



## City of Duncan Switches onto Biodiesel

Vancouver Island leads the way as more municipalities switch to The Clean Air Fuel – and tackle climate change from the ground up

FEB 06 2007

The City of Duncan is taking aggressive action against global warming. The City is reducing its environmental impact by switching from diesel fuel to biodiesel fuel. The first delivery will be made in early February 2007 by BC-based 4Refuel, Western Canada's largest refueller of biodiesel.

Duncan is joining a growing number of Vancouver Island governments – including Victoria, Oak Bay, Saanich and Camosun College – who are fuelling with biodiesel. This comes in response to overwhelming scientific evidence that the earth's climate is changing.

### The Science of Global Warming

Research shows that the world is now warmer than at any time in the past 1000 years. This change is more commonly referred to as global warming. Scientists conclude that the emission of heat-trapping green-house gases from vehicles, power plants, and industry is a primary cause in global warming. As these gases and particulate build up, they act as a huge blanket warming the planet and threatening the environment. In the Ontario government's 2005 Air Quality Report released in December 2006, 2005 was the worst year on record for smog in the province. Awareness of global warming is growing, yet air quality deteriorates.

### Alternative Fuel Sources Reduce Impact

Alternative fuel sources, including biodiesel, are part of the solution. Biodiesel is a renewable fuel made by a chemical reaction of alcohol and oils from vegetables, animals, fats and greases. It is a mix of a variety of feedstock including soy oil, canola oil, waste cooking oil, tall oil and rendered fats mixed with low and ultra-low sulphur diesel fuel. Biodiesel burns cleaner and reduces carcinogenic emissions and gases. Research shows that when used in a 20 percent blend with petroleum diesel (B20) and a catalytic converter, biodiesel will cut air pollution, sulphur and aromatic emissions. Particulate matter is reduced 31 percent, carbon monoxide by 21 percent and total hydrocarbons by 47 percent. Using 100% biodiesel further reduces emissions and carcinogenic compounds. It is non-toxic, and has no sulphur – the major component of acid rain.

No engine modifications are necessary as biodiesel works in conventional compression-ignition diesel engines, from light to heavy-duty just like petroleum diesel. Further, biodiesel maintains the payload capacity and range of regular diesel and is proven to improve engine performance and engine life by removing build-up of impurities inside the engine. As a result, switching to biodiesel does initially require some attention to fuel

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filters but does not require vehicle changes or fleet upgrades, nor does it demand spare parts inventories, special refuelling stations or specially-trained mechanics.

## **Biodiesel Reduce Greenhouse Gas Emissions**

Biodiesel is supplied onsite by 4Refuel Canada, one of the country's largest biodiesel refuellers. 4Refuel is a Canadian fuel management company with over 6500 clients coast to coast. The company will manage over 200 million litres of fuel in 2007 including delivery of over one million litres of biodiesel each month to its clients.

"Biodiesel is available right now wherever our clients need it. And it can have an immediate impact on air quality," says Joe Valeriote, 4Refuel's Senior Vice President of Business Development. "More of our clients want to be ahead of government regulations and take immediate control of reducing emissions and having cleaner air."

Biodiesel is a viable alternative for transport, construction, marine and rail industries. 4Refuel currently delivers biodiesel throughout British Columbia, including Victoria, Saanich, Oak Bay, Camosun College, Duncan, Burnaby, Delta, New Westminster, Richmond, Langley, Coquitlam, Vancouver, West Vancouver, North Vancouver, and Whistler. The City of Kamloops has started a biodiesel project and CN Rail has begun testing it for off-road applications in Prince George. 4Refuel's largest biodiesel client is the City of Calgary.

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# Biodiesel 101

## What is biodiesel?

Biodiesel is the name of a clean burning alternative fuel, produced from domestic, renewable resources. Biodiesel contains no petroleum, but it can be blended at any level with petroleum diesel to create a biodiesel blend. It can be used in compression-ignition (diesel) engines with little or no modifications. Biodiesel is simple to use, biodegradable, non-toxic, and essentially free of sulphur and aromatics.

## Biodiesel Blends

Biodiesel refers to the pure fuel before blending with diesel fuel. Biodiesel blends are denoted as, "BXX" with "XX" representing the percentage of biodiesel contained in the blend (i.e.: B20 is 20% biodiesel, 80% petroleum diesel).

## How is biodiesel made?

Biodiesel is made through a chemical process called transesterification whereby the glycerine is separated from the fat or vegetable oil. The process leaves behind two products -- methyl esters (the chemical name for biodiesel) and glycerine (a valuable by-product usually sold to be used in soaps and other products).

