO READERS:** The letters **k**, **M** and **B** are used in texts and tables to refer to thousands, millions and billions respectively.

**IMPORTANT:** This document is based on public information, obtained from sources that are deemed to be reliable. Desjardins Group in no way guarantees that the information is complete or accurate. The document is provided solely for information purposes and does not constitute an offer or solicitation for purchase or sale. The document may under no circumstances be construed as a commitment by Desjardins Group, which takes no responsibility for the consequences of any decision made based on the information herein. The prices and rates shown are for information purposes only as they may change at any time based on market conditions. Past returns are no guarantee of future performance, and Desjardins Group does not hereby purport to provide any investment advice. The opinions and forecasts contained herein are, unless otherwise indicated, those of the document's authors and do not represent the official position of Desjardins Group. Copyright © 2008, Desjardins Group. All rights reserved.

**Graph 2 – 2008 prices clearly above those for the last few years (monthly averages)**



Sources: Statistics Canada and Natural Resources Canada

Montréal, an additional 1.5¢ is collected for public transit. The second type is a percentage: 5% GST and 7.5% QST. Therefore, regardless of the price of crude, the fixed taxes stay the same. However, when the price of oil rises, so do the GST and QST.

Graph 3 compares the relative importance of each component that makes up the price of gas and shows the change in the relative proportion of the factors in function of price.

**AND WHERE DOES CONSUMER MORALE FIT INTO THIS EQUATION?**

The high prices that have assailed Québec drivers since the New Year are not a first. In 2005, hurricanes Katrina and Rita sent the price of crude through the roof when they hit the Gulf of Mexico, forcing the shutdown of wells, drilling rigs and refineries. Thus, from July to September, the average price of WTI climbed from US\$58.71 ppb to US\$65.66 (see graph 4), pushing prices at the pump into the stratosphere, from \$0.989/litre in July to \$1.185 by September, and as high as \$1.40 for a few days. Québec households were shell-shocked, as graph 5 shows.

**Table 1 – Taxes on petroleum products**

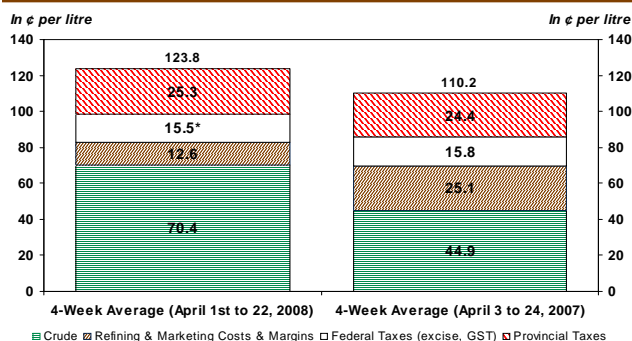
For each litre of fuel

	Gas	Diesel
<b>Federal government</b>		
Excise tax (in cents)	10	4
GST (in %)	5%	5%
<b>Provincial government</b>		
Tax on gas (in cents)*	15.2	16.2
QST (in %)	7.50%	7.50%
<b>Municipal government</b>		
Montréal (city tax) (in cents)	1.5	--

\*In Québec, taxes on gas and diesel are reduced by various amounts in certain remote regions and in a 20-km radius from provincial and American borders. In Montréal and neighbouring cities, and additional city tax of 1.5¢/litre applies on gas.

Source: Natural Resources Canada

**Graph 3 – Higher price, higher taxes...**



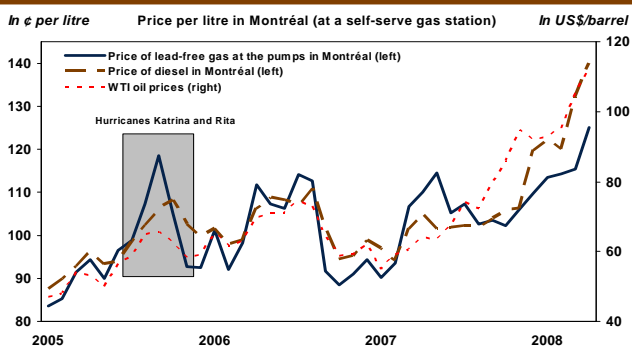
\* GST moved from 6% to 5% January 1, 2008  
Source: Natural Resources Canada

