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# Fuel Focus

*Understanding Gasoline Markets in Canada  
and Economic Drivers Influencing Prices*

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Canada

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## National Overview

### Canadian Retail Gasoline Prices Increase for the Second Straight Week

For the week ending February 21, 2012, Canadian average retail gasoline prices increased by 0.3 cent per litre from the previous week to \$1.27 per litre. However, since the last report two weeks ago, retail pump prices rose by more than 4 cents per litre. Prices are above last year's level by 12 cents per litre.

Diesel fuel prices rose by 0.3 cent per litre from the previous week to \$1.30 per litre, while furnace oil prices increased by 0.4 cent ending at \$1.21 per litre. Compared to a year ago, prices for diesel and furnace oil are 12 and 17 cents per litre higher, respectively.

Average retail pump prices across Canada moved upward on higher wholesale gasoline prices, which in turn reflected the increase in world crude oil prices, particularly the North Sea Brent. The Middle East political stability remains fragile in oil producing countries, pushing crude oil futures price upward.

### Recent Developments

- Canadian and U.S. Oil Production to Increase 36% by 2016:** According to a report by Bentek Energy called *Crude Awakening: Shale Boom Hits Oil* total U.S. and Canadian crude oil production is projected to reach a record high in 2016 of more than 12 million barrels per day – outpacing U.S. demand growth – and overseas U.S. oil imports are projected to drop 41% by 2016 as they are pushed out by the new production. U.S. and Canadian crude oil production will grow 3.1 million barrels per day, or 36%, over the next five years. The result: downward pressure on U.S. oil prices such as West Texas Intermediate, and a continuation of deep discounts to international prices, which will prompt foreign suppliers to seek other international markets for their light crude. (Source: Global Refining and Fuels Report, February 7, 2012)

- Canadian Crude Oil Production Up 2% in November 2011:** Production of crude oil and equivalent hydrocarbons increased 2% to 15.2 million cubic metres in November 2011 compared to the same month a year earlier. Exports increased 11% to 11 million cubic metres. About 73% of Canada's total domestic production went to the export market compared to 67% a year earlier. Imports fell 2% to 3.6 million cubic metres. (Statistics Canada, The Daily, <http://www.statcan.ca/daily-quotidien/120210/dq120210b-eng.htm>)

- Increase in Domestic Gasoline Sales:** Motor gasoline sales increased 1% to 38 billion litres in the first ten months of 2011 compared to the same period in 2010. Diesel fuel sales rose nearly 7% to 25 billion litres, while light fuel oil (furnace oil) increased 7% to 2.8 billion litres in the same time period. (Source: NRCan and Statistics Canada)

Figure 1: Crude Oil and Regular Gasoline Price Comparison (National Average)

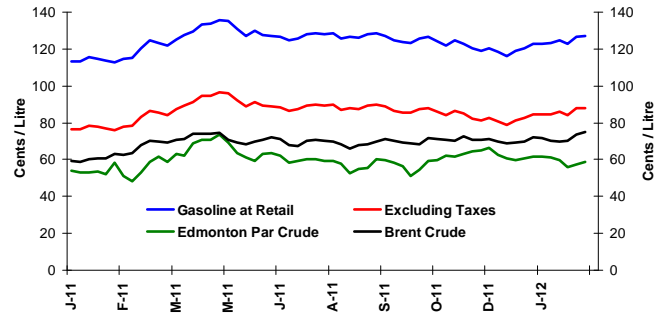
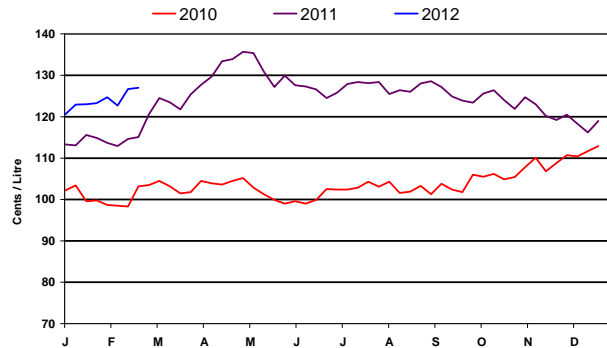