## Safer than petroleum diesel

The flash point (the point at which fuel ignites) for biodiesel in its pure form is more than 260 degrees versus about 125 degrees Fahrenheit for regular No. 2 diesel. This makes biodiesel the safest fuel to use, handle and store.

Biodiesel has a full ASTM fuel specification. The American Society of Testing and Materials (ASTM) issued Specification D 6751 for all biodiesel fuel bought and sold in the U.S. in March of 2002, marking a major milestone for the biodiesel industry.

Having a full standard in place helps protect consumers from poor products and reduce the cost of buying and selling biodiesel. While many adopted the provisional specification in 1999 (PS 121), those that didn't had to negotiate a specification. The final passage of D 6751 streamlines the procurement process.

## Reduces emissions significantly

Biodiesel is the first alternative fuel to have fully completed the Health Effects testing requirements of the Clean Air Act. The use of biodiesel in a conventional diesel engine results in substantial reduction of unburned hydrocarbons, carbon monoxide, and particulate matter. Emissions of nitrogen oxides are either slightly reduced or slightly increased depending on the duty cycle and testing methods. The use of biodiesel decreases the solid carbon fraction of particulate matter (since the oxygen in biodiesel enables more complete combustion to CO<sub>2</sub>), eliminates the sulphate fraction (as there is

no sulphur in the fuel), while the soluble, or hydrocarbon, fraction stays the same or is increased. Biodiesel works well with new technologies such as catalysts, particulate traps, and exhaust gas recirculation. Soy biodiesel reduces carbon dioxide by 78% on a life cycle basis.

## Biodiesel close to Cost Neutral

The cost of biodiesel depends on the market price for vegetable oil. In general, biodiesel blended at a 20 percent level with petroleum diesel costs between 5 and 15 cents per gallon more than diesel alone. Given the other advantages of biodiesel, though, an emission management system with biodiesel is a least-cost alternative. A study by Booz-Allen & Hamilton, Inc., found fleets using a 20 percent biodiesel blend would experience lower total annual costs than other alternative fuels. Similarly, results reported by the University of Georgia indicate biodiesel-powered buses are competitive with other alternatively fuelled buses with biodiesel prices as high as \$3 per gallon.

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# About 4Refuel Canada

4Refuel is Canada's largest Fuel Management organization specializing in onsite delivery, fuel logistics, automated fleet management and biodiesel solutions.

Since its inception in 1995, 4Refuel Canada (formerly known as Mini-Tankers Canada) has leveraged the increasing demand for fuel with a proven business model to capitalize on Canada's 26 billion litre/year demand for diesel fuel. Consistently ranked among Canada's top 100 fastest growing organizations, 4Refuel is Canada's premier Fuel Management organization.

4Refuel's offering of a complete Fuel Management solution leverages 24x7, onsite "wheel-to-wheel" delivery with proprietary fleet tracking, management and reporting systems, to assist clients in maximizing their fuel efficiency, fuel control and equipment optimization.

This year, 4Refuel will safely deliver over 200 million litres of diesel and biodiesel to the fleet construction, municipal, mining, forestry and earthmoving industries. Based on strong industry demand, continuing customer feedback and the new and far-reaching applications of our Fuel Management offering, significant profit growth is anticipated for years to come.

Combined corporate and franchise operations are spearheading the national and international growth of 4Refuel's Fuel Management solutions that include exclusive automated fleet management through U-CON Systems, and ISO based Quality, Safety and Environmental programs

## Our Vision

To be global leaders in Fuel Management.

## Our Mission

We will create awareness of Fuel Management, be environmentally responsible and maximize value for our clients at every point of contact.

## Our Values

People with purpose

Passion for our clients' business

Pride in our own business

Involvement in community

Accountability and Teamwork

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# Fuel Management

After labour, fuel typically represents the largest operating cost for most transportation and construction companies. While most have resources in place to manage their labour, few have any dedicated systems and processes to manage their fuel and even fewer have a dedicated Fuel Manager. With 4Refuel's suite of Fuel Management solutions, we give companies the tools to collect the information they need to effectively manage their fuel, reduce costs and pump up their productivity - no matter how they get their fuel. That's Fuel Management!