As we can see, despite an average price of \$1.25/litre in April 2008, the Consumer Confidence Index has not tumbled as it did in 2005. That said, prices have also not climbed at the same speed: in 2005 they shot up at a dizzying speed to unparalleled highs. In 2008, the psychological level of \$1.00/litre had already been breached for a while, which was not the case in 2005. The average monthly price of gas has been over \$1.00/litre in Québec since March of 2007. Moreover, since consumers have already seen \$1.20, that price point no longer comes as a shock.

**HAVE QUÉBEC DRIVERS BECOME INURED TO PRICE SIGNS?**

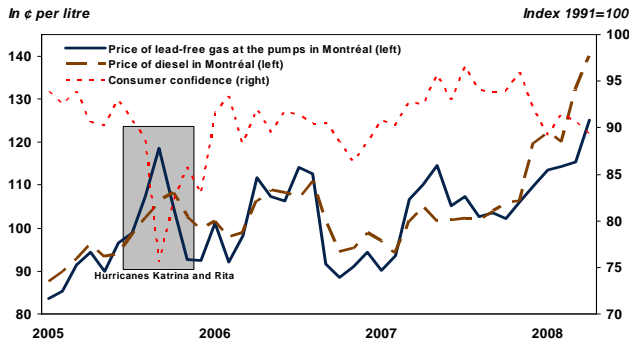
While consumer confidence has not crumbled, it has nevertheless fallen, mainly due to the worrisome economic situation of our principal trade partner south of the border. The price increases of recent years seem to be hitting a nerve with drivers. Statistics Canada compiles the number of gas and diesel litres sold in Québec. The most recent figures available are for 2006. Graph 6 shows that the number of gas and diesel litres sold has decreased since 2005. In 2006, net sales were 8,160 billion litres of gas and 3,176 billion litres of diesel, for a total of 11,336 billion litres. This is 267 million less (-2.3%) than the amount sold in the record year of 2004.

**Graph 4 – Hurricanes Katrina and Rita provoked more changes in gas prices than recent increases**



Sources: Datastream, Statistics Canada and Desjardins, Economic Studies

**Graph 5 – Québec confidence levels plummet in September 2005**



Sources: Statistics Canada and Desjardins, Economic Studies

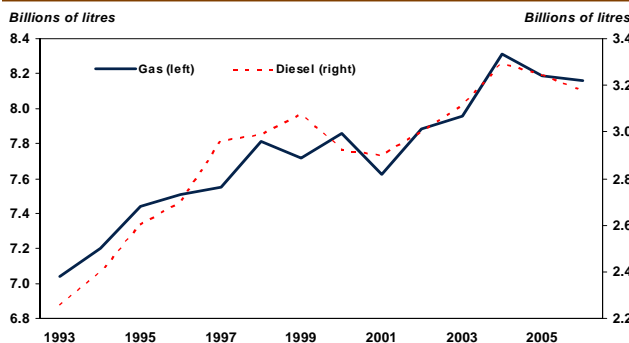
This situation is quite the opposite of what we are seeing in Alberta, where consumption is skyrocketing (graph 7). Then again, the province’s oil and gas industries are firing on all cylinders and the population is growing.

Still, despite falling consumption in Québec, transportation- and gas-related expenses are taking a growing chunk out of the household budget (table 2). Stat Can’s Survey of Household Spending (SHS) allows us to look back as far as 2006. The increase in the amount of money spent on transportation means cuts will have to be made elsewhere.

