



Case Study:

New Jersey School District Runs Propane Buses on All Routes

District: Randolph Township School District
Industry: Education
Location: Randolph, New Jersey
Vehicles: (33) Blue Bird Vision Propane, Type C school buses
Fueling: On-site propane autogas station

Challenge

Randolph Township School District's concern with oncoming emissions requirements in the shop led the district to replace its diesel bus fleet with an emissions-reducing fuel.

By the Numbers

- 100% bus routes using propane.
- 15,000 miles per bus, per year.
- 81,000 gallons of propane per year.

Researching Alternatives

[Randolph Township School District](#) serves about 4,300 students with its 36-bus fleet. In 2011 John Aymil, Randolph Township's transportation director, started investigating alternatively fueled buses to address concerns of new diesel emissions standards. "Our mechanics had questions about the upcoming diesel emissions on diesel school buses," said Aymil. The district's bus dealer, Hoover Bus Sales, recommended propane autogas.

That initial research led to the district being the first to purchase propane buses in the state of New Jersey. Now, the district operates 100% of its route buses on propane, keeping two gasoline buses and one diesel bus as spares.

Budget Benefits

On average, propane autogas costs about 50% less than diesel. Maintenance service and costs are reduced due to propane's clean operation. The savings help Randolph Township operate leaner.

Randolph Township did not take advantage of grant funding to purchase the buses, although state and federal funding is available. For example, the Environmental Protection Agency's [Clean School Bus Program](#) provides \$5 billion between 2022 and 2027 to replace existing school buses with low- and zero-emission school buses, including propane.

Hundreds of school districts across the nation have reported savings of up to \$3,700 per bus per year due to lower fuel and maintenance costs compared with diesel.

Driver Feedback

Aymil noted that it took the drivers a little time to get used to the propane buses. “Our older diesel buses are transit style and the drivers had to adjust to driving the conventional-style school bus,” Aymil said. “But after the break-in period, there were no issues.”

The bus drivers appreciate the unexpected benefit of a quieter ride. “The propane buses are much quieter — which is great because of the number of residential houses in our staging area,” Aymil said. “Drivers can hear the students onboard while still focusing on the road.”

Also pleasing to those around the buses, including bus drivers and technicians, is the lack of diesel odors in the shops. “The propane fuel does not smell bad in the garage like the other fuels,” Aymil said.

Straightforward Maintenance

With propane autogas, no exhaust after-treatment or diesel emissions fluids are required to meet today’s strict emissions regulations. Plus, propane uses less engine oil.

“The propane bus maintenance parts cost less, plus, oil changes are significantly less expensive,” Aymil said.

The techs also noticed that the propane buses do not need heat in the engine block during the winter months. “The warmup time is almost non-existent on the propane,” Aymil said.

The technicians received trained from Hoover Bus Sales, along with bus manufacturer Blue Bird and propane fuel system manufacturer ROUSH CleanTech. Aymil also regularly trains the drivers on propane fueling safety.

Emission Benefits

School buses that run on propane emit fewer greenhouse gases, smog-producing hydrocarbons, nitrogen oxides and virtually eliminate particulate emissions compared with conventional fuels. According to a [West Virginia University study](#) released in 2019, propane autogas school buses reduce nitrogen oxides by at least 95%.

“New Jersey does not check emissions on propane buses because they run so clean,” Aymil said.

Lower bus emissions also can help inside the classroom, according to a [2019 Georgia State study](#), which shows how diesel school bus fumes drive down test scores. The study correlated increased academic performance when children were exposed to lower levels of school bus emissions. Student test scores improved in both math and English.

Fueling Partnership

The district worked with propane fuel supplier Amerigas to install fueling infrastructure and supply fuel. The district started with a 1,000-gallon tank, adding a second one in 2017 to allow for two buses to fuel at once. The second station cost the district about \$38,000. Building a

propane station costs less than any other fuel source, including diesel, gasoline, CNG and electric.

Aymil suggests districts start with a propane fueling site that can handle a future propane bus fleet. "It will make it easier to grow your propane bus fleet without the inconvenience of longer fueling times," he said. Propane buses can travel about 400 miles between fueling.

Turnkey Solution

What started with Randolph Township addressing emission requirements led to myriad benefits for the district, including student health, reduced costs, ease of maintenance, less noise and no harsh odors. Propane is also a domestically produced fuel, with more than 90% of the United States propane autogas supply produced in the U.S., and an additional 7% from Canada.

More than 1.3 million students across the nation ride to school in propane autogas school buses each day.

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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 or by calling 800.59.ROUSH.

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