## What makes 4Refuel the Leader in Fuel Management?

4Refuel is Canada's largest organization dedicated to Fuel Management and has the most complete, end-to-end offering of Fuel Management services. 4Refuel offering includes ISO based quality, safety and environmental diesel delivery programs and the tools to supply equipment operating data and user-friendly reports to help our clients make key operating decisions. Industry burns fuel, but few are managing it, *until now!*

Oil prices of \$60-\$70 US per barrel and rising are a reality, and there is a real need for Fuel Management to help control this significant operating cost. Companies that don't manage their fuel are throwing money away and witnessing the erosion of their bottom line. Whether a client refuels using a card-lock, their own trucks or storage tanks, 4Refuel can help manage their fuel consumption and equipment more effectively. Our Fuel Management offerings can be customized to fit your needs, *guaranteed*.

Right now, across Canada, 4Refuel has a growing base of over 6,000 clients, of which 97% state that they would refer us to other companies. *\*(Based on a 2005 Third Party Client Survey)*

## Fuel Management is a growing industry

Fuel Management is a NEW Industry and it is growing fast across Canada and the US. Each year we have seen double digit growth, and expect that trend to continue, as fuel prices increasingly erode companies bottom line.

When the company commenced operations in 1995, all we did was deliver diesel fuel into small operating equipment in large urban areas. Today we are seeing demand in all cities, regardless of size. Coast-to-coast, in all major cities and many smaller urban areas, demand for Fuel Management is growing. Any company who uses diesel or biodiesel fuel can benefit from using 4Refuel. The potential is enormous and so are the benefits.

## Who benefit from using 4Refuel?

4Refuel can help ANY company that uses diesel or biodiesel as their fuel. We serve all industries including transport, construction, home heat, power generation/emergency services, marine, rail, industrial, mining, forestry, oil and gas, and municipalities.



We deliver diesel fuel directly to our client's equipment when and where it is needed, 24x7. Using our exclusive "True Cost of Fuel" analysis tool, our dedicated Territory Managers walk businesses through a simple process, evaluating, labour, insurance, productivity and efficiency factors, that reveal how much your fuel is actually costing you rather than what is mistakenly perceived as the price at the pump. From there, we can demonstrate how 4Refuel's services can actually save you money while providing you with the business intelligence you need to make more informed decisions.

## Fuel Management Online

Once the fuel is delivered, our clients have access to all delivery information and reports, 24x7, using 4Refuel's proprietary fuel management system Fuel Management Online (FMO). This internet based reporting tool provides 4Refuel clients with secure 24/7 access to comprehensive fuel consumption and account information. This information is invaluable to the fleet and equipment operators as it enables the monitoring and control of this important cost base.

This sophisticated online information enhances our clients' administrative and operational productivity and gives 4Refuel a considerable competitive advantage in the marketplace. 4Refuel franchisees also have access to Fuel Management Online to assist them in managing their own businesses.

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## Management Team

### Jack Lee – Chairman, President & CEO

Mr. Lee is the founder and controlling shareholder of 4REFUEL Canada Ltd. formerly Mini-Tankers Canada Ltd. Jack is a Canadian entrepreneur who has developed and owned successful businesses in Australia and Canada. In 1980, Jack established one of Australia's premier landscape and horticultural companies: Jensen International Pty. Ltd. Jensen, at its peak, employed over 160 personnel and was involved in the design and construction of major commercial landscapes and golf courses.

Jack served on numerous industry councils and was founding president of the Queensland Association of Landscape Industries Ltd., and of the Landscape Industries Association of Australia Ltd., of which he was a board member for a number of years. Jack was the first Master Licensee of Mini-Tankers in North America, establishing the business in Langley, BC, in July 1995. Under Jack's leadership, Mini-Tankers Canada Ltd. has grown from a "start-up", to annual revenues in excess of \$100 million in less than 10 years, achieving recognition as the 5th fastest growing business in BC in a major business publication in 2001. Jack's vision is to develop the 4REFUEL business in Canada to be the recognized national diesel refuelling solution of choice.

### Terry Thompson – Executive Vice President

Mr. Thompson joined 4REFUEL Canada Ltd. in February 1996. Terry has over 20 years of management experience, and has held senior management positions in the franchising industry. Prior to joining 4REFUEL, Terry was a management consultant providing strategic planning, marketing, production, and financial consulting to small and medium-sized businesses. Terry holds a BComm (1977) from UBC.

### Joe Valeriotte – Senior Vice President, Business Development

Mr. Valeriotte started with 4REFUEL in 1997 and was instrumental in the start-up and establishment of the 4REFUEL operation in Ontario. Joe has over 10 years of sales management experience in the transportation industry, including roles in management of business to business environments, fleet management, maintenance and operations consolidation.

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