to everything there is a season

To borrow from the popular '60s song, natural gas is enjoying its 'turn, turn, turn' in the spotlight. Can it deliver the savings necessary to keep transportation costs in check? Two industry pioneers share their experiences.

By Jim Bray and Lou Smyrlis

Natural gas continues to wriggle its way into the transportation industry's heart as a fuel of choice, the latest examples of which include Bison Transport, which has entered into a five-year agreement with Shell Canada to run 15 liquefied natural gas (LNG) tractors in Alberta, and Robert Transport's more than three-year-long investment in an LNG-powered fleet serving one of Canada's busiest truck corridors.

Bison's move is the more recent and also served as the first step in launching Shell's LNG refuelling infrastructure in Wild Rose Country (the grand opening was held May 28). Bison is using Shell's Flying J outlets in Calgary, Edmonton and Red Deer to refuel its LNG fleet once all is up and running.

Trevor Fridfinnson, Bison's vice-president of western operations, says "a convergence of factors have made it potentially economically viable," noting that the company thinks the move could be the right thing for the industry as a whole from a sustainability aspect. "You put those factors together and it lined up, as now is a time when we're willing to go down that path."

A few operations have made similar commitments in other parts of Canada, but Bison claims this is the first time a company operating in Alberta has done a conversion on this scale. And, as Fridfinnson said, it made sense to move now. "One of the biggest things that relates to fuel is supply and infrastructure and so forth," he noted. "We had a willing partner in Shell that was heavily investing in natural gas, so the supply is here and we have applications with a regional density in Alberta that lend themselves to this."

Bison is initially targeting its LCV application, pulling twin 53-ft. trailers at a full 140,000-lb GVW, consuming "a fair amount of fuel," Fridfinnson said, but which "from an overall perspective are very fuel-efficient because we're moving two trailers with a similar amount of fuel. And that's how you can drive the economics of it: if you can burn enough of the fuel, you can overcome the capital costs involved, which are significant, in this case."

Initial routes are principally Calgary to Edmonton and back, which can be accomplished on a single tank of fuel. And even though only a few trucks are involved in this conversion compared with the vast number that Bison actually operates, it shouldn't really be looked upon as merely a pilot project.

"At 15 trucks, it's really more than that," Fridfinnson said. "We're trying to demonstrate that we're motivated to make this work and to demonstrate it on a reasonable scale."

Bison is also planning for a time when LNG is more

widely available. "We're taking a look at LNG in other jurisdictions," Fridfinnson said, "most notably in British Columbia because they've got an aggressive program through their natural gas utility that is trying to convince transportation companies to take the plunge by covering off a certain amount of the incremental cost associated."

Fridfinnson said the company will probably make that decision later this year.

"If we can get between Calgary and Vancouver, then that's viable, but how do you make sure that you have a mid-point fuelling option that's going to work for that?"

Runs strictly through the Lower Mainland aren't really in the cards, because "the big thing for us is that the way you recoup the costs of the heavy-duty engine conversion is that you do it in an application that burns enough fuel to generate enough volume of savings," Fridfinnson said. "That becomes the hitch point."

That government support that was available in B.C. wasn't available in Alberta, where the deal is between private sector operations only – a fact Fridfinnson finds unfortunate. "With all new technologies, you sometimes need those incentives to get over the hump," he said, "and I think that's probably why we haven't heard about a number of other fleets following suit. And given the amount of natural gas in this province and the importance of natural gas to this province, it's a bit surprising."

In the meantime, as Bison's COO and executive vice-president Rob Penner points out, there is much to learn. With the LNG trucks going into service Jan. 1, Bison is just now getting the utilization of those trucks into a range where it feels confident about being able to gather reliable data.

"Optimizing the spec' only comes through running the trucks and figuring out what works and what doesn't work. There are lots of little start-up nuances surrounding spec', electronics and tuning that need to be worked through with each tractor to optimize it. It's on us to work through, fine tune and optimize the range on these vehicles," Penner said.

Despite Bison's bullishness, Fridfinnson doesn't see a completely LNG-fuelled fleet anywhere on the horizon. "It's not realistic, probably, for any reasonable timeframe," he said. "The infrastructure has got to be really significantly built out and there are operating nuances of natural gas that are really going to make infrastructure the critical piece. If you cannot have ready access to it like you do with diesel, then you run the risk of having operating challenges – for instance, if you don't keep the fuel cool and do all the rest of it, then it loses its effectiveness."

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>
> Trevor Fridfinnson, Bison's vice-president of western operations

Bison will be running 15 liquefied natural gas tractors in Alberta as part of a new deal with Shell.

Fridfinnson thinks estimates that 40% of commercial vehicles could be using natural gas in 10 years are premature, though he does anticipate a trend. "It's not going to be an insignificant number," he said. "There's definitely room for some significant uptake."

There is also uncertainty about the long-term road tax implications for natural gas.

"We believe Ottawa and the provinces will tax natural gas similar to how diesel is taxed. We are infrastructure-challenged in North America and as users of the highways, it is necessary for fleets to help fund highway improvements through fuel tax programs, but any new costs in the system affect payback," Penner said. "Our business can't afford to invest in this technology as an environmental initiative. It has to have its business case."

Robert Transport, meanwhile, has been a pioneer in making the business case for adopting liquefied natural gas, which it regards as the fuel of the future. For more than a year now, its trucks hauling freight from Montreal to Toronto have been topping up their cryogenic tanks at an LNG fuelling station at the carrier's Mississauga terminal and heading back to home base to fuel up, hook up and head out again. It is the culmination of a company decision made back in 2010. Company owner Claude Robert estimates that savings over diesel will be at least 20-30% and that the LNG engines will emit 20% fewer greenhouse gases.

"We have millions invested. The reason we believe in this is because tomorrow the industry will be using alternative fuels. It's like learning to skate when you are three years old or learning to skate when you are 30 years old. You can wait till later. We made the decision to start learning right away and it has been a real experience," Robert says.

He adds that the supply of natural gas for transportation purposes in Canada remains limited, while few people understand natural gas and its impact on fuel consumption, truck performance, and the maintenance and fuel facilities required. Nor is the price (each truck can cost as much as $80,000 over the price of a similarly equipped diesel truck) or reliability of the trucks where it should be, he says.

Robert Transport's Claude Robert estimates that LNG engines will emit 20% fewer greenhouse gases compared to diesel.

Bison officials say the industry will have to improve its LNG infrastructure before companies can move to an all-LNG-powered fleet.

For example, the hoses and fittings are different on natural gas powered engines resulting in trucks having to be taken off the road to fix small things. Robert likens the current situation to the first stage of new generation vehicles. It will probably take another four to five years before the fleet starts to see the real benefits of running with alternative fuels.

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>
> Claude Robert, Robert Transport

"Whatever savings we've had so far due the lower cost of natural gas has barely covered the costs we've had to deal with…Whether you start now or the day after, you will still have to go through the struggle of learning. We are still in a learning curve with a lot more to learn, but there is not a day we are not learning," Robert says.

But, to place matters in perspective, he adds: "In the long run, we are reducing our GHG emissions by 20% and that's something that needs to be accounted for. For any shipper who is environmentally conscious about their own supply chain's carbon footprint, using carriers who run natural gas vehicles is the solution."

All this talk about moving to natural gas may seem a tad ironic, since the stuff has been around as a fuel for years – as a supposedly dwindling resource. But as the old Byrds song from the '60s said: "To everything there is a season," so maybe now it really is natural gas's "Turn, Turn, Turn" to be in the spotlight. CT&L