Case Study:

School District Capitalizes on Abundant Local Fuel Supply, Pays Half Per Gallon for Propane

District: Bradford Area School District
Industry: Education
Location: Bradford, Pennsylvania
Vehicles: 2014 – 2016 Blue Bird Vision Propane (8)
Fueling: On-site propane autogas station

Challenge:
To integrate school buses that run on an abundant, locally available fuel and can perform in the harsh climate and mountainous region of this north central Pennsylvania school district.

By the Numbers:

- More than 8,000 fewer pounds of nitrogen oxide emissions and more than 250 fewer pounds of particulate matter compared with diesel models replaced.
- Estimated $1,500 savings per year per propane bus compared with maintenance and parts needed for diesel buses.
- During winter 2015, buses started in -25 degrees Fahrenheit without issue.
- District pays 50 percent less per gallon of propane compared with diesel.

Bradford Area School District is located in a mountainous region in northern Pennsylvania surrounded by the Allegheny National Forest. The district transports about 2,500 students to school each day on 28 daily bus routes. The school district's attendance area spans about 250 square miles, comprising five schools and nine buildings. And, each school bus travels an average of 120 miles per day.

Abundant Propane Supply
The school district looked to the Blue Bird of Pittsburgh dealership and salesperson Josh Wasielczyk when the time came to purchase the buses, which will take advantage of a readily available fuel.

More than 90 percent of the United States propane autogas[1] supply is produced domestically, with an additional 7 percent from Canada. According to the Propane Education & Research Council, the Marcellus shale can supply more than 2 billion gallons of propane per year.

“Our area has an abundance of propane due to local Marcellus and shallow wells, so we are doing our part to support local industry and the community,” said Barry Bryan, director of transportation, who holds a degree in environmental science. “And because of my background, I have a strong interest in green energy.”

Lowered Emissions
Along with researching the fuel supply in the area, the school district took notice of the larger school bus providers and districts across the country that were integrating propane-powered school buses. Due to the positive results found in their study, Bradford Area School District began purchasing new propane-fueled buses in 2013 to replace aging diesel buses.

These new Blue Bird Vision buses are equipped with Ford Motor Company’s 6.8L V10 engines powered by ROUSH CleanTech propane autogas fuel systems. The propane fleet will emit more than 8,000 fewer pounds of nitrogen oxide emissions and more than 250 fewer pounds of particulate matter compared with diesel models replaced.

“The biggest thing we have noticed is that the clean operation of the propane buses has reduced the emissions in our garage and around our schools,” said Bryan. “There is far less crude build-up on our computer screens inside of our maintenance bays, which is obviously a plus for our lungs.”

Operational Benefits
The school district has also realized myriad operational benefits due to the propane-fueled buses.

These buses, which seat 72 students, run quieter than their diesel counterparts and allow the drivers to more easily interact with passengers. Buses fueled by propane reduce noise levels by about half compared to a diesel engine. “Every driver of our propane buses has expressed a preference of the propane model over the diesel due to reduced cabin noise and increased power on hills,” Bryan said.

Each Bradford Area School District driver has been instructed on the proper operation of the propane-fueled buses. They have commented that these buses maintain power when climbing steep inclines, heat up fast in the winter and provide students a warmer ride.

“The Bradford area saw temperatures of -25 degrees Fahrenheit last winter, and our propane buses ran without missing a beat,” said Bryan. The propane autogas fuel system used in the Blue Bird Vision heats the buses quickly and provides unaided cold weather starts to -40 degrees Fahrenheit.

[1] Propane autogas is the internationally recognized term for propane when used in on-road engines.

To save on labor costs, drivers fuel the buses at the school district's private station, which is made up of two 1,000-gallon tanks.

Like many Pennsylvania school districts, Bradford Area School District has not seen a budget increase in over four years. All savings from the operation of propane buses have been allocated back into the district's general budget, including the savings in fuel costs.

On average, propane autogas costs 40 to 50 percent less than diesel. Currently, the district is paying $1.42 per gallon of diesel versus $.70 for propane, which includes a $.55 per gallon government incentive. The district also received a $5,000 government rebate on the initial cost of each bus.

Maintenance
Bradford Area Schools District's maintenance staff received training form both the local Blue Bird dealership and an onsite visit to ROUSH CleanTech's headquarters in Livonia, Michigan, to ensure the staff fully understood the buses' operation and service schedule. Outside of regular preventative maintenance, and a few issues covered under warranty, the district's propane buses have not required additional service.

Propane autogas burns cleaner in engines than gasoline and diesel, which results in reduced maintenance costs and less wear and tear on the engine and components. "Our propane buses greatly reduce the time spent in maintenance when compared to the maintenance required to keep the emission equipment on a diesel bus operational," said Bryan. "Thus, our mechanics have been very happy."

Because extra equipment like diesel particulate filters (DPF), diesel emission fluid (DEF) and manual regeneration isn't needed for the propane-fueled buses, the district estimates it will save $1,500 per year per bus.

"Our propane buses are easy to maintain, create less pollution, increase financial savings and operate on a local fuel," said Bryan. "Due to our positive experience, we plan to replace two diesel buses per year with Blue Bird propane models."

About Blue Bird Corporation: Blue Bird is the leading independent designer and manufacturer of school buses, with more than 550,000 buses sold since its formation in 1927 and approximately 180,000 buses in operation today. Blue Bird's longevity and reputation in the school bus industry have made it an iconic American brand. Blue Bird distinguishes itself from its principal competitors by its singular focus on the design, engineering, manufacture and sale of school buses and related parts. As the only manufacturer of chassis and body production specifically designed for school bus applications, Blue Bird is recognized as an industry leader for school bus innovation, safety, product quality / reliability / durability, operating costs and drivability. In addition, Blue Bird is the market leader in alternative fuel applications with its propane-powered and compressed natural gas-powered school buses. Blue Bird manufactures school buses at two facilities in Fort Valley, Georgia. Its Micro Bird joint venture operates a manufacturing facility in Drummondville, Quebec, Canada. Service and after-market parts are distributed from Blue Bird's parts distribution center located in Delaware, Ohio.

About ROUSH CleanTech: ROUSH CleanTech, an industry leader of alternative fuel vehicle technology, is a division of ROUSH Enterprises based in Livonia, Michigan. ROUSH CleanTech designs, engineers, manufactures and installs propane autogas fuel system technology for light- and medium-duty Ford commercial vehicles, and Type A and Type C Blue Bird school buses, and compressed natural gas fuel systems for Type C Blue Bird school buses. As a Ford QVM-certified alternative fuel vehicle manufacturer, ROUSH CleanTech delivers economical, clean and domestically produced fueling options for fleets across North America. Learn more at ROUSHcleantech.com or by calling 800.59.ROUSH.

(Completed in 2016)

ROUSH CleanTech inquiries:
Chelsea Uphaus
Chelsea.Uphaus@roush.com
734.466.6710

Media inquiries:
Julie Puckett
julie@tsncommunications.com
877.411.3243 x807

Blue Bird inquires:
Bren Kezlan
Bren.Kezlan@blue-bird.com
678.296.3614