



Case Study: Michigan Transit Agency Saves 118% on Per Gallon Fuel Costs with Propane Vehicles

Company: The Rapid
Industry: Paratransit
Location: Grand Rapids, Michigan
Vehicles: (62) Ford E-450 buses equipped with ROUSH CleanTech systems
Fueling: Onsite propane station

By the Numbers

- More than 75% of the paratransit fleet runs on propane.
- Over 1.8 million miles traveled with propane fleet in 2024.
- 118% per gallon savings on fuel.
- Accessed public and private funding to cover capital costs.

Background

As one of Michigan's largest public transportation fleets, The Rapid services six cities in the Grand Rapids metro area and provides rides to more than 6 million residents annually.

In 2015, The Rapid began replacing four outdated paratransit gasoline and diesel buses at the end of their lifecycle with propane buses. The switch to propane was driven by The Rapid's air quality and cost reduction goals. "We were looking for a greener fuel type, domestic production and stable pricing. Propane hit all three requirements," said Steve Schipper, chief operating officer for The Rapid.

The propane paratransit fleet is part of The Rapid's GO!Bus program, which provides services to seniors and persons with disabilities who cannot ride fixed-route services. More than 75% of the agency's paratransit fleet runs on propane.

A Diverse, Clean Fleet

The Rapid's commitment to improving air quality and leading the charge in clean transit is evident in its incredibly diverse fleet. There are 227 total buses in the agency's fixed route, BRT (bus rapid transit) and paratransit demand response services. The agency's varied fueling portfolio is made up of compressed natural gas/renewable natural gas, diesel/electric hybrid, propane autogas, electric and gasoline.

When it was time to retire gasoline paratransit buses that were at the end of their lifecycle, propane rose to the top as an alternative green fuel that would fit into its fleet nicely and service its GO!Bus customers well.

“Propane is a cleaner gas, and one of the reasons we switched to propane is that the Environmental Protection Agency considers propane a clean green fuel,” said Steven Clapp, director of fleet maintenance for The Rapid.

Vehicles that run on propane autogas emit fewer greenhouse gases, smog-producing hydrocarbons and particulate emissions than conventional fuels. The Rapid’s new buses are certified to the EPA’s optional ultra-low nitrogen oxide level of 20 mg/hp-hr, which is 90% cleaner than the strictest heavy-duty engine standards.

The transition to phase out its gasoline buses and run the entire fleet on propane has dramatically improved emissions output. With the replacement of 62 propane vehicles, The Rapid will remove 1.7 million kilograms of CO₂ every 18 months, creating a cleaner environment for the community.

Lower Costs at Every Turn

The financial benefits of switching to propane were immediate for The Rapid. Over the lifetime of the vehicles, the agency will continue to see reduced maintenance and fuel costs. The [2024 State of Sustainable Fleets Market Brief](#) reports that propane autogas consistently provides a low total cost of ownership year after year for applications such as passenger transport.

To support the initial shift, The Rapid received \$16,000 from the Michigan Propane Gas Association. And, because the propane buses are Altoona Tested, the state’s formula funding pays for 85% of the initial purchase price, with a 15% match from the State of Michigan. These buses also meet Buy America requirements and allow fleets that purchase these models to be eligible for federal purchasing programs.

Savings are also seen in the day-to-day fueling and maintenance operations. “We are saving more money on fuel costs, but we also save money on maintenance costs,” said Clapp.

On average, propane autogas is 40% less expensive than gasoline. Fleets report average savings of 25 to 45 cents per mile when using propane. When compared to its recently replaced gasoline models, The Rapid is saving 118% in per-gallon fuel costs. “Propane prices do not fluctuate as much as diesel or gasoline, making it easier to budget annually,” said Clapp.

Propane autogas is a nontoxic, non-carcinogenic and non-corrosive fuel, resulting in lower maintenance costs due to the clean nature of the fuel. “Oil changes are performed every 5,000 miles, and the oil still looks cleaner with propane. Diesel or gasoline has a dark brown color,” said Clapp.

Propane fueling infrastructure is also more flexible and affordable than other fueling options. Because gasoline and diesel are typically stored in underground tanks, installation and ongoing maintenance are more expensive compared with propane fueling stations. Propane infrastructure lives above ground and costs less than any other transportation energy source — conventional or alternative. Plus, most fleets lock in an annual per-gallon fuel cost for propane so price and supply remain consistent, allowing for better budgeting. The Rapid's 18,000-gallon tank was installed onsite at their Grandville location. A propane supplier delivers fuel weekly.

Stand-Out Performance

Propane is one of the fastest-growing alternative fuels in the world, with more than 28 million vehicles worldwide. Across North America, more than 7,000 propane buses serve the transit industry. In Michigan alone, more than 500 transit buses are operating at over 20 transit agencies. Propane has become increasingly popular for transit because, beyond the emission reduction and cost savings benefits, propane buses are safe, powerful and reliable.

The propane technology in The Rapid's buses uses ROUSH CleanTech's liquid injection system, which is similar to gasoline. The innovative technology allows propane to stay in its liquid state when delivered to the engine. The liquid fuel vaporizes in the cylinder, cooling the air and resulting in no loss of horsepower, torque or engine performance. Since this is a closed-loop system, the fuel is never exposed to the air and won't spill. Additionally, the bus's propane fuel tanks are 20 times more puncture-resistant than gasoline or diesel tanks.

The agency's drivers like the drivability of the buses for several reasons. Propane transit vehicles can achieve a range of up to 350 miles on a single fueling, allowing the fleet to service larger areas for longer periods. Fueling is simple and comparable to conventional fueling at eight to 10 gallons per minute. The buses can also easily handle the intense Michigan winters, with a quick cabin warm-up and the ability to start up in temperatures as low as negative 40 degrees Fahrenheit.

According to the [2021 State of Sustainable Fleets Brief](#), 87% of fleet end users report equal or better performance of propane vehicles when compared to conventional fuels.

Easy Transition

While the prospect of transitioning to a different fuel might seem overwhelming, Clapp emphasized that the process was not difficult at all. "Transitioning away from gasoline and diesel engines was fairly easy," he said.

Beyond procuring a contract with a propane supplier, The Rapid implemented a multiple day training for the mechanics, which was led by ROUSH CleanTech. There was no need to retrofit the garage, which made the switch much faster and less expensive. According to one of the technicians, "It's pretty much the same as gas. The only difference is you have to properly bleed off the propane system if you're working on anything fuel-related."

Schipper credits the ease of transition to the support, partnership and resource-sharing from ROUSH CleanTech, Ford, Michigan Public Transit Association and American Public Transportation Association.

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About The Rapid: The Rapid creates, offers and continuously improves a flexible network of regional public transportation options and mobility solutions for the Grand Rapids metro area. Visit Ridetherapid.org to learn more.

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 50,000 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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