



Case Study:

Independence School District Reduces Emissions, Cuts Costs with Propane Autogas School Buses

District:	Independence School District
Industry:	Education
Location:	Independence, Missouri
Vehicles:	Blue Bird Vision Propane school buses (11)
Fueling:	On-site propane autogas station

Challenge

To address cost savings while achieving emissions reductions. Although diesel prices were low at the time, Independence School District decided the long-term benefits of purchasing propane autogas buses and installing propane fueling infrastructure won out, aiding the community's air quality and the district's costs.

By the Numbers

- 11 propane autogas school buses (out of fleet of 128 buses).
- 10,000 to 12,000 miles traveled per bus per year.
- Approximately 3,000 gallons of propane autogas per vehicle per school year.
- \$2,000 estimated annual reduction in fuel costs per bus per year.

Migrating to a Cleaner Fuel

Rather than continuing to invest in diesel engine buses, leaders at the Independence School District, near Kansas City, Missouri, decided to move toward adopting an alternative fuel.

"I think cost and emissions both certainly played a role in our looking at propane," said Daryl Huddleston, director of transportation. "Although at the time, the price of diesel was pretty low, the clean energy was intriguing and we thought it was a good thing to look at for the community and district as well."

District and Fleet Background

With 30 buildings in the district, and approximately 9,500 students, Independence School District runs about 100 routes per day, which includes special needs and early childhood. The district covers the city of Independence as well as a portion of East Kansas City. Its school bus fleet of 128 buses includes 11 Blue Bird propane buses.

District officials started looking at propane and alternative fuels for health and environmental benefits thanks to events held by Kansas City Regional Clean Cities and nearby school districts. “I started in 2013 attending alternative fuel-related events,” said Dr. Lance Stout, deputy superintendent of operations. “I’d attend a few each year and had a couple of school districts nearby that were going down the CNG route. So, my interest continued to build.”

Affordable infrastructure cost was a key to the adoption of propane. “When we decided to transition to some propane buses, the low infrastructure costs really helped make that decision. We did not have to retrofit the shop like you would with CNG,” said Huddleston. Independence School District chose local propane company Ferrellgas to build the fueling infrastructure and provide the fuel. The district now has one station with two fuel pumps and an 18,000-gallon tank at its transportation facility. The buses are fueled every other day based on a schedule.

Affecting Change in Kansas City

Why did Independence School District choose to start using an environmentally friendly fuel? “It wasn’t a mandate, but it was a direction we decided we wanted to go in, and the cleaner fuel makes a difference,” said Dr. Stout.

Independence School District’s new propane buses replaced diesel buses that were 15 to 18 years old. The district received multiple funding sources to purchase the propane buses, including a \$20,000 rebate from the Missouri Propane Education & Research Council and a grant from the charitable nonprofit organization Leonardo Academy. There are many local, state and federal funding programs available to help offset the cost of propane school buses and infrastructure.

Benefits So Far

Closing out the first year using propane buses, district leaders repeatedly heard about the quieter operation and cleaner air. The economics also look good. Compared to the current cost of diesel at \$2.25 per gallon along with gasoline at \$2.10, the district locked in propane at 68 cents per gallon through the end of the school year, according to Huddleston. The district estimates \$2,000 savings in fuel cost per bus each year, leaving more dollars for school, not fuel.

Jeff Putnam, fleet supervisor, says he and staff have already noticed differences. “Besides the fuel being less expensive, the time it takes to fuel is about the same timeframe of diesel buses,” he said. “I love how clean the propane buses are now, too.”

ROUSH CleanTech, the propane fuel system manufacturer, provided a one-day in-house training for technicians. “The technicians say the buses have a very straightforward system with the lack of after-treatment and fuel injection systems, and exhaust components that the diesels have,” Putnam said. “Working on the buses is so much cleaner due to the negligible emissions.”

Missouri students, bus drivers and personnel who ride propane autogas school buses have significantly reduced exposure to harmful nitrogen oxides, carbon monoxide, soot and particulate matter.

Driving the Change

The district's drivers say the performance is similar to diesel models, and their response has been extremely positive. "When I touch base, our drivers certainly mention the noise level being lower, and the exhaust fumes — not having them — has been significant as well," Huddleston said. "They like the style and comfort level of the propane bus. Drivers even say these buses warm up more quickly. And the only training the drivers really needed was that the starting mechanisms are a bit different."

Future Plans

These are only the first propane buses for Independence School District. "We plan to add 10 more propane buses hopefully very shortly, and to add as the budget allows us," Huddleston said. "Our hope is to add 10 per year over the next five to six years." He said that right now the propane buses are assigned for routes, but they plan on ordering a special needs propane bus, too.

And what about the students and their families? "What the parents notice is the lack of emissions, and as we continue to go forward we'll see some cost reductions that will be funneled back into the classroom," Huddleston said. Propane not only can transport more healthily, but add to students' learning through the district's healthy bottom line.

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About MOPERC: The Missouri Propane Education & Research Council is a not-for-profit organization authorized by the Missouri Legislature. Dedicated to propane education and public awareness, MOPERC provides industry training, consumer safety, appliance rebates and market development programs. The council is composed of 15 volunteer directors and administered by an executive staff. Visit PropaneMissouri.com.

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