PTI 2012-2013 SOLUTIONS AWARDS

City of Raleigh
Population C: 350,000-749,999
Category: Sustainability
Title: City of Raleigh Police Anti-Idling Technology

Energy Xtreme Anti-Idling Device

Anti-Idling Device in trunk of police cruiser

Cruiser lights operating on Anti-Idling Device

Abstract:
The City of Raleigh Office of Sustainability partnered with the Raleigh Police Department to install anti-idling technology in 29 of the City's police fleet vehicles. After analyzing the different technology packages available, the committee decided that the preferred system was the fleet package available through Energy Xtreme.

The Energy Xtreme package is a power management system that operates a police cruiser's full electrical system (including lights, camera, computer, radio, and communication devices) without the engine running, for a minimum of four continuous hours. It recharges automatically when the engine is running. A wireless communication technology was installed in each vehicle to download data, providing usage information to the department.

Training was provided to Vehicle Fleet Services staff on installation of the technology.

During just the first quarter of usage, these 29 units saved approximately 962 gallons of fossil fuel and prevented 33,659.6 ghost miles (potential miles that could have been traveled during the time a vehicle idles). This resulted in a reduction of Greenhouse Gas (GHG) emissions.

Department of Energy grant funds from Triangle Clean Cities Coalition Blue Skies Grant and the Energy Efficiency and Conservation Block Grant were used to fund this project.

Statement of the Problem:
Police vehicles are required to idle even when they are stopped or sitting at an intersection directing traffic in order to power the variety of electronics and lights on the vehicle. Every 2 minutes a vehicle idles, it uses approximately the same amount of fuel necessary to travel one mile. The effects of such idling on fossil fuel usage, human health and environment, are significant. Excessive idling can damage engine components, shortening the life of the engine.

In addition, in 2008 the City of Raleigh made a commitment to reduce Greenhouse Gas emissions and to reduce its carbon footprint. A Greenhouse Gas study was completed to identify sources and opportunities, and the "Roadmap to Raleigh's Energy Future" was

developed. This indicated a need for fleet transformation and the use of alternative fuels and technologies. The City of Raleigh considers itself to be a leader in innovation and searches for ways to pilot projects that accomplish greater efficiencies and utilize emerging technologies. (http://www.raleighnc.gov/environment/content/AdminServSustain/Articles/ARoadmapToRaleighSEnergyFuture.html).

Response:
After researching a variety of technologies available, the committee decided to install the Energy Xtreme Independence Package, Law Enforcement Edition (http://www.energyxtreme.net/solution/lawe).
This package has a 5-7 year life expectancy, after which it is 95-98% recyclable.

This seemed to be the most effective at reducing fuel costs and emissions while providing the auxiliary power needed to manage all the devices necessary for the officers to manage on-scene operations. The technology provides a minimum of 4 hours of continuous, idle-free functionality, and has a push-button jump start to prevent the officer from being stranded. The battery will recharge within 1-2 hours while the vehicle is being driven.

Energy Xtreme's wireless data-on-demand service allows fleets to track usage statistics including idle reduction hours, fuel savings, progress in terms of return on investment (ROI), CO2 and NOx emission reduction numbers, and hours of engine life re-gained while using the technology. Clear, concise reports with graphs outlining emission reductions and gasoline savings can be obtained. A wireless data logger automatically uploads usage information six times per day to a secure database. A copy of the most recent report is attached.

Vehicle Fleet Services staff were trained to perform installations of equipment. As police vehicles are frequently involved in accidents and collisions, this training was essential to enable transfer of the technology to another vehicle if a host vehicle had to be removed from service.

Results:
A number of benefits were realized by use of this emerging technology:

1) Extends life of vehicle. Because idling is harmful to vehicles, the use of this technology extends the life of the vehicle by reducing wear and tear.
2) Reduced maintenance to vehicles. The more you idle, the more frequently you need to perform regular maintenance.
3) Reduction of GHG and carbon.
4) Trained Vehicle Fleet Services installers on staff.
5) Financial savings for the past year, for fuel alone, are estimated to be $47,150.00. (The anti-idling usage hours have shown a significant increase in usage over the past year.)
6) ROI (return on investment) – With an initial investment of $141,080 for 29 units and mechanic training, ROI should be recognized within 2.5 years considering the increase in usage, the direct fuel savings, decreased maintenance, and the extended life of the vehicle.

Key Participants:
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