Figure 2: Weekly Regular Gasoline Prices



### Changes in Fuel Prices

| ¢/L         | Week of:   | Change from:  |           |
|-------------|------------|---------------|-----------|
|             | 2012-02-21 | Previous Week | Last Year |
| Gasoline    | 127.0      | +0.3          | +11.8     |
| Diesel      | 130.3      | +0.3          | +11.8     |
| Furnace Oil | 120.6      | +0.4          | +17.0     |

Source: NRCan

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## Retail Gasoline Overview

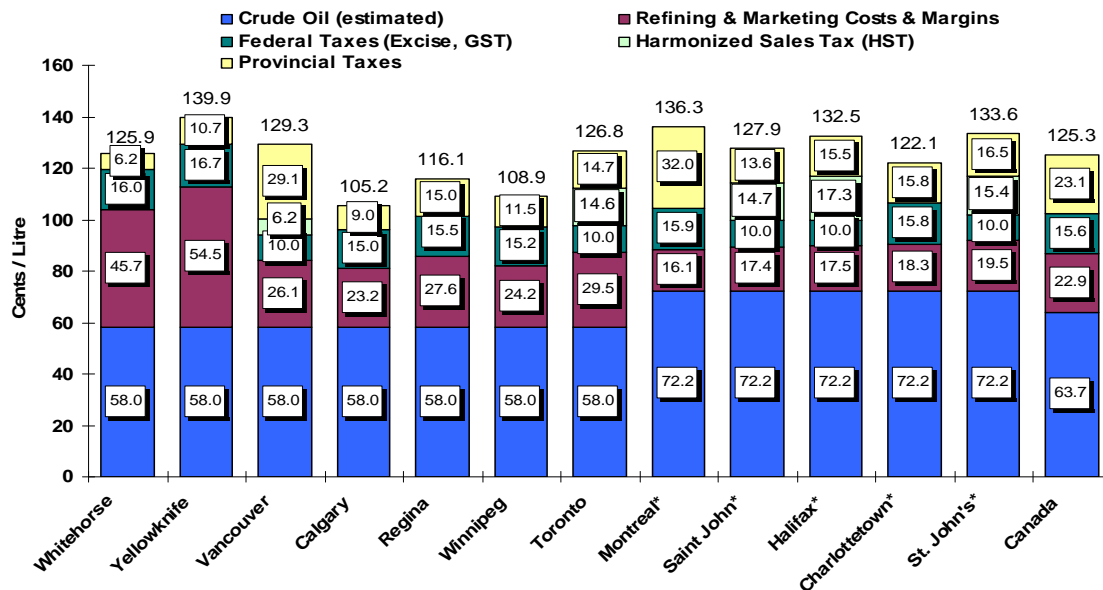
The **four-week average** regular gasoline pump price in selected cities across Canada was \$1.25 per litre for the period ending **February 21, 2012**. This is 11 cents per litre higher than prices recorded at the same time last year.

The **four-week average** crude oil price component of gasoline registered at 64 cents per litre, down slightly by 0.3 cent per litre from two weeks ago. Compared to the same period in 2011, the crude oil price component of gasoline is 7 cents per litre higher.

Ranging from \$1.05 per litre to \$1.29 per litre, retail gasoline prices in most Western centres increased, on average, by 1 cent per litre when compared to two weeks ago. Prices in Eastern centres increased on average by 2 cents per litre, and ranged from \$1.21 per litre to \$1.36 per litre.

At the national level, refining and marketing costs and margins increased by 2 cents per litre from two weeks ago, and are 2 cents per litre higher than last year at this time.

