



# FUEL *for thought*

## West-to-East Pipelines: Strengthening Canadian Refinery Competitiveness

Canada's fast growing oil production is outgrowing its oil transportation infrastructure. Canada produced 3.2 million barrels of oil per day in 2012 and that number is expected to more than double by 2030, according to the Canadian Association of Petroleum Producers. But Canada's existing pipeline infrastructure is already at capacity, creating bottlenecks to getting our oil to market.

Several proposed pipeline projects that would resolve these bottlenecks are currently under consideration or formal review, and generating animated conversations. Two projects—Enbridge's proposed reversal of its Line 9 pipeline between North Westover in Ontario and Montreal (for which a National Energy Board decision is expected by mid-March), and TransCanada's Energy East proposal to convert a portion of its existing natural gas pipeline to carry crude oil and extend it from Montreal to Saint John, New Brunswick—could be game changers for refineries in Eastern Canada.

As surprising as it seems, Eastern refineries currently have virtually no access to crude oil from Western Canada; they rely on imported oil that may be shipped from as far as halfway around the world. Crude oil from Canada's East Coast is also used, but imports are the main source of crude supply. Call it Canada's pipeline paradox: while oil producers in Western Canada sell their oil at a price discount due to lack of pipeline access to markets, Eastern refineries import crude oil at a price premium.

Hence, Western Canadian crude producers and Eastern Canadian refiners both gain from pipelines that bring Western Canadian crude to the East. For Western producers, access to Eastern Canada markets enables a higher value for the crude they produce. For Eastern refiners, access to crude oil from Western Canada is an important opportunity to increase cost-effectiveness and maintain competitiveness. It opens the door to greater choice in crude oil selection based on availability, grade and price.

The benefit to Eastern refiners was well documented by the Montreal Economic Institute (MEI) in an economic note published in August 2013.<sup>1</sup> According to the MEI, "being able to supply themselves with crude oil from Western Canada could help ensure the profitability and competitiveness of the East's three refineries".

MEI also concluded that a pipeline network to the East would protect refineries from possible supply disruptions from politically unstable countries and enable them to pay a lower price for oil, at least in the short and medium term. The paper also notes that access to Western Canadian crude could trigger significant new refinery investments to allow them to process heavier Canadian crude oil.

Suncor confirmed last September that it would reconsider a shelved plan for a coker to process heavier grades of crude oil at its refinery in Montreal if Enbridge's Line 9 project gets the green light. The addition of a coker depends on gaining good access to "western and inland crude oil", Suncor CEO Steve Williams said.

In a nutshell, new pipeline capacity—be it West, East or South—is essential to enable Canada to fully benefit from its surging oil production in a world where energy demand is expected to grow by more than one-third by 2035.<sup>2</sup> Failure to get our oil to markets is detrimental to Canada's economic growth and Canadians' prosperity. West-to-East pipelines that provide Eastern Canadian refineries with access to Western crude will help secure their future and the jobs they provide and communities they support. It's a win-win for Canada.



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<sup>1</sup> Montreal Economic Institute, [www.iedm.org/45628-the-economic-benefits-of-pipeline-projects-to-eastern-canada](http://www.iedm.org/45628-the-economic-benefits-of-pipeline-projects-to-eastern-canada), 2013

<sup>2</sup> International Energy Agency, *World Energy Outlook 2012*, 2012

# Supplying Fuels Through Winter's Worst



When bad weather is predicted, fuel suppliers take the same precautions as other drivers; sometimes it's best to stay off the roads.

Few would argue about this winter's harshness. Sustained periods of frigid temperatures, long bouts of freezing rain, and frequent snow storms have given us a full spectrum of cruel winter weather conditions across the country. In late December, right at the start of the holiday season, Southern Ontario, Québec and Atlantic Canada were hit by a devastating ice storm that knocked down trees and power lines, made driving hazardous and left hundreds of thousands of people without power, some for several days. In early January, a severe blizzard knocked out power to most of Newfoundland and Labrador.

Canada's fuel distributors weren't spared the winter wallop. Several elements of the complex transportation fuel supply chain were affected by these weather events. In Newfoundland a refinery was knocked off line for nearly a week by the massive, weather-related power failure. Elsewhere, the flow of refined products by pipeline to storage terminals was slowed by power outages, and icy road conditions hindered delivery of fuel by truck and rail. As a result, some localized retail outlets were hit with temporary fuel shortages.

