



## **GRAIN VALLEY SCHOOL DISTRICT**

Grain Valley, Missouri

### **The Challenge**

With aging diesel buses to replace, a Missouri school district looked to alternative fuel options that would save money on fuel and maintenance.

### **The Solution**

The Grain Valley School District purchased 14 propane school buses. The new buses joined a 49-bus fleet that transports 2,800 students to school from suburban and exurban neighborhoods.

### **Focus on Cost-Cutting**

Over the years, Missouri state reimbursements for school transportation have dropped from 75 percent to 16 to 20 percent of actual costs. School districts in the state have had to tap their own general school funds to make up the shortfall.

To help save money, Grain Valley School District considered two alternative fuels for its new school buses — compressed

“Our district made the decision on propane buses to save money. The environmental impact is an added benefit. There’s no reason to not make the move into propane now.”

*– Shawn Brady,  
director of  
transportation*

**14**

IC Bus CE Series  
Vision school  
buses

**1**

onsite fueling  
station

**45%**

of propane fueling  
station installation  
paid with grant

**\$1.15**

per gallon of  
propane vs.  
\$2.31 per gallon  
for diesel

**\$14,500**

fuel savings  
(2018-19 school year)



# CASE STUDY: GRAIN VALLEY, MISSOURI

natural gas (CNG) and propane autogas. District representatives attended an alternative fuels workshop hosted by Kansas City Regional Clean Cities to learn more and found that vehicle costs and fueling station costs for CNG were much higher versus propane.

The district decided to purchase 14 propane buses in 2018 to replace diesel buses of 2001 and 2002 model years. Shawn Brady, director of transportation, researched and applied for a grant from the U.S. Department of Energy to assist with the purchase costs of the buses.

## Preparing for Propane

To fuel the new buses, the district entered into a contract with its local propane provider, Ferrellgas. A fueling station with two 1,000-gallon tanks was built in the school district's bus parking lot in April 2018. "It saves time not to have to travel to refuel," said Brady.

Infrastructure costs for propane are the lowest of any fuel, alternative or conventional. For Grain Valley schools, the start-up cost for the fueling station totaled \$16,500. "We received a 45 percent grant for the installation of our propane fueling station," Brady said. The center's grant amounted to \$7,425. "The propane fueling station cost us only \$9,075."

The district's technicians traveled to the bus manufacturer's factory in Tulsa, Oklahoma, for a complimentary week-long training course on maintenance. The district didn't need to make changes to its bus repair facility since requirements are generally the same as those for conventionally fueled vehicles.

## Financial Benefits

After tapping grants for purchase assistance, each new bus cost about \$250 more than a comparable diesel bus. District officials say that the higher initial cost can be quickly recouped in fuel savings. In fact, by adding propane buses to its fleet, Grain Valley School District has noted savings on both fuel and maintenance. On average, propane autogas costs up to 50 percent less than diesel. As part of its negotiated contract, Grain Valley paid a locked-in rate of \$1.20 per gallon of propane in 2018-2019. For the 2019-2020 school year, the district pays \$1.15 per gallon. For comparison, the district pays \$2.31 per gallon on average for diesel.

Each bus in the district runs about 9,000 miles per year. For the 2018-2019 school year, fuel savings amounted to about \$14,500. "The district's increased savings year after year will allow the transportation department to serve as a better steward of taxpayer money," said Brady.



Additional savings come from the reduced maintenance. With propane autogas, no exhaust after-treatment or diesel emissions fluids are required like with diesel to meet today's strict emissions regulations. Even more saving shows up for the district in the winter. Unlike diesel vehicles, propane buses can start up in temperatures as low as -40 degrees Fahrenheit. School districts report lower electric costs because the propane buses don't rely on block heaters.

## Beyond the Bottom Line

Grain Valley's propane buses are helping the community's air quality. Unlike diesel buses, propane vehicles emit virtually no particulate matter and, with substantially less nitrogen oxides (NOx). Propane's quiet operation makes riding the bus more pleasant for passengers and safer for drivers, who are less distracted by engine noise. "We've benefitted from much cleaner air and much quieter buses running through neighborhoods," said Brady.

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*- Shawn Brady, director of transportation*

The district's leadership in adopting an alternative fuel earned it a 2018 Agent of Change Award from the Metropolitan Energy Center, a Kansas City nonprofit catalyst for energy efficiency, economic development and environmental vitality.

The district's plan to purchase seven more propane buses this year, and eventually move to an all-propane fleet, speaks to the administration's belief in the benefits of this alternative fuel for their students, drivers and overall community.



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