

Smart fleets fuel the future

by Toby Osborne

NOWADAYS, GAS COSTS are soaring and the future only promises more of the same. As prices are keenly watched, fleet managers are increasingly seeking cheaper and greener alternatives.

For those overseeing a commercial fleet, FleetSmart – a program administered by Natural Resources Canada (NRCan) – shows that there are several ways to save money and the environment simultaneously.

Lynda Harvey, senior manager of FleetSmart, notes that, “first and foremost, you want to reduce your fuel consumption. Save money, reduce emissions – it’s a pretty straightforward formula.”

The NRCan program (www.fleetsmart.gc.ca) covers all aspects of fleet energy management, from reducing fuel usage to offering rebates on alternative transportation technologies. Harvey explains that the fleets are divided into eight vehicle groups: highway trucking, motor coach, transit bus, school bus, municipalities and utilities, forestry trucking, light-duty vehicle fleets – “things like taxis, pick up and delivery, courier types” – and urban transportation. This last group includes all commercial vehicles that operate within 100 km of their home base.

Within these eight groups, many fiscally and environmentally conscious fleet managers are discovering the advantages of joining FleetSmart. It’s free to become a member and the program has various alternative fuel and vehicle pilot projects.

An example of the existing projects available is the natural gas for vehicles Market Transformation Pilot Project, which pays fleets \$3,000 towards buying or leasing a new natural gas vehicle (NGV). “It is actually an attempt to take what would be the differential in buying a NGV... to

make, let’s say, the purchase price parallel to what the purchase price of a regular vehicle would be,” says Harvey.

Furthermore, FleetSmart offers rebates on proven technologies in vehicles that were not previously equipped to use fuel alternatives. There is a rebate on in-cab heaters – fuel-fired heaters that provide warmth in the cold weather. “It does draw from the diesel tank but it uses less than a quarter of the fuel that the engine would use if it was just left idling,” says Harvey.

Unnecessary idling can cost financially and environmentally. For the past three years, FleetSmart has promoted the ‘Idle Free-Quiet Zone’ campaign at participating truck stops across Canada. “The important word for us is ‘unnecessary’ – because there are some times when some of these heavy vehicles do have to idle because they may have some kind of unit that runs off the engines or power... And, if the temperature’s well below minus 20C, you’re not going to ask the driver to shut it off.”

FleetSmart refunds up to 20 percent of the unit price on in-cab heaters, to a maximum of \$350. They also run a similar incentive program for fuel-fired auxiliary power generators. “Those are generators that get attached to the vehicle and they can provide a driver with the ‘full hotel service,’ including heat and air conditioning,” Harvey says. “This is particularly attractive to drivers who end up going away for three to four weeks at a time on long trips, all over North America.” This rebate program gives back 20 percent of a unit price also, up to \$1,400.

“This new technology can only be afforded by, and has to be pushed by government entities,” says Ray Dries, president of Overland Custom Coach (OCC), in Thorn-

dale, Ontario. OCC runs electric and hybrid electric buses, and Dries admits that without subsidization from bodies like FleetSmart, nobody will bother to make the leap to alternatives. “The commercial market will not invest in cleaning the air; it has to have government subsidies behind it to show, to prove, that this is the way things should be.”

FleetSmart has yet to dabble with electricity as an alternative fuel source for vehicles, but Lynda Harvey says they are “exploring the potential, and the possibility of a truck stop electrification pilot program.”

Ethanol-blended gasoline, natural gas, and propane are currently available at over six thousand public stations across Canada. With increased accessibility, along with skyrocketing gasoline prices, comes added interest in trying out these alternatives. “We are quite pleased,” says Harvey. “As the price of fuel increases, we have increased interest in our program.”

On top of spreading the word about the latest fuel technologies, FleetSmart offers ‘SmartDriver’ training, which works at better managing fuel consumption. Drivers are taught to follow ‘defensive driving’ techniques – for instance, taking the foot off of the gas when a driver is aware of a set of traffic lights or other obstacles ahead, thereby reducing fuel wastage. Speed management and vehicle specking are also recommended to drivers by FleetSmart, as are the benefits of using route optimization software to plan the most fuel efficient, shortest route to their destination.

Then there is FleetSmart’s latest workshop, ‘Fuel Management 101,’ designed with fleet managers in mind. “Most fleet managers are interested in doing something to manage their fuel, but they are

often puzzled about where to start,” says Harvey. “This one day workshop helps them create a business plan which they’ll be able to walk away with, and [helps them to] write business plans for their own operations – and this program can work with fleets of any kind.”

