



Fort Zumwalt School District

Educate, Empower and Equip Students to Excel

Case Study:

Thirteen Years After Adoption, Fort Zumwalt School District Proves Staying Power of Propane School Buses

District: Fort Zumwalt School District
Industry: Education
Location: O'Fallon, Missouri
Vehicles: Blue Bird Vision Propane school buses (64)
Fueling: On-site propane autogas stations (2)

By the Numbers

- 64 propane school buses
- 2023 purchase price lower than diesel by \$24,800
- 56% estimated savings in fuel costs per year

Challenge

A suburban school district's goal to reduce bus emissions and costs led to researching clean, emissions-reducing alternatives to diesel.

Result

The district became the first in the state to add propane school buses in 2011. Thirteen years later, the district is happy with the significant cost savings from its propane school buses and continues to add them to its fleet, including 18 new buses that arrived in early 2024.

District and Fleet Background

Fort Zumwalt School District comprises 125 square miles in St. Charles County, outside St. Louis. With 27 schools and 15,000 students transported by school buses each day, the district runs 138 daily and special-education routes, requiring the use of 171 school buses.

Migrating to a Cleaner Fuel

Fort Zumwalt School District's transportation department started researching alternatives to conventional fuels in 2010. According to Jeff Schwepker, director of transportation, propane autogas stood out because of the low price of fueling infrastructure and the ease of implementation. "We could achieve our district's two major objectives when it came to cleaner school buses: Saving money and forging a greener footprint," said Schwepker.

Schwepker initially learned about propane buses from the district's bus dealer, Central States Bus Sales.

In 2011, the district purchased eight Blue Bird Vision Propane buses, replacing diesel models from the early 2000s. ROUSH CleanTech, the propane fuel system manufacturer, provided training for the district's technicians.

"Propane autogas school buses reduce the costs of fuel and maintenance, allowing school districts like Fort Zumwalt to spend less on transportation and more on education," said Jeff Reitz, president of Blue Bird dealer Central States Bus Sales.

Affecting Regional Change

The propane buses benefit not only Fort Zumwalt School District, but the surrounding community since they cut harmful emissions. Propane autogas is a nontoxic, non-carcinogenic and non-corrosive fuel that is naturally lower in nitrogen oxides, which are federally regulated due to their negative impact on human health and the environment. The buses also produce zero particulate matter and fewer greenhouse gases and smog-producing hydrocarbons.

The clean-operating buses eliminate the strong-smelling fumes and harmful tailpipe emissions found with diesel buses. According to a [2019 West Virginia University study](#), propane school buses reduce nitrogen oxides by at least 95% compared with diesel.

In 2013, the school district won the Community Leadership in Environmental Awareness Now (CLEAN) award for the buses, which was presented by the Missouri Propane Education & Research Council.

Budget Benefits

Financially, the propane buses have more than achieved the district's goals. Schwepker says the district pays on average \$1.24 per gallon for propane, comparing favorably to \$3.06 per gallon of diesel. The district also receives a \$0.37 per gallon rebate from the alternative fuel excise tax credit for each of its propane buses, bringing its per gallon cost down to \$0.87.

"We're definitely seeing big savings in fuel costs with our propane buses between the lower cost of the fuel and the tax credit," said Schwepker. On average, propane costs 50% less than diesel. The district is seeing about a 56% savings in fuel costs with its propane buses.

Fort Zumwalt School District's propane school buses also lower the total cost of ownership by saving on fluids and filters. Due to the fuel's clean composition, there are no complex and costly after-treatment systems. "Initially we had some issues with maintenance, but we worked through them," he said. "The only caveat with the propane buses is that they require a slightly more expensive synthetic oil."

With the district's most recent round of 18 new propane buses, the cost per bus was lower than the cost for a new diesel bus. "This year, we paid less for the new propane buses than for diesel," said Schwepker. "Next year that gap will increase. In about four years, it will be completely impractical to purchase new diesel buses." Traditionally, diesel buses cost less than propane models. However, recent efforts to reduce harmful emissions have led to new regulations and tax implications for diesel school buses, ultimately raising their purchase price. That is not the case for propane vehicles, as propane autogas is clean by its very composition.