**IMPACT ON NEW CAR PURCHASES**

The signal sounded by high gas prices is also being heard by new car buyers. Based on a Canadian survey conducted by MJ Ervin & Associates and reported on by DesRosiers Automotive Consultants, rising gas prices encourage buyers to purchase entry level vehicles, more commonly known as sub-compact or compact vehicles: in other words, smaller cars. Toyota’s Yaris, Nissan’s Versa, Volkswagen’s Rabbit, Honda’s Fit and Civic, the Chevrolet Cobalt, and the Subaru Impreza are just a few examples of car models in this category.

**Graph 6 – Gas and diesel consumption in Québec: number of litres consumed down since 2005**



Sources: Statistics Canada and Desjardins, Economic Studies

**Table 2 – Spending on transport in Québec on the rise**

Relative impact on total spending	In %	
	Gas	Transport
1997	2.91	11.78
1998	2.62	11.55
1999	2.77	12.65
2000	3.15	12.66
2001	2.82	12.44
2002	2.99	13.46
2003	2.93	13.49
2004	3.11	13.15
2005	3.34	12.93
2006	3.29	13.32

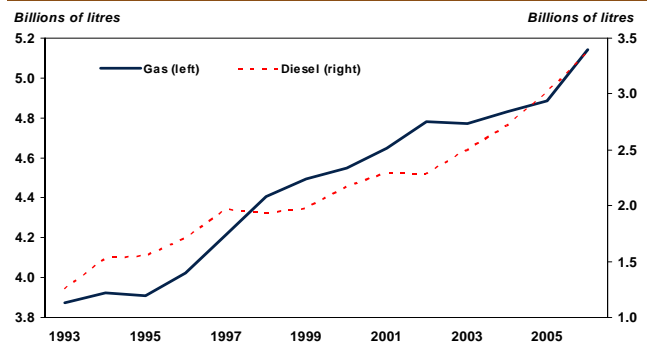
Source: Statistics Canada, Household Survey

Graph 8 is particularly eloquent. This graph shows that the market share of entry level vehicles tends to increase in terms of monthly sales when gas prices rise. This phenomenon is seen at the individual level for businesses that operate a fleet of cars. In 1997, the market share of new entry level cars purchased by individuals was 34.4%. Ten years later, this number has hit 51.8%. Entry level vehicles represented only 17.9% of all new cars purchased in 1997, while this share increased to 25% in 2007.

**WHAT DOES A ONE CENT INCREASE PER LITRE REALLY COST?**

Table 3 illustrates the consumption of gas and diesel in the number of litres, from 2004 to 2006. Table 4 presents the data on gas prices at the pump, from 2004 to the first quarter of 2008. Assuming that gas consumption in Québec remains unchanged vs. data for 2006, it would cost \$82 million more annually for Québec drivers (individuals, businesses and governments) if the average price in 2008 was one cent higher than the average price in 2007. If we add diesel to the mix, it would cost \$113 million more per year if the price of gas and diesel increased by one cent vs. the average prices last year.

**Graph 7 – Consumption skyrocketing in Alberta**



Sources: Statistics Canada and Desjardins, Economic Studies

Several scenarios can be developed; they are presented in Table 5. The basic assumption is that the level of gas consumption is the same as it was in 2006, which allows us to reconcile data on the growing number of vehicles registered in Québec (see graph 9) and the purchase of less gas-hungry cars. Consumption is therefore estimated at 8,160 billion litres of gas and at 3,176 billion litres of diesel. We could presume that consumption has declined, but it would be very difficult to attribute this drop to individuals or businesses. Companies have started to favour trains to transport their goods. However, it is difficult to assess exactly what has been transferred to other modes of transport and what continues to be transported by truck.

Scenario 1 is based on a gas price of \$1.15/litre with diesel at \$1.25 (which suggests an increase of 10.7 cents per litre of gas and approximately 21.5 cents for diesel vs. the 2007 average). Bear in mind that the average price for the first quarter of 2008 is already at \$1.144 for gas and \$1.247 for diesel. As such, these new prices represent an additional expense of more than \$1.5B for individuals and businesses vs. the amounts spent on gas and diesel in 2007.