In the best of times, getting transportation fuels from the refinery to the pump is a complex task. Fuels produced by refineries are first stored on-site in tank farms, then loaded onto trucks, trains or barges or transported by pipeline to Canada's 21 primary fuel distribution terminals, 50 regional terminals and cardlocks, which are unmanned fuelling sites for freight trucks. Tanker trucks then collect fuel from the terminals and deliver it to over 12,000 retail service stations

and countless farms and commercial consumers. When nature unleashes its worst, every step of the process can potentially be affected, resulting in local supply disruptions. However, widespread and long duration shortages are extremely rare.

Canadian Fuels Association members are proactive in managing their distribution systems to ensure Canadians have access to a reliable and timely supply of fuel, even in harsh weather. Continuous improvement in supply system reliability is a sector priority.

When bad weather is predicted, fuel suppliers take the same precautions as other drivers; sometimes it's best to stay off the roads. When weather-related disruptions do occur, members are quick to take action—communicating with customers and implementing allocation systems to ease the burden of supply disruptions on retailers, and to ensure commercial and retail customers remain supplied with fuel.

Canadian Fuels members have a solid track record of supply reliability, in all seasons and in all weather conditions. But it's sometimes impossible to avoid short-term local supply disruptions during extreme winter weather conditions. Our members do everything they can to meet their consumers' needs, but will never compromise the safety of their personnel and customers, nor the quality of the products customers expect. When winter threatens its worst, customers are wise to ensure they have an adequate supply of fuel to get them safely through the storm.

## Canadian Fuels Welcomes a New Member

**The Canadian Fuels Association is pleased to welcome Irving Oil as its newest member.**

Founded in 1924 by K.C. Irving, Irving Oil is a family-owned and privately-held regional energy processing, transporting and marketing company with headquarters in Saint John, New Brunswick and U.S. marketing operations in Portsmouth, New Hampshire. The company operates Canada's largest refinery, producing 320,000 barrels of finished products every day. Operations include ten distribution terminals, a fleet of delivery trucks and more than 900 fuelling locations serving wholesale, commercial and retail customers in Atlantic Canada, Quebec and New England.



# Not Your Parents' Diesel

For many Canadians, the words diesel and car in the same sentence conjure memories of noisy, unreliable vehicles sputtering down the road, drowning unsuspecting bystanders in black, smelly fumes. Thankfully, diesels have aged quite gracefully and today's new "clean diesels" are an interesting and practical option for consumers who want to drive green.

Today's diesel cars run on clean burning ultra-low sulphur diesel (ULSD), which has a maximum sulphur content of only 15 parts per million (ppm), far below previous limits. Improved configuration of engines, electronic controls and new technologies, such as the installation of particulate filters and catalytic converters, have also contributed to significantly reduced noise and smog-forming emissions.

Gasoline and diesel engines are both internal combustion engines. The main difference lies at the combustion phase. In a gasoline engine, fuel is ignited by a spark plug, while in a diesel, the air in the piston is compressed, which increases its temperature and ignites the fuel. Diesel engines need to withstand higher compression and are sturdier and more durable for that reason. They are also known for their high torque (rotating force in the motor, which contributes to strong acceleration performance, and makes them ideal for towing boats and trailers), efficiency and fuel economy.

Diesel-powered cars are typically 30 percent more fuel efficient than a comparable gasoline-powered vehicle—they get extra mileage out of every litre of fuel. This has made diesels highly popular in Europe where today nearly 50 percent of cars on the road are diesel-powered. Diesels also can deliver as much or more fuel economy than traditional gasoline-electric hybrids.



In the past, Canadians were wary of diesel vehicles due to cold start issues. Low temperatures made engines difficult to crank because they rely on compression and not spark plugs to ignite fuel and because diesel fuel can gel when the weather is cold. Today, chilly winter mornings are no longer an issue due to the addition of new features such as glow plugs.

Although not every gas station has a diesel pump readily accessible to passenger cars, diesel fuel is still widely available. With the enormous range of most diesel-powered cars, fill-ups are less frequent, so there is little impact on convenience.

The number of diesel options offered by automotive companies is rising quickly in Canada and in the U.S., a change driven partially by stringent new North American fuel economy and emissions standards. Many analysts believe that the wider offering of diesel engines will drive significant growth in diesel vehicle sales. Diesels currently account for about three percent of new vehicle sales in Canada and the U.S. according to J.D. Power & Associates. That's far behind Europe, where diesels accounted for more than half of new car sales in 2011, with numbers reaching 70 percent in Belgium, Norway, France and Spain, according to the U.S. Department of Energy.