Reasonable Fueling Infrastructure

When it comes to fueling, there are three options for propane fleets. Some districts choose mobile fueling where a local propane supplier fills up buses directly from a delivery truck. Others fuel at public propane stations. However, most school districts, like Fort Zumwalt, install infrastructure onsite for the convenience and low cost — propane infrastructure is inexpensive; a station costs less than any other fuel type including diesel.

Fort Zumwalt installed two fueling stations on school property. One has a pair of 3,500-gallon tanks and the other has a 3,000-gallon tank, allowing up to two buses to be fueled at once. The tanks are refilled regularly by propane provider Ferrellgas. “The cost to install infrastructure was completely reasonable,” said Schwepker. In the coming months, the district will build a new bus garage and will incorporate new propane tanks and systems. “One minor challenge that we’re addressing with the new bus garage is ensuring the propane buses are fueled on a level surface so that we can get the tanks 100% full.”

Schwepker finds that the fueling process is quick and easy and is similar to diesel. “Our earlier model propane buses have smaller tanks, so we need to fuel them every day. But the new propane buses we received in 2024 have larger 93-gallon tanks,” he said.

Driving Change

Schwepker works to ensure his drivers feel comfortable driving the district’s propane buses. Drivers appreciate that starting up the buses is simple. “Propane buses start themselves,” said Schwepker. “You let it cycle. It powers the pumps and it starts itself.”

The drivers were a little tentative at first. “But that dissipated quickly when they realized that the new buses warmed up the cabins quickly, a major plus in our Midwest winter cold,” he said. “Warm-up time at idle is comparable to a car.”

Plus, the new buses are quiet, allowing the drivers to hear clearly what is going on behind them, and the smooth engine is a definite improvement over diesel models. “The quiet operation is a big advantage to the neighborhoods in the mornings,” he added. “In fact, parents were missing the bus because they were used to the noise of the diesel bus to alert them of the arrival. On the newest propane buses, we actually added blast packs, which provide additional external noise, so that people could hear them. The demand from parents for noise was high enough that we had to add those.” The quiet buses have proven incredibly valuable for the district’s 23 special education routes.

The drivers also found the performance better than expected. “The drivers enjoy driving them. The propane buses are similar to diesel in all performance respects,” said Schwepker.

Low Carbon Fuel

Because propane is a low-carbon, low-emission fuel, a variety of state and federal grants and funding opportunities are available. Fort Zumwalt takes advantage of federal excise tax credits each year, which reduces the cost of each gallon of propane. The [Alternative Fuels Data Center](#) (AFDC) provides financial data and tools to help fleets calculate costs.

Within the state of Missouri, the Missouri Propane Education & Research Council offers financial incentives to help offset the cost of propane school buses through its rebate incentive program. With the new round of propane buses, Fort Zumwalt accessed funds from MOPERC's rebate program, totaling \$20,000.

“Propane is a No-Brainer”

Fort Zumwalt School District began purchasing propane buses more than a decade ago, and other Missouri districts followed suit. There are more than 22,000 propane school buses across the nation, including over 300 in Missouri.

Today, Fort Zumwalt operates 40% of its bus fleet with propane autogas. Schwepker's game plan is to continue replacing aging diesel buses with new propane models. “As the need arises, if we can do propane, we will,” he said. “Especially now that they cost less than diesel buses, and the fuel is less than diesel. It's a no-brainer.”

The decision means significant fuel and maintenance cost savings, and a community that can breathe easily due to reduced emissions.

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About Fort Zumwalt School District: Fort Zumwalt School District educates, empowers and equips students to excel. The district provides a safe, supportive and collaborative environment with highly qualified, engaged and committed staff. Fort Zumwalt School District is headquartered in O'Fallon, Missouri and is one of the largest districts in the state, educating approximately 17,600 students.

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.

(Case study completed 2024)