The second scenario suggests an average price of \$1.25/litre for gas and \$1.35 for diesel for 2008 (increases of 20.7 cents and 31.5 cents per litre of gas and diesel respectively vs. the average for 2007). This represents an additional expense of almost \$2.7B for motorists vs. 2007.

The last scenario is even more alarming: average prices for gas and diesel would both be at \$1.40/litre for 2008 (increases of 35.7 cents and 36.5 cents per litre of gas and diesel respectively vs. the average in 2007). This represents an additional burden of slightly more than \$4B than in the previous year.

**Table 3 – Fuel consumption in Québec**

	Type of fuel (in billions of litres)		
	2004	2005	2006
Gas	8.310	8.187	8.160
Diesel	3.293	3.242	3.176
Total	11.603	11.429	11.336

Source: Statistics Canada

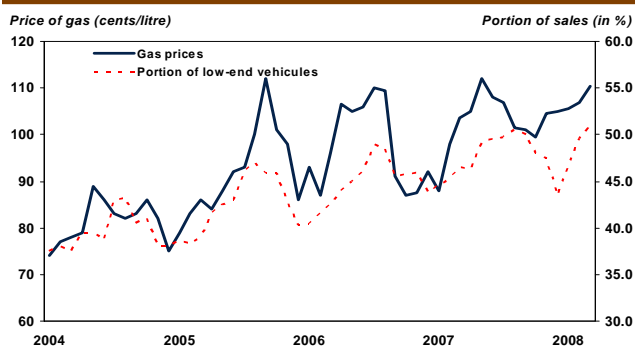
**Table 4 – Fuel prices: annual average in Montréal**

	Fuel type (\$/litre)				
	2004	2005	2006	2007	2008*
Gas	0.8575	0.9635	1.0077	1.0433	1.1440
Diesel	0.8214	0.9768	1.0243	1.0348	1.2477

\* 1<sup>st</sup> quarter

Source: Statistics Canada

**Graph 8 – Prices at the pump have an effect on sales of new automobiles in Canada**



Sources: MJ Ervin & Associates, DesRosiers Automotive Consultants Inc.

**HOW IMPORTANT ARE THESE FIGURES?**

In 2007, the total sum of personal expenses in goods and services was \$181.2B (in current dollars). We can try to estimate the relative importance of supplemental expenses generated by increased gas prices by comparing the «surplus to be paid» with total personal expenditures. To do so, we must estimate household fuel consumption in total fuel sales. The opinions gathered from different companies that compile statistics lead us to assume that 80% of all gas sales (excluding diesel) can be attributed to individuals. The remaining 20% is purchased by businesses and governments.

By assuming that 80% of the gas in Québec is purchased by individuals (or 80% of 8,160 billion litres = 6.5 billion litres), we can calculate the following. Based on the assumption that a litre of gas costs \$1.15, the difference with 2007 is \$694 million. For a more detailed version, we have:

- for 2007: 6.5 billion litres at \$1.0433/litre = \$6.781B
- for 2008: 6.5 billion litres at \$1.15/litre = \$7.475B

The difference between 2007 and 2008 is therefore: \$694M.

If the price of a litre of gas is \$1.25, the variance between 2007 and 2008 is \$1.3B. If the price per litre is \$1.40, the difference is \$2.3B.

A variance of \$694 million on total expenses of more than \$181.2B represents less than 1/2 to 1% of personal expenses. A difference of \$1.3B accounts for less than 1% (0.7%). An addition of \$2.3B in gas expenses represents approximately 1.3% of personal expenses for goods and services for one year. The effects are more significant if we make the calculation for goods only, which represented \$89.7B in current dollars in 2007. As such, the respective dent in each scenario is 0.8% in expenses for goods only, 1.4% and 2.6%.