**Figure 3: Regular Gasoline Pump Prices in Selected Cities  
Four-Week Average (January 31 to February 21, 2012)**



Source: NRCan

\* Regulated Markets

### Refinery Configuration – Making Refined Petroleum Products

A refiner's choice of crude oil will be influenced by the type of processing units at the refinery. Crude oil is always a mix of lighter and heavier hydrocarbons. Lighter hydrocarbons are small molecules with fewer carbon atoms. The longer the hydrocarbon chain molecule, the more carbon and the heavier the oil. Refineries fall into three broad categories. The simplest is a topping plant, which consists only of a distillation unit and perhaps a catalytic reformer to provide octane. Yields from this plant would most closely reflect the natural yields from the crude processed. Typically only light sweet crude would be processed at this type of facility unless markets for heavy fuel oil are readily and economically available. Asphalt plants are topping refineries that run heavy crude oil because they are only interested in producing asphalt. Asphalt is one of the heaviest types of crude oil.

The next level of refining is called a cracking refinery. This refinery takes the light / medium components of the crude oil input stream, breaks the molecules apart, using catalysts, high temperature and/or pressure, to make lighter gasoline and distillate components.

The last level of refining is the coking refinery. This refinery processes residual fuel, the heaviest material from the crude input stream, and thermally cracks it into lighter product in a coker or a hydrocracker. The addition of a fluid catalytic cracking unit (FCCU) or a hydro cracker significantly increases the yield of higher-valued products like gasoline and diesel oil from a barrel of crude, allowing a refinery to process cheaper, heavier crude while producing an equivalent or greater volume of high-valued products.

Source: Fuel Focus, Refinery Economics, <http://www.nrcan.gc.ca/energy/sources/petroleum-products-market/1519>





## Wholesale Gasoline Prices

Wholesale gasoline prices increased in all centres for the **week of February 16, 2012**, compared to the previous week. Price changes ranged from an increase of less than 1 cent per litre to 7 cents per litre.

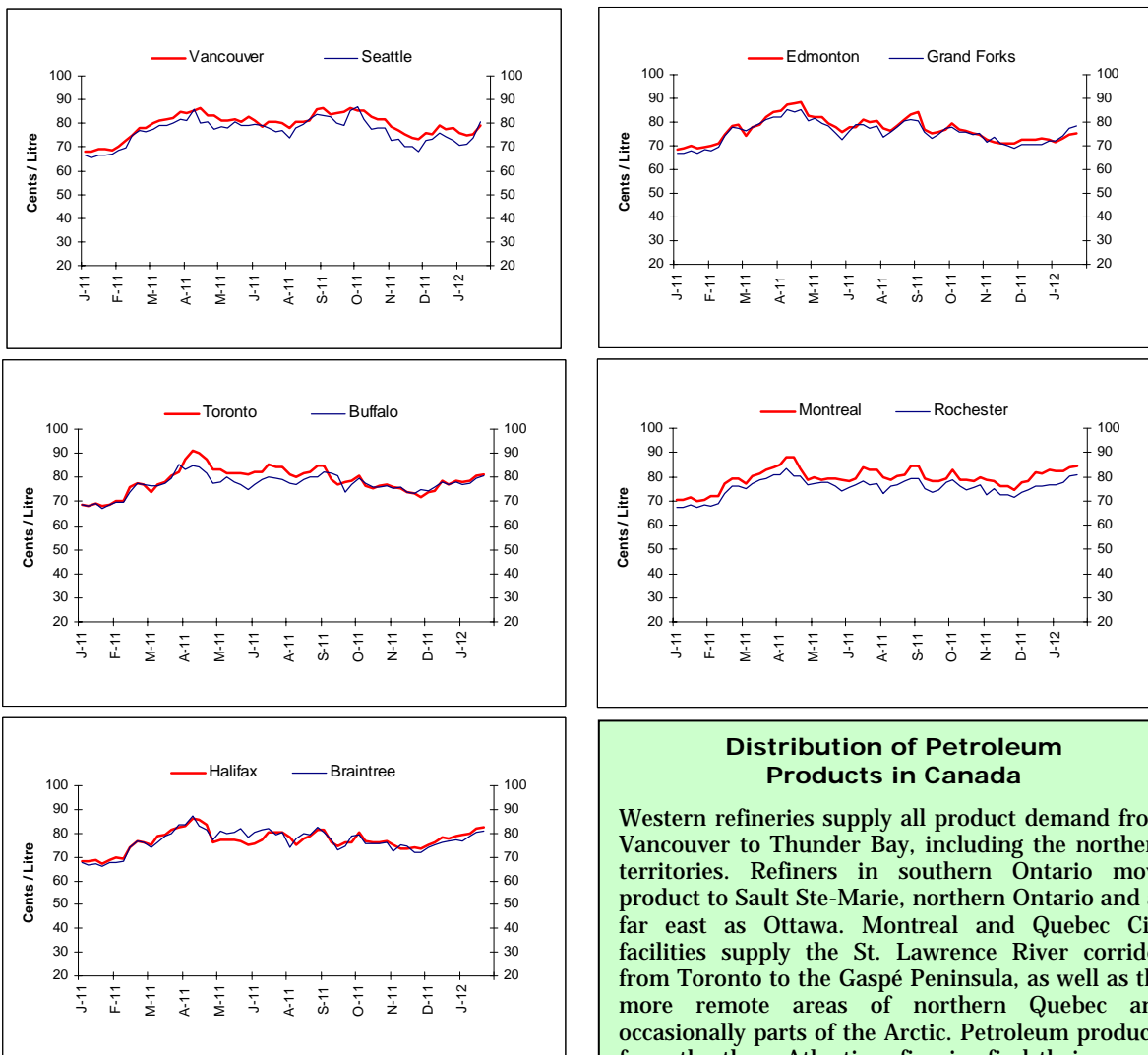
For the Eastern markets in Canada and the United States, wholesale gasoline prices rose by less than 1 cent per litre when compared to the previous week, and ended the period in the 81 to 85 cents per litre range.

