



NC CLEAN ENERGY TECHNOLOGY CENTER

Clean Transportation Success Story

CITY OF CHARLOTTE FIRE DEPARTMENT

A North Carolina Success Story

Fleet Spotlight

Charlotte Fire Department (CFD) is an innovative and progressive organization committed to the reduction of diesel fuel in their fleet through the use of auxiliary power units (APUs). CFD is one of the first fire departments nation-wide to begin implementing clean transportation technologies into their fleet. CFD responds to approximately 400 service calls daily, many of which result in vehicles idling for long periods of time. To address this issue, the CFD took a common piece of idle-reduction technology from the trucking industry and



Charlotte Fire Department is leading the nation in emissions reduction with the installation of 27 auxiliary power units (APUs). Photo by Power2Charlotte

adapted it for their own purpose. In 2011, the CFD initially started with four new engines outfitted with APUs. The fleet now includes a total of 27 APUs installed.

Organization Details

Number of Vehicles	59
Technology Used	Auxiliary Power Units (APUs)
APUs Installed	27 (46% of fleet)
Diesel Reduction	21,000 Gallons/Annual
Emission Reduction	209 Metric Tons CO ₂ /Annually
Funding Support	\$148,369

For reference, the main engine of a fire truck, when idling, burns between 3 to 3.5 gallons of diesel fuel every hour. Equipped with an APU, a truck can offer the same functions (minus the hoses) without running the main engine. Even further, a truck with an installed APU can run the truck's emergency lights and climate control at 80% less fuel usage. The proven APU technology burns 0.5 gallons of diesel fuel every hour, compared to 3 - 3.5 gallons burned by the main engine. By reducing their idling fuel consumption by 80%, the Fire Department can reduce their carbon dioxide emissions from one truck by as much as 66 pounds per hour per truck and save approximately 1,000 gallons of diesel per year.

Outlook

With the APU technology, CFD can provide emergency services, while significantly reducing their environmental impact. CFD intends to continue buying new APU-equipped vehicles as older engines and ladder trucks are retired until the entire fleet is outfitted with this technology. The department purchases these vehicles through their operating budget and grant funding when available. Overall, the purchasing of these vehicles helps the City of Charlotte reach its internal Environmental Operations Plan goal of increasing low-emission vehicles by five percent by 2016.



An Auxiliary Power Unit (APU) found in one of the fire trucks operated by the City of Charlotte Fire Department. Photo by Power2Charlotte



“Saving money is great and one of the main reasons we initiated this project, but the environmental benefits of this technology are also very important. We interact with the community every day, so to demonstrate to them that we are environmental stewards is something the department and City are very proud of.”

**– Jon Hannan
Fire Chief, Charlotte Fire Department**

Clean Fuels Advanced Technology Project 2013-2015

This project is one of over 50 supported by the 2013-2015 phase of the Clean Fuel Advanced Technology (CFAT) project funded by the N.C. Department of Transportation with \$6.2 million in federal Congestion Mitigation Air Quality (CMAQ) funding.

CFAT is focused on reducing transportation related emissions in the 24 North Carolina counties that have air quality concerns and are listed as non-attainment or maintenance status for national air quality standards. The 2013 to 2015 project covers three broad areas: education and outreach, emission reduction technology sub award funding, and recognition of exemplary activities.

The N.C. Clean Energy Technology Center teamed up with the Centralina Clean Fuels Coalition, the Triangle Clean Cities Coalition, Piedmont Triad Regional Council, Upper Coastal Plain Council of Governments and Kerr-Tar Council of Governments on education and outreach activities throughout the state. These partners are available to speak about clean transportation technologies and practices at local events.

Contact

For more information about this project, please contact Centralina Clean Fuels Coalition, 704-372-2416

NC Clean Energy Technology Center
Transportation Program
cleantransportation@ncsu.edu

This document is supported through the Clean Fuel Advanced Technology project sponsored by the N.C. Dept of Transportation.