There are drawbacks, however: the data present an overview of the situation. For households, the situation may be different given the leeway in household budgets. Households may

**Table 5**  
**Three price scenarios for 2008**

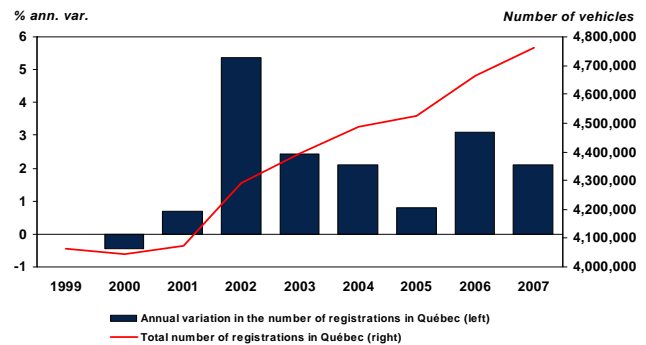
	Type of fuel (\$/litre)			
	In 2007	In 2008	In 2008	In 2008
	Gas: \$1.0433 Diesel: \$1.0348	Gas: \$1.15 Diesel: \$1.25	Gas: \$1.25 Diesel: \$1.35	Gas: \$1.40 Diesel: \$1.40
Gas	\$8,513B	\$9,384B	\$10,200B	\$11,424B
Diesel	\$3,287B	\$3,970B	\$4,288B	\$4,446B
Total	\$11,800B	\$13,354B	\$14,488B	\$15,870B
		Represents \$1,554B more than in 2007	Represents \$2,688B more than in 2007	Represents \$4,070B more than in 2007

Source: Statistics Canada

change their transportation or driving habits which would lead to lower gas consumption. If family finances are tight, perhaps other strategies to reduce expenses elsewhere may be adopted (fewer meals in restaurants, fewer sporting activities, reduced entertainment expenses, etc.). Some may even give up the second car. Others may decide to put away the snowmobile or all-terrain vehicle. The choices made in households could also lead them to make substitutes when deciding how to spend, for example on clothing. A survey on consumer spending habits or an update to the Survey on Household Spending could provide a glimpse of the strategies employed in households to deal with increased fuel costs. Incidentally, the elasticity of fuel prices, which is defined as the rapport between the relative variance in the demand for fuel and the relative variance of fuel prices, is not very wide. Motorists are, in short, a captive audience. In the short-term, once alternative solutions become available, motorists could end up with more flexibility and react faster to price increases by reducing their consumption.

As far as the question «How much of a dent does each one cent increase make in their pocketbooks?» is concerned, the answer depends on whether we focus on the overall situation or if we concentrate on households. At \$1.20 per litre, a certain number of households will have to tighten their belts if they intend to maintain the same level of fuel consumption. A calculation can be quickly made using the parameters provided by the CAA in the 2008 edition of its *Driving Costs* brochure. Assuming average consumption of 7.04 litres per 100 kilometres and 18,000 kilometres per year by each Québec vehicle owner, we can roughly estimate how much the price increases will cost drivers in 2008. Based on an annual consumption of 1,300 litres, if the average price of gas rises from \$1.043/litre in 2007 to \$1.15 in 2008, it will cost \$139.10 more to drive a car this year. If the price at the pump averages \$1.25/litre in 2008, drivers will fork out an additional \$269.10 and \$464.10 if the price ends up at \$1.40/litre. These estimates can be adjusted based on vehicle size, weather and road conditions, actual mileage, vehicle maintenance and type of road (streets, boulevards or highways).

**Graph 9 – In Québec, the number of vehicle registrations saw good growth**



Sources: Statistics Canada and Desjardins, Economic Studies

If the price of gas and diesel should reach an average of \$1.40/litre in 2008, we have to anticipate that energy consumption will decline. In this case, the assumptions mentioned above that call for consistent consumption could paint a more pessimistic picture of what we may very well see. And since adaptation strategies are unique to humans, it will be interesting to see how the next year unfolds. Stay tuned.

**Joëlle Noreau**  
Senior Economist