



## Overview

In 2013, Morgan County Schools in Wartburg, Tennessee added four alternative fuel vehicles to their fleet of school buses; three of these buses run on propane while a fourth runs on CNG.

## Program Participation

Morgan County Schools did not receive a grant for this project; project funding was justified based on the expected ROI from fuel savings. The East Tennessee Clean Fuels Coalition assisted in this project by providing payback information through ROI spreadsheets. They also helped Morgan County Schools organize their grand opening event to publicize the new alternative fuel buses.

Also, Citizens Gas supplies the fuel for the County's natural gas bus.

## Project Motivation and Implementation

When asked in interviews about the goal of Morgan County's alternative fuel projects, Transportation Director Keith Duncan replied, "There is only one answer, and that's cost savings." Though cleaner emissions, the development of new alternative fuel enterprises in Tennessee, and lower emissions around schools are all outstanding benefits of propane and CNG use, Morgan County School's greatest motivator for this project has been the cost savings expected and achieved through lower fuel costs.

Though the timeline of this project (1 year) was quite quick compared to other types of capital projects, the process was somewhat time-consuming. Duncan and other members of the management team engaged in a number of meetings and demonstrations to fully evaluate the equipment and ROI justification.

Duncan went on to say, "It is a time consuming process and the reason is, where do you get those numbers from? Everyone has a projection, but how do you really know until you take a bus and put it on a route?" From start to finish, rather than taking manufacturer claims for granted, the Morgan County Schools management team was careful to fully evaluate operating costs and concerns prior to making purchasing decisions."

The biggest barrier that Morgan County encountered throughout the project was safety. Duncan said, "Safety is the big key word. It is hard to sell people on an alternative fuel after relying on diesel for so many years. Many people are worried about the threat of fire or explosion. Early on, administrators, board members, and other members of upper management were concerned that alternative fuels might impact the safety of students. Addressing popular concerns and misconceptions was essential, and without proper training and education, this project would not have been possible."

## Fleet Facts

### Organization:

Morgan County Schools (TN)

### Transportation Director:

Keith Duncan

### Industry Type:

School

### Conversions Began:

2013

### Vehicles Converted:

Four

## Results

As was the intent, cost savings has been the primary accomplishment of this project. While the originally advertised payback period for the CNG bus was seven years, real numbers show the ROI to be 15 years. Purchasing propane buses, meanwhile, creates no more overhead than buying a diesel-powered bus, so there is no real, significant payback period – the savings are immediate. The fuel savings essentially equal the total payback. Data on petroleum savings and displacement, emission reductions, and cost savings are not yet available.

In terms of non-financial benefits for Morgan County, 85% of drivers have given good feedback on the alternative fuel buses. The vehicles create a quieter, calmer ride for the students, and the bus riders are no longer exposed to as much pollution.

## Lessons Learned and Next Steps

According to Duncan, there is one lesson learned that simply outshines all others. For their school system, he says natural gas is not a viable alternative fuel option. The primary concern is overhead. It is very hard for a school district, based on its type of vehicle use, to overcome and recoup the incremental and infrastructure costs of CNG.

Propane, meanwhile, makes a great case for use in school systems. Propane buses are smoother, quieter, and safer because you can hear more of what is going on in the bus compared to their diesel counterparts. “Propane is the way to go if you’re going to switch to an alternative fuel,” says Duncan.

Future alternative fuel plans in Morgan County are dependent on budgeting concerns independent of alternative fuel use. If Morgan County purchases any more buses in the next two to three years they will likely be propane buses.



For more information on this and other alternative fuel and advanced technology vehicle programs contact Kristy Keel-Blackmon, Project Facilitator at the East Tennessee Clean Fuels Coalition, by phone: 865.974.9665 or via email at [kristy@etcleanfuels.org](mailto:kristy@etcleanfuels.org). The East Tennessee Clean Fuels Coalition is a designated Clean Cities Coalition by the U.S. Department of Energy.

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