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By Eduard Gismatullin and Jeremy van Loon

May 22 (Bloomberg) -- Chad Porter wants to run his 18-wheeler trucks on frozen natural gas along a highway that crosses Canada's Rocky mountains even before the world's longest chain of refueling stations gets built to keep them fueled.

The chief operating officer of oil services company Ferus Inc. bought two vehicles to test liquefied natural gas and reckons switching from diesel may cut 22 percent from his fuel bill, or about \$1 a gallon. At the moment, Calgary-based Ferus uses mobile tankers to refuel his trucks, which cost about

C\$100,000 (\$99,000) more than conventional vehicles, adding expense to a project that's about saving money. A Royal Dutch Shell Plc project will make it easier to fill up.

Shell's plan to spend \$250 million on an LNG plant and a string of filling stations is the biggest single investment yet in making frozen gas a transport fuel, a shift advocated by proponents of energy independence including billionaire investor T. Boone Pickens. Switching engines to run on LNG is becoming economic because a glut of fuel from North America's shale rocks has made the U.S. the world's largest natural-gas producer and forced prices to record discounts versus crude oil.

"LNG holds great potential as a transport fuel," Mark Williams, Shell's director for downstream, said in a speech this month. "North America, for example, now has a century of gas supplies at current consumption rates. So gas is likely to gain market share in transportation."

Special Coolers

Using LNG in vehicles has limitations, from fuel evaporation to the special coolers needed at filling stations to keep the gas at minus 162 degrees Celsius (minus 259 Fahrenheit), making it mostly suitable for long-haul trucks with large gas tanks. U.S. truckers spent more than \$135 billion on fuel last year, according to American Trucking Association.

"We would take advantage of any infrastructure that gets built," Ferus's Porter said in an interview from his office in Calgary.

Shell agreed to work with filling-station owners Flying J Inc. to offer LNG to trucks along the highway, from Fort McMurray in Alberta, the heart of Canada's oil industry, to Vancouver on the Pacific coast, more than 900 miles (1,600 kilometers) to the southwest. At today's diesel prices, fuel for each run on the route by a typical 33,000-pound, 60-foot truck costs about C\$550.

The roadway, which comes within about 235 miles of Mt. Robson, the range's highest peak at 12,972 feet, passes through part of Canada's oil and gas producing region, as well as the mining and forestry operations of companies including Teck Resources Ltd.

'See Opportunities'

"We see opportunities for a concept like this one in other areas of the world as well," said Jose-Alberto Lima, Shell's vice president for LNG and gas sales in Americas. He said Shell, based in The Hague in the Netherlands, doesn't expect a rebound in gas prices anytime soon.

In addition to being cheaper, natural gas burned in trucks emits as much as 25 percent less carbon dioxide, as well as almost eliminating particulate matter and sulfur dioxide produced by diesel-powered vehicles, according to the Calgary-based Van Horne Institute. Using natural gas, a fuel where North America is self-sufficient, would also cut demand for imported crude oil.

Shell eventually plans to deploy LNG technology to power trains, ships and mining industry engines. Gas overtook crude oil to account for more than 50 percent of the company's production for the first time this year. It expects to expand the use of LNG as a transport fuel beyond North America to Europe, China, Latin America and Australia.

Green Corridor

The Anglo-Dutch company's Green Corridor project in Canada will make 300,000 tons of LNG a year. It plans to start production at its first small-scale gas liquefaction plant at Jumping Pound near the route's halfway point next year.

"These trucks are more expensive than the traditional diesel trucks today," Shell's Lima said. "You need to have economies of scale to bring these costs down."

Shell is cooperating with Vancouver-based Westport Innovations Inc., the maker of cryogenic fuel tanks and the only currently available 15-liter gas-powered engine suitable for heavy-duty trucks running on LNG.

Compressed Gas

The second Canadian maker of gas powered engines is Cummins Westport Inc., which makes smaller 8.9 liter heavy-duty unit.

The Vancouver-based joint venture of U.S.'s Cummins Inc. and Westport has designed a motor able to run on either compressed natural gas, CNG, or LNG.

CNG is used for light- and medium-duty vehicles, such as buses and garbage trucks. LNG, which is using a cryogenic technology to chill gas and reduce it to one-six-hundredth of its original volume at low temperature, is offered mostly as a fuel for heavy-duty vehicles.

CNG, which is stored at ambient temperature, requires tanks with thicker walls to hold the pressure and provides less energy per volume. Therefore, long-haul trucks can take more LNG on board in lighter chilled tanks with less time required for refueling per energy unit.

"Drivers have been very receptive to LNG trucks, especially since they drive like diesel trucks," said Cara West, a spokeswoman at Paccar Inc., which designs and manufactures trucks under Kenworth, Peterbilt and DAF nameplates and where Ferus bought its vehicles. "Dealers are receiving multiple inquiries from customers anxious to learn more about LNG trucks."

Market Share

Paccar currently equips some of its Kenworth and Peterbilt models with LNG engines. The Washington state-based maker expects the gas-powered-truck market share in North America to expand to about 20 percent in the next several years, up from about 6 percent now.

With natural gas fuel taxed about 20 Canadian cents less a liter than diesel on equivalent basis, it takes less than five years for a driver to return extra investment benefiting from cheaper fuel, according to the Canadian Natural Gas Vehicle Alliance. Canada has more than 100 LNG powered trucks almost equally split between western and eastern parts of the country operated by Vedder Transport, a milk hauler in British Columbia, and Robert Transport, which operates in Quebec and is expanding the fleet.

In January, President Barack Obama said tax breaks for natural-gas powered trucks will help cut dependence on imported oil in the world's largest crude-consuming country. "We, it turns out, are the Saudi Arabia of natural gas," Obama said.

The U.S Senate and House have been reviewing the bill to boost greater use of the gas.

Huge Resource

“The potential is there, and when you have this huge resource in the U.S., and you’ve got almost 10 million barrels per day imported being used for transportation fuels,” said Theepan Jothilingam, an analyst at Nomura Holdings Inc. At some stage, the U.S. government “will need to give a tax break and encourage both the technology and the execution of this technology.”

Billionaire investor Pickens has been lobbying for incentives to stimulate greater use of natural gas as a vehicle fuel to replace imported oil. Pickens is the largest shareholder of Clean Energy Fuels, a natural-gas supplier for bus and truck fleets, which is building America’s Natural Gas Highway across the U.S. to fuel long-haul trucks with LNG starting from the end of this year.

About 30 percent of U.S. “classic trucks” can be converted to run on LNG, which needs highly utilized vehicles running lots of miles to pay back for the additional engine costs by fueling it with cheaper LNG, said James Burns, Shell’s general manager for LNG in Transport, Americas. “Emissions is a key issue here as well both on local air emissions and green- house gas emissions.”

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