



**Bradford Area
School District**



Case Study: Pennsylvania School District Operates Propane Buses for a Decade, Saves \$60,000 Annually

District: Bradford Area School District
Industry: Education
Location: Bradford, Pennsylvania
Vehicles: 2014 – 2023 Blue Bird Vision Propane school buses (20)
Fueling: On-site propane autogas station

Challenge:

Integrate environmentally friendly school buses that can run on a locally available fuel supply, protect the district's tight budget, and perform reliably in the harsh climate and mountainous region of north central Pennsylvania.

By the Numbers:

- 100% routes run on propane
- 90% propane fleet
- 68% fuel savings per gallon compared with diesel
- Zero cold weather start-up issues

A Decade of Success

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 on 18 daily bus routes that cover an attendance area spanning about 250 square miles.

Ten years ago, the district embarked on a forward-thinking initiative to replace its aging diesel buses with a cost-efficient and environmentally friendly fuel: propane autogas. For a decade, the propane buses have successfully managed the weather, terrain, and wear and tear of daily operations in Pennsylvania. The district has also enjoyed 10 years of significant cost savings. Today, the district operates 100% of its routes using propane school buses, keeping three diesel units as backup.

“Over my 40-year career, in which I have overseen the purchase and maintenance of hundreds of buses, I have never seen a bus design that saves over \$3,000 per year,” said Barry Bryan, director of transportation for the district. “This is a huge number for any

contractor or school district. I'm surprised we're not seeing more of these units rolling down the road."

Abundant Propane Supply

Propane autogas is the most widely used alternative fuel in the world, with 27 million propane vehicles operating globally. More than 90% of the United States propane autogas¹ supply is produced domestically using materials that would go to waste if they were not salvaged from other energy processes. According to the Propane Education & Research Council, the Marcellus shale, which is located in the Appalachian Basin, 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 Bryan, 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 school buses. Due to the positive results reported by these school districts, Bradford Area School District began purchasing propane school buses in 2013.

Of the top 25 school bus markets, 19 have propane-fueled buses in their fleets today, including New York, Chicago, Houston, Los Angeles, Miami, Philadelphia and Phoenix. In total, more than 22,000 propane school buses are on U.S. roads today.

The district's Blue Bird Vision buses, which are equipped with ROUSH CleanTech propane autogas engines, dramatically reduce nitrogen oxide emissions and virtually eliminate particulate matter — substances identified by the Environmental Protection Agency as harmful to students and the environment.

"The biggest thing we've 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."

The school district's newest propane buses, which arrived in 2023, are certified to 0.02 g/hp-hr NOx. They're 90% cleaner in NOx than the EPA and California Air Resources Board (CARB) regulations set to take effect in 2027.

Operational Benefits

The school district has also realized myriad operational benefits due to the propane buses.

The buses 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

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

of the propane model over the diesel due to reduced cabin noise and increased power on hills,” Bryan said.

The drivers, who have been instructed on the proper operation of the propane-fueled buses, have commented that the 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 negative 25 degrees Fahrenheit in 2015, 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 at negative 40 degrees Fahrenheit.

Reduced Maintenance Time and Expense

Bradford Area Schools District’s maintenance staff received training from 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.

Both propane autogas and diesel meet EPA and CARB standards, but diesel requires costly and time-intensive aftertreatment measures. “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.”

Immediate and Long-Term Savings

Like many Pennsylvania school districts, Bradford Area School District grapples with a tight budget. District leadership was thrilled that the district saw a return on its investment within the first year of operation.

When adopting an alternative fuel, cost per mile is an important factor in identifying total ownership costs. Propane buses offer the lowest total cost of ownership compared with other alternative fuels.

On average, propane autogas costs about 50% less than diesel. Currently, the district is paying \$4.70 per gallon of diesel versus \$1.50 for propane. The district received a \$5,000 rebate on the cost of each initial bus in 2013, and has subsequently accessed funding from Pennsylvania’s Alternative Fuel Incentive Grant program as well as the Environmental Protection Agency’s Clean School Bus Program. Propane also qualifies for a \$0.37 per gallon government incentive through the alternative fuel tax credit.

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 also saves on maintenance. Bryan estimates annual savings of \$3,000 per year per bus for a total of \$60,000 in savings annually.

To save on labor costs, drivers fuel the buses at the school district’s on-site station, which is made up of two 1,000-gallon tanks. Propane infrastructure is the most affordable and flexible infrastructure of any transportation source on the market, allowing districts across the country

and in diverse socioeconomic backgrounds to be able to afford it. Most fleets lock in an annual per-gallon fuel cost for propane so price and supply remain consistent, allowing for better budgeting.

All savings from the operation of propane buses have been allocated back into the district's general budget, including the savings in fuel costs.

Positive Performance and Feedback

Bryan and the transportation staff have only positive feedback about their decade-long experience operating propane school buses. "Our propane buses are easy to maintain, create less pollution, increase financial savings and operate on a local fuel," said Bryan. "I can't express how pleased I am with the performance of our propane fleet."

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About Bradford Area School District: The Bradford Area School District is a mid-sized, rural and suburban public school district in north central Pennsylvania encompassing 250 square miles and serving approximately 2,500 students. The mission of the Bradford Area School District is to educate for success, foster collaboration, and inspire excellence among students, school, family and community.

About ROUSH CleanTech: ROUSH CleanTech, an industry leader of advanced clean transportation solutions, is a division of the global engineering company Roush Enterprises. ROUSH CleanTech develops propane autogas technology for medium-duty Ford commercial vehicles and school buses. With more than 37,000 vehicles on the road, the Livonia, Michigan-based company delivers economical, emissions-reducing options for fleets across North America. Learn more at [ROUSHcleantech.com](https://www.ROUSHcleantech.com) or by calling 800.59.ROUSH.

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