Wholesale prices in Canadian and U.S. Western centres increased by less than 1 to 7 cents per litre, ending the period in the 75 to 81 cents per litre range.

In the last **four weeks**, wholesale prices in the selected Canadian and American centres have increased from 1 cent per litre to nearly 8 cents per litre.

Overall, compared to a year ago, prices in all selected centres are higher by 4 to 13 cents per litre.

**Figure 4: Wholesale Gasoline Prices**  
Rack Terminal Prices for Selected Canadian and American Cities Ending February 16, 2012  
(Can ¢/L)



Sources: NRCan, Bloomberg Oil Buyers Guide

**Distribution of Petroleum Products in Canada**

Western refineries supply all product demand from Vancouver to Thunder Bay, including the northern territories. Refiners in southern Ontario move product to Sault Ste-Marie, northern Ontario and as far east as Ottawa. Montreal and Quebec City facilities supply the St. Lawrence River corridor from Toronto to the Gaspé Peninsula, as well as the more remote areas of northern Quebec and occasionally parts of the Arctic. Petroleum products from the three Atlantic refineries find their way to the Arctic and Hudson Bay regions as well as the U.S. eastern seaboard.





## Gasoline Refining and Marketing Margins

**Four-week rolling averages** are used for gasoline refining and marketing margins.

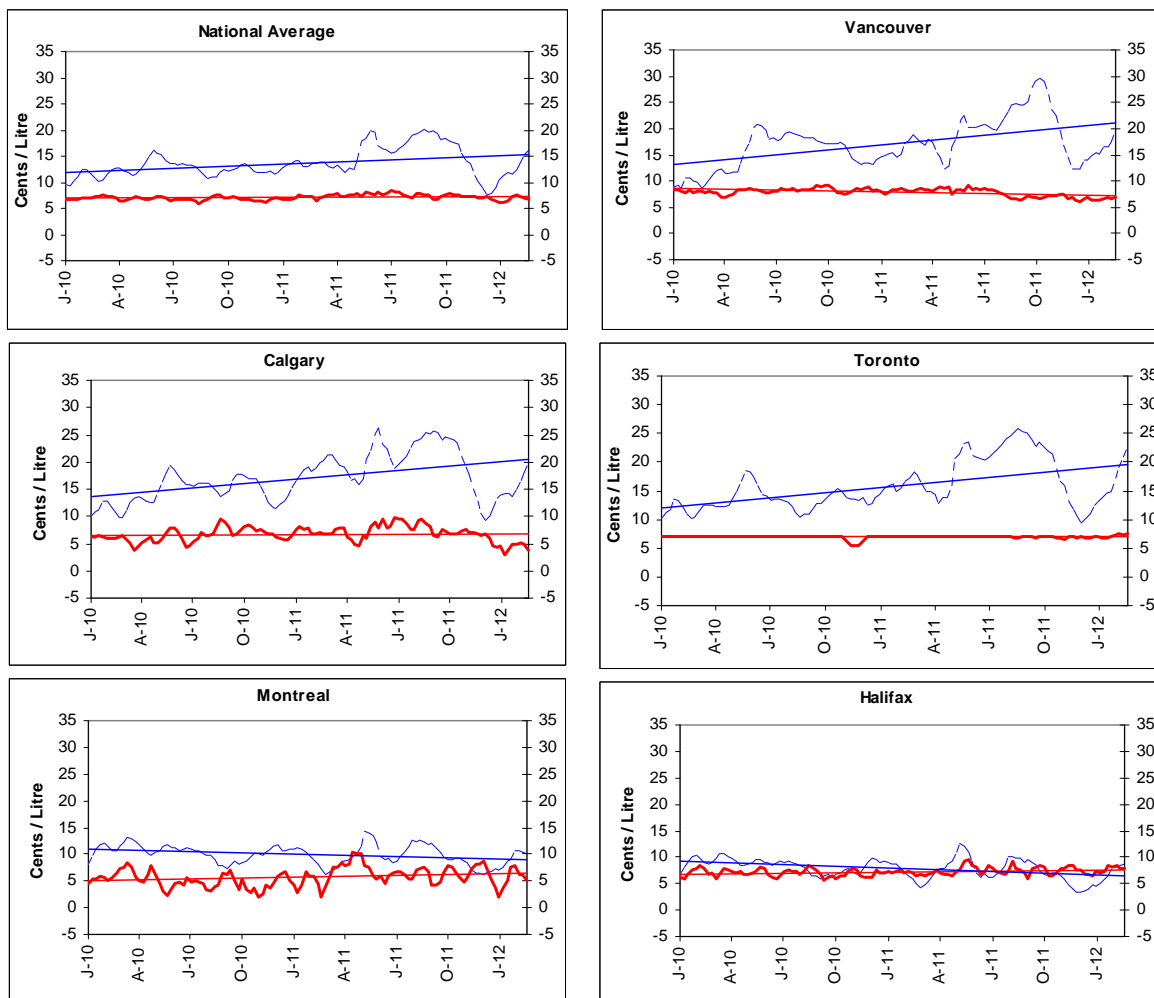
The refining margin is defined as the difference between the wholesale price of gasoline and the crude oil price. However, this margin is very much a function of the gasoline supply situation and local market conditions. In turn, local market conditions can have a considerable impact on short-term wholesale gasoline prices.

The marketing margin can differ significantly from city to city and region to region. These margins must cover

the costs associated with transporting product through the distribution system. Some of the distribution challenges arise from the fact that petroleum products are refined in only a few geographic regions but they are consumed all across Canada.

Alberta and Saskatchewan produce more products than they consume, while Manitoba, parts of British Columbia and most of the territories are supplied primarily from the three refineries in Edmonton. As a result of the long distance the products must travel the margins are also higher in these areas.

**Figure 5: Gasoline Refining and Marketing Margins**  
Four-Week Rolling Average Ending February 21, 2012  
----- Refining Margin      — Marketing Margin



