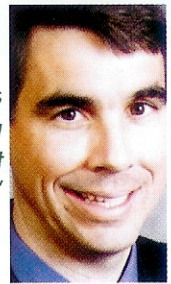


"In the U.S., a ton of SO₂ is selling for \$700 (U.S.) and a ton of NO_x is selling at \$3,000."



Keep on Truckin'

Reducing truck fleet emissions and operating costs

Trucking is a major part of waste management. One need only look at the membership list of the Ontario Waste Management Association to realize that the good majority of its members are in the business of hauling waste.

The price hikes in fuel costs in late 2004 along with other pressures have put constant pressure on the cost of trucking. Transportation is also the largest single source of air pollution in Canada. According to Environment Canada's 1995 data, on-road vehicles accounted for 35 per cent of nitrogen oxide (NO_x), 21 per cent of volatile organic compounds, and 4.3 per cent of particulate released to the atmosphere of all man-made sources.

Even though vehicles today pollute less, the emissions are growing faster than emissions from any other sector. Transportation accounts for approx. 30 per cent of the greenhouse gases (GHG) emitted in Canada. Light duty vehicles account for 11.7 per cent and trucks account for 8.3 per cent of this.

Through the adoption of technology combined with policy and regulatory changes in this country, it may be possible to reduce fuel costs, lower pollutant emissions and generate revenue all at the same time.

Technology adoption

Presently, a number of technologies on the market can lower pollution emissions. There are three typical technologies for vehicles: post-combustion, additives and pre-combustion.

Pre-Combustion technologies include magnets, catalysts, and in-line devices. This type of technology typically reduces all types of contaminants (NO_x, SO₂, particulate matter). As an added benefit there are fuel efficiency improvements associated with pre-combustion technology, so it's possible to realize a return-on-investment.

Post-combustion technologies are typically available for diesel applications only. They include oxidation catalysts, diesel particulate filters, and selective catalytic reduction. The selection of the technology is based on the type of contaminant that needs to be reduced. A drawback of the post-combustion technologies is a slight decrease in fuel efficiency.

Additives can be used in both diesel and gasoline applications. These would include fuel additives; hydrogen and oxil additives. Selection is based on the type of contaminant that needs to be reduced. The main concern with additives is the ongoing expense.

Return on investment

Some technologies currently on the market not only reduce emissions but also increase fuel efficiency. The payback on such a device can be as short as four months.

One Canadian-based company, Tadger Group International Inc., has a pre-combustion technology and has made inroads into municipal and private fleets in Canada, the United States and China. Tests performed on vehicles owned by the Miller Group showed not only a reduction in pollutant emissions (opacity was reduced by 18 per cent), but improved mileage of over 5 percent for a savings on fuel of \$100 per truck per


month. Similar tests on trucks from Harold Marcus Ltd., which showed improved mileage of 4.6 percent, for a savings on fuel of \$156 per truck per month.

Possible revenue streams

Currently, vehicle fleet owners can realize revenue by investing in environmental technology. The reduced nitrogen oxide (NO_x), sulphur dioxide (SO₂) and carbon monoxide (CO) emissions (a greenhouse gas) from an entire fleet could be substantial. Enough reductions could be realized such that, with the right protocol in place, fleet owners could apply for "credits" that they could sell under NO_x/SO₂ trading programs in Canada and GHG trading programs worldwide.

An example of how to realize revenue from installing pollution control devices on your vehicle fleet can be found in Ontario under Regulation 397/01. The Ontario Emissions Trading Registry was established to support trading under the regulation that reduces NO_x and SO₂ emissions from the electricity sector. Each year, the Ontario Ministry of the Environment establishes a cap on NO_x and SO₂ emissions on the combined group of fossil-fuel electricity generating stations which meet specific criteria. At the beginning of the year, the ministry allocates allowances to each capped facility. At the end of the year, each capped facility must balance its annual emissions of NO_x and SO₂ against the retirement of allowances and credits.

Non-capped entities (i.e., waste transport companies) may apply to the ministry to create credits for emission reductions, which these entities have achieved. A few steps need to be followed before selling credits. Specifically, there needs to be an established industry protocol for quantifying emission reductions. Once a protocol is established, a company would get third-party verification of emission reductions and apply for a credit from the ministry. After approval of the credits, the non-capped entities could sell them to new owners and register these transactions on the Emissions Trading Registry. Prices in Ontario are confidential, but in the U.S., a ton of SO₂ is selling for about \$700 (U.S.) and a ton of NO_x is selling at approximately \$3,000.

The waste management industry is a significant player in the transportation sector. There are ways for the industry to take the lead on reducing pollution, lowering fuel consumption and generating revenue. It will take time and effort, but it is worth considering. 

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