Case Study:

Texas School District Operates Propane School Buses for Over a Decade

District: Leander Independent School District
Industry: Education
Location: Leander, Texas
Vehicles: 2008 – 2019 Blue Bird Propane Vision, Type C school buses (117)
Fueling: On-site propane autogas stations (2)

Challenge

Replace aging diesel buses with a cleaner bus fleet while ensuring easy-to-access fueling infrastructure.

By the Numbers

- 30 percent of entire fleet is propane autogas fueled
- 117 propane buses
- Over 130,000 pounds of NOx reduced
- Nearly 3,000 pounds of particulate matter eliminated
- Saving 45 percent per propane gallon versus diesel

Central Texas' Leander Independent School District includes multiple counties, municipalities and parts of Austin that are extremely hilly. The district transports about 12,000 students to school each day on 200 daily bus routes. The school district's attendance area spans about 200 square miles, comprising 42 schools.

Over the past 10 years, Leander ISD integrated propane school buses into its fleet to its current number of 117. About 30 percent of the total fleet runs on propane autogas, with a plan to convert to 60 percent in the next five years.

In 2017, the district hired a new director of transportation, Ann Hatton, who re-evaluated that plan. "I had zero experience with propane school buses prior to joining Leander ISD," says Hatton. "At first I was not a proponent as I was concerned about the safety of propane buses and thought it

would be complicated. But, after learning about the fuel and its benefits, I am sold and am now a huge advocate of this school bus technology."

Helping the Environment and Benefitting the Community

The impact of its school bus fleet on the environment is a big concern for Leander ISD. Many of its community members live on an environmentally sensitive aquifer. They appreciate that the school district is adopting a cleaner transportation option in propane.

School buses fueled by propane autogas emit fewer greenhouse gases and total hydrocarbon emissions, and virtually eliminate particulate matter, when compared to conventional diesel-powered buses. Reductions include a 60-percent reduction in (NOx) oxide emissions, 80-percent fewer smog-producing hydrocarbons, and nearly 100-percent reduction in particulate matter.

The school district's 24 newest Blue Bird Vision Propane buses are equipped with ROUSH CleanTech's low-NOx engines. These propane engines are 75 percent cleaner than the Environmental Protection Agency emission standard, and are EPA and California Air Resources Board certified.

The district's propane buses reduces NOx emissions by over 130,000 pounds and particulate matter by almost 3,000 pounds each year when compared with the diesel buses they replaced. In addition, Hatton says the district's technicians appreciate that there are no harmful fumes in the maintenance bays.

The school district's propane buses reduce noise pollution, too. Compared to diesel, propane autogas engines operate about 50 percent quieter, which increases safety and decreases driver fatigue. The driver's ability to hear students and emergency vehicles while a bus is in motion is a huge safety advantage for everyone on board.

"Our bus drivers prefer to drive our propane buses due to the lower noise level," says Hatton, adding that the drivers also appreciate how easily the propane buses go up and down the hills in our area. "The propane buses have a lot of get up and go."

Reducing Costs and Increasing Funding

On average, propane autogas costs 40 to 50 percent less than diesel. "The cost of propane has been cheaper and it doesn't fluctuate as much as diesel," Hatton says. "The minimal fluctuations really have helped with budgeting."

Currently, the school district pays $1.26 per gallon for propane and $2.26 for diesel. That's a 45 percent savings for the cost of the fuel alone.

Also, the propane buses require less maintenance due to the clean-burning properties of the fuel. Engines powered by propane require less oil by volume than diesel and no additional diesel emissions fluids. With propane, there is no need for diesel particulate filters, diesel exhaust fluids, exhaust gas recirculation or other after-treatment devices. That's more than 15 parts that aren't needed for the school district's propane buses. The Ford 6.8L engine in the Blue Bird Vision Propane takes 7 quarts of oil, where diesel engines take over 30 quarts of oil.

Leander ISD has received grants from Texas Commission on Environmental Quality and from its local Clean Cities Coalition, Lone Star Clean Fuels Alliance, to help pay for the propane buses. In 2018, the district received $740,000 in funding from TCEQ. "There are a lot of grants available," says Hatton. "Our propane provider, Pinnacle Propane, has been very active in helping us identify potential funding."

The Energy Department's Alternative Fuels and Advanced Vehicles Data Center provides information and resources about state and federal funding opportunities. In addition, the Volkswagen settlement's Environmental Mitigation Trust has $2.9 billion in funding that states and territories may use to invest in transportation projects that will reduce NOx emissions, such as adopting propane school buses.

Fueling Onsite and Making Less Mess

Currently, the school district has two onsite fueling stations. Many school districts elect to install low- or no-cost on-site propane fueling infrastructure, eliminating trips to off-site stations. Installing a propane autogas station costs less than any other station infrastructure, including gasoline or diesel.

Hatton suggests working with a propane provider for fueling as they specialize in helping school districts choose the right fueling option based on the fleet size, routes, budget and facility space.

The district's onsite stations make fueling convenient, but Hatton says she wishes there were more options. "The biggest obstacle in moving to more propane buses has been the fueling limitations. We'd be 100-percent propane if we could get propane anywhere."

As the propane fleet grows, Hatton says that the school district will consider adding fueling stations outside of its facilities. "We want the availability of being able to fuel propane anywhere, whatever our circumstances," she adds.

Propane fueling is a closed-loop system, which Hatton says is a plus. With propane, Leander ISD's drivers and maintenance technicians avoid the frequent spills and diesel odor on their clothes and hands. Fueling its propane school buses has been equivalent to diesel models at 10 to 12 gallons per minute.

Leander ISD plans to adopt more propane buses in the future. But, for now, the school district is satisfied with the results over the past decade. “The savings achieved by operating propane buses goes back into our school district general funds,” says Hatton. “I am pleased that our choice of an alternative fuel can help put money back into the classroom.”

About Blue Bird Corporation: Blue Bird (Nasdaq: BLBD) 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, electric-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. For more information on Blue Bird’s complete line of buses, visit www.blue-bird.com.

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 and electric fuel system technology for medium-duty Ford commercial vehicles and school buses, and compressed natural gas fuel systems for 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.

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