A recent report by the University of Michigan Transportation Research Institute compared the total cost of ownership of diesel vehicles with their gasoline-powered equivalents. The study found that even when taking into account the higher initial purchase cost, diesel vehicles typically generate \$2,000 to \$6,000 in savings over three to five years, driven by their superior fuel economy and lower depreciation.

Since a significant proportion of the overall saving associated with diesel vehicles comes from their high fuel economy, consumers who regularly drive long distances and keep their vehicle for three years or more will derive the most benefit. It's one of the reasons most freight trucks and buses are equipped with diesel engines.

Diesels compare favourably to hybrids on mileage and environmental performance at a lower cost and should be seriously considered by anyone looking to get the most out of every litre of fuel.

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# Let's Talk Energy: Join the Energy Dialogue

## Understanding the Economics of Petroleum Refining

With surging crude oil production in Western Canada, the economics of the petroleum refining sector are increasingly on the minds of Canadians. Many believe Canada's refining sector should grow in tandem with crude oil production, and wonder why we aren't refining more of our oil in Canada to benefit from increased value-added activity.

Our report, *The Economics of Petroleum Refining: Understanding the business of processing crude oil into fuels and other value added products*, provides helpful insight into the complex economics at play in the refining sector and describes the factors that influence investment decisions and refinery viability.

Energy powers our lives; it keeps us warm on cold winter days, and cool when it's too hot, it gives us light, it cooks our meals, powers our electronics, brings us to the places we want to go, brings the things we need to us and allows us to be a major exporting nation. It enables us to be mobile and connected. Energy underpins our quality of life, but we rarely stop to think about where it comes from, how it's brought to us and its impact on our life.

From February 21–28, Canada's Science and Technology Museums Corporation is presenting *Let's Talk Energy Week* to increase energy literacy and awareness and get Canadians to join the energy dialogue. Through a series of museum exhibitions, school programs, conferences and

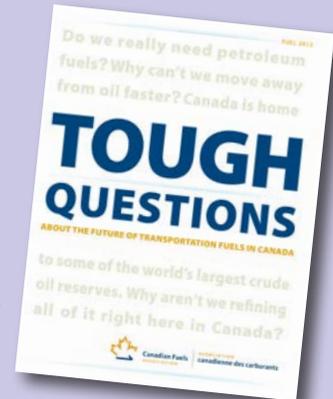
events, Canadians will have the opportunity to learn more about energy systems, our relationship with energy, new energy technologies and how we can all contribute to a sustainable energy future.

In addition to sponsoring *Let's Talk Energy Week*, the Canadian Fuels Association has recently published reports and informative documents to promote literacy on Canada's petroleum refining sector. Learn more from *TOUGH QUESTIONS about the future of transportation fuels in Canada*, *Canada's Petroleum Fuels Value Chain* and *The Economics of Petroleum Refining*. All publications can be found on our website, [canadianfuels.ca](http://canadianfuels.ca).

## Answering TOUGH QUESTIONS

Last year, as part of our launch under a new name and with a new direction, we committed to proactively engage in authentic conversations on Canada's transportation fuels future and the links between transportation fuels, mobility, prosperity, environmental aspirations and public policy implications. *FUEL 2013*, our annual review, makes good on that commitment to openly answer some of the top questions on the minds of many Canadians.

If you have ever wondered whether we really need petroleum fuels, why aren't we moving away from oil faster or why aren't we refining all of our oil in Canada, *TOUGH QUESTIONS about the future of transportation fuels in Canada* should deliver the answers you are looking for. The report also provides an overview of the refining industry's progress on the safety and environmental fronts.



[canadianfuels.ca/userfiles/file/Tough\\_Questions/HTML/index.html](http://canadianfuels.ca/userfiles/file/Tough_Questions/HTML/index.html)

## From Crude Oil to Useful Products—Canada's Petroleum Fuels Value Chain

It's a long and complex journey between crude oil and the fuels we pump into our fuel tanks. To help illustrate the journey from the wellhead to the pump, we produced an infographic—*Canada's Petroleum Fuels Value Chain*—which provides a step-by-step

overview of crude extraction, transportation, refining and distribution, as well as key facts, figures and graphs. An interactive version of the value chain is available on our website, [canadianfuels.ca](http://canadianfuels.ca).

[canadianfuels.ca/userfiles/file/PetroleumFuelsValueChain\\_Final\\_EN.pdf](http://canadianfuels.ca/userfiles/file/PetroleumFuelsValueChain_Final_EN.pdf)

