



Photos courtesy Green Fleet Ontario

## Implementing Anti-idling Measures

A new project introduces 'green' technologies for police and emergency medical service fleets.

By Roger Smith



Fuel costs are one of the largest single operating expenses for today's fleet vehicles. For police and emergency medical service (EMS) fleets in particular, fuel consumption can be extremely high, due to extensive periods of idling. This is because their vehicles' propulsion engines must idle almost continuously to meet electrical demands of auxiliary equipment and to support in-vehicle needs, such as heating and air conditioning (a/c).

Excessive idling also pollutes and can contribute to higher maintenance costs. Work-site air quality is an important issue of concern, as long-term exposure to harmful exhaust emissions has the potential to negatively affect the health of first responders.

### The opportunity

Fleet operators have become increasingly aware of their vehicles' impact on the environment and there is a broad and growing interest to implement 'green' fleet plans to reduce the production of harmful emissions. In addition, police and EMS fleet managers are eager to find ways to reduce their operating expenses, with the provision that service levels and emergency response times are not negatively affected in any way.

To address this opportunity, Fleet Challenge Ontario, a not-for-profit program, has launched the Police and EMS Vehicle Idling Reduction Demonstration Project (PEMS), a two-year pilot initiative designed to achieve reduced idling time for police and EMS vehicles through the use of innovative vehicle and technology integrations, using existing, proven green technologies.

The project has the potential to reduce harmful greenhouse gas (GHG) emissions from these vehicles by as much as 37 per cent. This will mean the elimination of a significant quantity of harmful GHGs annually and an improvement in work-site air quality for public-sector employees.

The project involves a broad collaboration of interest groups, including representatives from the Ontario Ministry of Finance, Fleet Challenge Ontario, police and EMS fleet operators throughout the province, locally based police and EMS vehicle manufacturers and ambulance body builders.

### Technology to be deployed

Police vehicle fleets predominantly comprise gasoline-powered light-duty vehicles, such as sedans, sport-utility vehicles (SUVs), vans and some light-duty trucks. All three approved police cars are produced exclusively in Ontario for the North American market, including the Chevrolet Impala, the Dodge Charger and the Ford Crown Victoria.

EMS fleets typically comprise domestically built gasoline- and diesel-powered trucks, SUVs, commercial vans and, of course, ambulances, most of which use a medium-duty cutaway chassis fitted with an aftermarket body.

While the automotive world has made great progress in producing new green vehicle technologies, at this time few such options are available for the vehicles in police and EMS fleets.

There are, however, other options. The use of a vehicle's propulsion engine to provide heat and a/c and to power the alternator, for example, is a tremendous waste when a small—by comparison—and more fuel-efficient auxiliary power unit (APU) could be used. Such devices are now very compact, quiet and technically sophisticated. One model is manufactured by Teleflex in Kitchener, Ont. To date, APU use has been limited to highway tractors, where similar electrical, heating and cooling requirements are found.

APUs have not yet been adopted for use in police and EMS vehicles. This has been primarily due to the lack of precedent and the relatively high cost of APU technology, but perception of the latter factor is now changing, given the current cost of vehicle fuels and environmental concerns.

For the EMS portion of the project, hybrid drive trains—which automatically shut down the engine whenever it is not being used to drive the vehicle—will be among the proposals for the base test vehicles. These are now available for EMS ambulances.

Auxiliary heaters and a/c units coupled to an auxiliary battery bank will provide in-vehicle climate control without draining the vehicle's starting battery. Reprogramming a vehicle's electronic control module (ECM) is another option to be explored in conjunction with original equipment manufacturers (OEMs).

An automatic engine start/stop device—i.e. to stop the vehicle's engine automatically when

## Excessive idling can contribute to increased pollution and higher maintenance costs.

no activity is detected after a predetermined period—may also be included. This device will automatically restart the engine if the battery voltage drops to a pre-set value or if the cab temperature becomes too cold or hot.

All supporting technologies will form an integrated package as part of the pilot.

### Project rollout

For this project, Fleet Challenge Ontario has brought together stakeholders to plan, design, configure, install and test, in real operating conditions, vehicle/technology combinations that will reduce electrical and environmental demands and/or supplant propulsion engines in police and EMS vehicles.

Fleet Challenge has also formed a stakeholder advisory group, including spokespeople from automakers, technology providers and the unions that represent the automakers and drivers of police and EMS vehicles. These project stakeholders are assisting with technical resources, test vehicles and technologies. Others from the group, such as the fleet operators, will beta-test vehicle/technology combinations in a real-world setting and then provide their feedback under a carefully monitored protocol.

A technical subgroup is working to identify the vehicle/technology combinations to be tested and the units requested for each chosen vehicle or technology.

Once the vehicles have been retrofitted, testing will begin. It will be conducted in a test lab under standard third-party testing protocol. Once the technical team is satisfied, beta testing will be carried out in actual operating conditions with select police and EMS fleets.

Driver reactions and issues will be noted and systematically addressed.

The reductions in emissions and idling time will be analyzed for each vehicle/technology combination and final results will be tabulated and documented by Fleet Challenge.

A communications team will report the progress of the project from its launch through to its final results.

### Economic opportunity

As these new applications for existing technologies will significantly reduce or eliminate the need for engine idling altogether, it is anticipated the technology developed during this project will enable police forces and EMS fleets throughout Canada and elsewhere in North America to substantially reduce their fuel expenses.

It is also possible the resulting police and EMS vehicle configurations could eventually lead to an OEM regular production option (RPO). It is expected there may be interest in this RPO at the automaker level, potentially as a new offering that will have wide fleet appeal across North America.

Indeed, this project has the potential to reinvigorate the Ontario auto industry to some extent by producing innovative new green vehicle options for police, EMS and other fleets. Results of the demonstration project will be widely communicated in a strategic and focused manner to fleet industry decision-makers across North America.

*Roger Smith is the director of transportation initiatives for the Canadian Energy Efficiency Alliance's Fleet Challenge Ontario Program. For more information, visit [www.fleetchallenge.ca](http://www.fleetchallenge.ca).*

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