Source: NRCan





## Crude Oil Overview

### World Crude Oil Prices Rise on Political Tensions in Oil Producing Countries

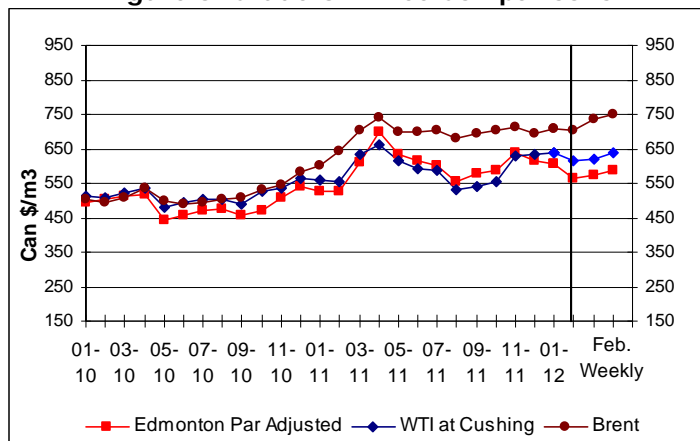
For the week ending February 17, 2012, prices for the three marker crudes averaged between \$589/m<sup>3</sup> and \$751/m<sup>3</sup> (US\$94 to US\$120 per barrel). This is an increase of \$20/m<sup>3</sup> (US\$3 per barrel) for WTI and Edmonton Par, respectively, compared to the previous week, while Brent increased by \$14/m<sup>3</sup> (US\$2 per barrel)—its highest weekly average in more than three years. The price differential between Brent and WTI stood at \$114/m<sup>3</sup> (US\$18 per barrel) for the week ending February 17, 2012.

The Middle-East impasse with respect to Iran's nuclear program and Western countries partly contributed to the upward pressure on world crude oil prices. Iran's

threat to cut oil exports to six European countries, in retaliation for an E.U. ban on Iranian oil being phased in over the next four months, and continued threat to close the Strait of Hormuz, sent crude oil prices spiking.

The geographic location of the oil producing countries around the Persian Gulf, and their reliance on the Strait of Hormuz, is such that any related threat causes prices swings on the energy markets. The oil producing nations around the Persian Gulf are Bahrain, Iran, Iraq, Kuwait, Saudi-Arabia, Qatar and the United Arab Emirates producing 30% of the world's oil. Iran is the world's fourth-largest oil producer.

Figure 6: Crude Oil Price Comparisons



Changes in Crude Oil Prices

| Crude Oil Types | Week Ending:<br>2012-02-17 |              | Change From:             |              |                          |              |
|-----------------|----------------------------|--------------|--------------------------|--------------|--------------------------|--------------|
|                 |                            |              | Previous Week            |              | Last Year                |              |
|                 | \$Can/<br>m <sup>3</sup>   | \$US/<br>bbl | \$Can/<br>m <sup>3</sup> | \$US/<br>bbl | \$Can/<br>m <sup>3</sup> | \$US/<br>bbl |
| Edmonton Par    | 588.64                     | 93.80        | +20.27                   | +3.13        | +104.17                  | +15.68       |
| WTI             | 637.66                     | 101.61       | +20.17                   | +3.11        | +108.47                  | +16.28       |
| Brent           | 751.28                     | 119.72       | +14.91                   | +2.25        | +117.67                  | +17.55       |

Source: NRCan

### U.S. Short-Term Energy Outlook

The U.S. Energy Information Administration (EIA) report released on February 7, 2012, expects the price of West Texas Intermediate (WTI) crude oil to average about \$100 per barrel in 2012, almost \$6 per barrel higher than the average price last year.

Based on recent futures and options data, the market believes there is about a one-in-fifteen chance that the average WTI price in June 2012 will exceed \$125 per barrel, and about a one-in-fifty chance that it would exceed \$140 per barrel. For 2013, EIA expects WTI prices to continue to rise, reaching \$106 per barrel in the fourth quarter of next year.

EIA expects regular-grade motor gasoline retail prices to average \$3.55 per gallon (94 cents per litre) in 2012, compared with \$3.53 cents per gallon last year, and then average \$3.59 per gallon in 2013.

During the April through September peak driving season each year, prices are forecast to average about 7 cents per gallon higher than the annual average. Recent options and futures price data imply that the market believes that there is about a one-in-four chance that the U.S. average pump price of regular gasoline could exceed \$4 in June of this year.

Source: EIA, <http://www.eia.gov/forecasts/steo/index.cfm>