Meanwhile, there is a separate arm within NRCan’s transportation group called the Federal Vehicles Initiative (FVI), which deals primarily with the Government of Canada fleets. There are presently over 26,000 federal fleet vehicles, and this program provides tools and information to federal fleet managers in a variety of departments and agencies. “Agriculture Canada, Department of Fisheries and Oceans, National Defence, Corrections, Parks Canada, Canadian Border Services and RCMP are a few of the bigger fleets,” says FVI Vehicle and Fuels Officer Rita Bhasker. “The majority of these vehicles are light-duty, on road vehicles... being driven by federal public servants across the country.”

“There are about eighteen departments that are the big ones,” says FVI’s Brian Farnand, chief of Vehicle and Fuels Technology. “Then there are other departments that have maybe less than fifty vehicles.”

The RCMP, however, has a light-duty fleet of about 9,000 vehicles. “Some of their vehicles are specified to be able to do certain duties which may not open them up to be the most fuel efficient vehicles on the road,” notes Farnand. “On the other hand, [the RCMP] do have administrative vehicles that are flexible as to how they specify them, and we work with them to make sure they get those vehicles to be very fuel efficient.”

Saving money and reducing emissions are both great incentives for making the move to alternative fuels. Nevertheless, Farnand points out that the government is following a mandate: “The *Alternative Fuels Act* requires that 75 percent of all (federal) vehicle purchases be – when ‘cost-effective and operationally feasible’ – alternative fuel vehicles. That means that cost effective and operationally feasible is the prime requirement... And if you think of vehicles that are in very remote locations, they don’t have access to the usual alternative fuels, like natural gas, or propane, or even electricity.”

Yet, the last four out of five fiscal years, approximately 15 percent of all purchases in the federal government have been vehi-

cles in compliance with the *Alternative Fuels Act*. Moreover, through collaboration with Public Works and Government Services Canada (PWGSC), the FVI has seen vehicle-purchasing requirements modified. “When manufacturers bid to supply the federal government with vehicles, PWGSC assesses the bid; and it used to be the lowest price won for each class of vehicle. Now they’ve added in fuel use and greenhouse gas emissions as part of the consideration.” This, Farnand says, is all about setting a good example to commercial fleets through “visibility and leadership.”

Farnand continues, “What we want is the kinds of results that we can then take to our programs that are working with commercial fleets, and say this is what the federal fleet did... it may or may not be useful for you to copy, but it’s sort of an indication of what you can do to improve your fuel consumption or use of alternative fuels.”

With or without the visible success of government departments using greener means, FleetSmart has its share of supporters. “We have a lot of support from the industry in general... blue chip companies like Bison, a 2004 NRCan Energy Efficiency Awards winner,” says Lynda Har-

vey. Bison, a trucking company based in Winnipeg, Manitoba, is expected to save hundreds of thousands of dollars in fuel costs each year because of rebates and driver training.

Further successes were born when FleetSmart teamed up with the FVI for special government projects. “Our buddies from the FleetSmart program work with us on the heavy vehicles within the federal fleet,” says FVI’s Brian Farnand. “They’ve had some programs in the past with National Defence, in particular. If you can imagine, truck and tank carriers are clearly large vehicles and it’s the same principles that would apply for driver training and other things to make them run more fuel efficiently.”

Nevertheless, with a staff of just 11 for the whole of Canada, FleetSmart can only do so much. Other organizations such as Sustainable Development Technology Canada (SDTC) support and fund ‘clean technologies.’ Established by the federal government in 2001, SDTC draws from an investment fund of \$350 million, and reports to Parliament through the Minister of Natural Resources. “We do much more than simply fund groundbreaking technologies,” says Vicky Sharpe, president and CEO of



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The GM Hybrid Truck achieves 10-15 percent fuel economy improvement and 37 percent reduction in regulated emissions without compromising power and utility. In addition to fuel savings from engine shut-off under idle conditions and braking regeneration, the system also provides clean electrical power via the 4 on-board 120 volt, 20 amp auxiliary power outlets.

On the cover These “green” vehicles are all in Transport Canada’s fleet.

(Black vehicle) Mercedes-Benz SMART FORTWO CDI: This fuel efficient, 2-seat vehicle equipped with air conditioning and safety systems such as antilock brakes, traction control, stability control and front and side airbags was recently introduced in Canada. It is the newest member of Transport Canada’s fleet and is certified to comply with all Canadian Safety Standards. The Smart can be driven from Ottawa to Montreal using only \$4.50 worth of diesel fuel. (Green vehicle) Ford Focus TDCi: Currently only available in Europe, this diesel powered vehicle uses approximately 30 percent less fuel than its gasoline powered counterparts while providing higher levels of performance. The high-tech diesel engine actually listens to itself and adjusts the fuel supply to reduce engine noise. (Red vehicle) General Motors Chevrolet Tahoe: This flexible fuel (or alternate fuel) sport utility vehicle can operate on normal gasoline and on blends of gasoline and ethanol containing up to 85 percent ethanol, known as E85. When operating on E85 the Tahoe has up to 88 percent less harmful carbon dioxide tailpipe emissions than when operating on regular gasoline.

