



Electric School Buses: Cleaner, Cheaper, Safer



Electric school buses will save Florida schools money. If all of Florida's 18,000 school buses were electric, as opposed to propane, schools would save almost \$42 million per year in fueling costs.¹

School districts around the country are making the choice to use electric school buses because they are more fuel efficient, cheaper on a lifetime basis, and above all, they are the safest option for children because they do not release direct tailpipe pollution.

Building a new energy system

Schools can now use funds from the Clean School Bus Program to invest in new cleaner fleets. While some districts are considering propane buses, all-electric vehicles are the superior choice. There are numerous cost and operational advantages associated with electric school buses, such as reduced maintenance and lower fuel costs that offset their upfront sticker price. In addition, electric school buses emit no tailpipe pollution, which make them great candidates for addressing local air quality concerns, while also reducing noise and greenhouse gas pollution.

Electric buses provide higher value than propane competitors

More fuel efficient. Electric school buses are 60% cheaper to fuel. Electric school buses have a fuel cost of \$0.16 per mile, less than half the cost of propane at \$0.36 per mile². When fuels like propane and natural gas are combusted, energy losses are much higher than electric. Consequently, more petroleum fuel is needed to run the same number of miles making it more expensive than electric.

Lower total-cost-of-ownership. Electric school buses are 30% cheaper when looking at the cost per lifetime compared to propane buses. Propane buses have a lifetime cost of about \$800,000 whereas electric buses lifetime cost is about \$500,000. Electric school buses have fewer moving parts, which require less maintenance and add to their cost advantage. While the purchase price is still higher for electric school buses, necessitating near-term incentives, the total cost of ownership is lower compared to propane – and upfront cost parity is likely in the coming years. This takes into consideration operations and maintenance, upfront vehicle purchase price, fuel, charging, and fuel storage infrastructure

Safer. Propane is liquid petroleum gas. Like compressed natural gas, propane is typically odorless. Addition of the typical odorant, ethyl mercaptan, makes propane highly flammable.

Energy independence and price stability

Because petroleum is sourced from overseas, it is subjected to international petroleum price shocks making it the more financially volatile option. However, because electricity is sourced

¹ <https://www.fldoe.org/core/fileparse.php/7585/urlt/schtrandist2021.pdf> For total buses and miles traveled and "EDF Analysis based on Technical Review of Medium and Heavy-Duty Electrification Costs for MY 2027- 2030, Final Report, Vishnu Nair, Sawyer Stone, Gary Rogers, Sajit Pillai, Roush Industries, Inc, 2nd February 2022" is source of the fuel cost per mile of both battery electric and propane vehicles (\$0.16 and \$0.36 respectively)

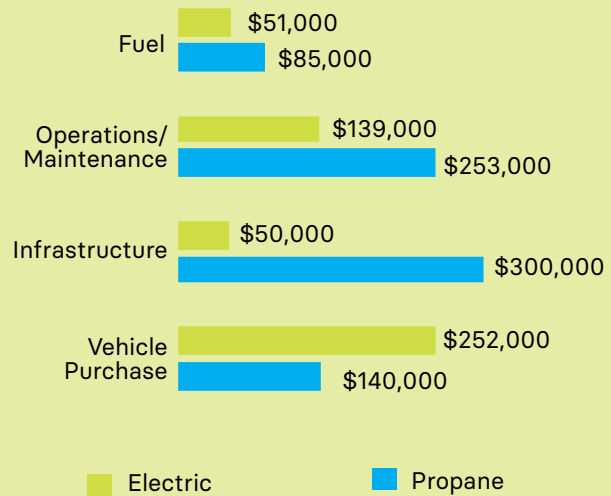
² EDF Analysis based on Technical Review of Medium and Heavy-Duty Electrification Costs for MY 2027- 2030, Final Report, Vishnu Nair, Sawyer Stone, Gary Rogers, Sajit Pillai, Roush Industries, Inc, 2nd February 2022

Total cost of ownership of electric and propane school buses

Environmental Defense Fund analyzed the lifetime costs of propane and electric school buses and found electric school buses are 30% cheaper on a lifetime basis.

In the future, propane prices are forecasted to rise faster than electricity prices because propane is increasingly scarce, whereas solar and wind power is increasingly abundant and declining in cost.

Lifetime cost advantages of electric are projected to grow further with advancements in batteries and other EV-related technologies.



Each electric school bus prevents 291 metric tons of climate pollution.

Source: [GREET Model](#)

domestically and is rapidly becoming cleaner and cheaper via solar and wind, it is more reliable and stable.

No tailpipe emissions and low lifetime emissions. Propane bus tailpipe pollution is similar to diesel pollution in terms of health-harming oxides of nitrogen and organic compounds. Electric buses have no tailpipes, and therefore no tailpipe pollution. Even where electricity is generated by a mix of coal and natural gas, electric buses have lower lifetime greenhouse gas emissions than propane.

Switching to electric school buses would address the emissions that lead to poor air quality in communities and contribute to increasingly severe climate change impacts in Florida. Conversely, continued reliance on carbon-based fuels like propane would lock in harmful emissions for the 10-year average lifespan of a school bus.

Propane buses [cause more greenhouse gas emissions than either diesel or natural gas on a well-to-wheel basis](#), as well as emitting more carbon monoxide and hydrocarbons on some routes. Emissions plus leaks in the

pressurized supply system mean that propane buses are more harmful to the climate than diesel or electric.

Electric buses are the top choice to ensure healthy communities and healthy kids. The emissions from diesel and propane buses pollute the air in communities where buses operate. Also, these emissions seep into the bus's cabin and directly affect the children sitting inside. The impact of these emissions on children's health is drastic. The emissions can trigger asthma symptoms and attacks, impact lung development and interfere with a child's ability to learn. Because electric buses have no tailpipes, and thus no tailpipe emissions, they drastically reduce overall emissions in our communities.

Lifetime emissions (kg) avoided per electric school bus compared to propane bus