SDTC. "We work closely with an ever-growing network of stakeholders and partners to build the capacity of Canadian clean-technology entrepreneurs, helping them form strategic relationships, formalize their business plans, and build a critical mass of sustainable development capability in Canada."

However, Overland Custom Coach (OCC), in business for over 30 years, was recently accepted into an SDTC program, but is finding it difficult to meet all of their requirements. "We have been approved, except that this program also requires an end-user to sign up, to be a partner – and there's the rub," explains OCC's Ray Dries. "That's where the problem has been, finding a transit agency that is open minded and willing to demonstrate electric hybrid technology."

Sharpe says that, "while we acknowledge the desire of entrepreneurs to gain rapid access to funding, we must ensure the government fund with which we've been entrusted is invested wisely on behalf of Canadians. . . Every clean-technology project considered for SDTC funding is subject to a multi-phased, intensely thorough process of due diligence."

Outside of government-backed initiatives, there are a number of Canadian companies making and selling alternative fuel engines and vehicles, many of which admitted that they were not fully aware of NRCan's programs.

Vancouver-based Cellex Power Products is a fuel cell developer and system integrator, and their fuel cell engines are designed to replace lead acid batteries in lift trucks. Using compressed hydrogen and a fuel cell, this alternative lasts "one and a half times to twice as long as a lead acid battery," says Blair Lill, marketing manager for Cellex Power. "Yet, it takes less than 60 seconds to recharge."

Westport Innovations Inc, also based in Vancouver, develops diesel engines that operate on liquid natural gas, compressed natural gas, hydrogen, and blends of hydrogen and natural gas. Its research into these fuels has led to investment from the SDTC, and a joint venture – Cummins Westport Inc (CWI) – that primarily develops and manufactures engines for commercial transportation applications, such as trucks and buses. "We recognize the inherent efficiencies of diesel engines, but have enabled that diesel engine to burn natural gas," explains Charlie Ker, director of Government and Industry Affairs at Westport. "Natural gas has economic benefits, is a plentiful resource and is a clean, lower carbon fuel."

Solar race enters Canada

NATURAL GAS AND electricity are well known alternative fuels, yet it is an even cheaper resource (in fact, free) that will be powering vehicles in a 2,500-mile (4,022 km) race in July, 2005 – the sun.

Natural Resources Canada is one of the sponsors funding the North American Solar Challenge, (www.americansolarchallenge.org) which is the longest solar car race in the world. For the first time, the race's route will cross into Canada; starting in Austin, Texas on July 17 and arriving in Winnipeg, Manitoba on July 24. Then, "the proposed route has the cars taking the Trans-Canada highway from Winnipeg to Calgary," says race spokesperson John Horst. The 10-day race is set to finish in Calgary, Alberta on July 27.

Around 30 university and college teams from across North America are pre-registered to compete, including Carleton University, École Polytechnique de Montréal, McGill University, McMaster University, Queen's University, University of Toronto, and 2003's third place finalist, University of Waterloo. In 2003, four out of the top 12 racers were Canadian.

The competition is also open to teams from other organizations who meet "the strict requirements," notes Horst. "The vehicles must be powered solely by the sun."

In the last 14 years, Westport and CWI have sold over 9,000 natural gas engines worldwide. Ker additionally notes that, "natural gas is a logical path to hydrogen. . . If and when hydrogen becomes a fuel of choice, we will be in a good position to offer pure hydrogen engines but, in the meantime, we can deploy the cleanest engines available today – natural gas engines – with an eye to deploying hydrogen engines in the future. All indications are liquid natural gas will be a fuel of the future – certainly in North America."

Meanwhile, OCC's president, Ray Dries, says, "Without a national catastrophe, there won't be the drive to demonstrate that alternative fuels and vehicles can work. . . it's going to take not only \$50 but \$60 a barrel of oil; it'll take a \$1.50 for a litre of fuel. It'll take European fuel costs in North America to make it happen. . . I'm convinced of that now."

As fuel prices rise year after year, and the word spreads about programs like FleetSmart, as well as about alternative fuels and vehicles on the market, it is inevitable that more and more fleets will indeed begin the switch to economical, environmentally friendly options.

"Through education and training, we're trying to change behaviour and habits, and demonstrate the benefits," says FleetSmart's Lynda Harvey. "We're a small team, and it's a big project, and a big country. We're working hard to make sure we access everybody." *MM*

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