



# ELECTRIC SCHOOL BUSES: GOOD FOR THE ENVIRONMENT AND THE BOTTOM LINE

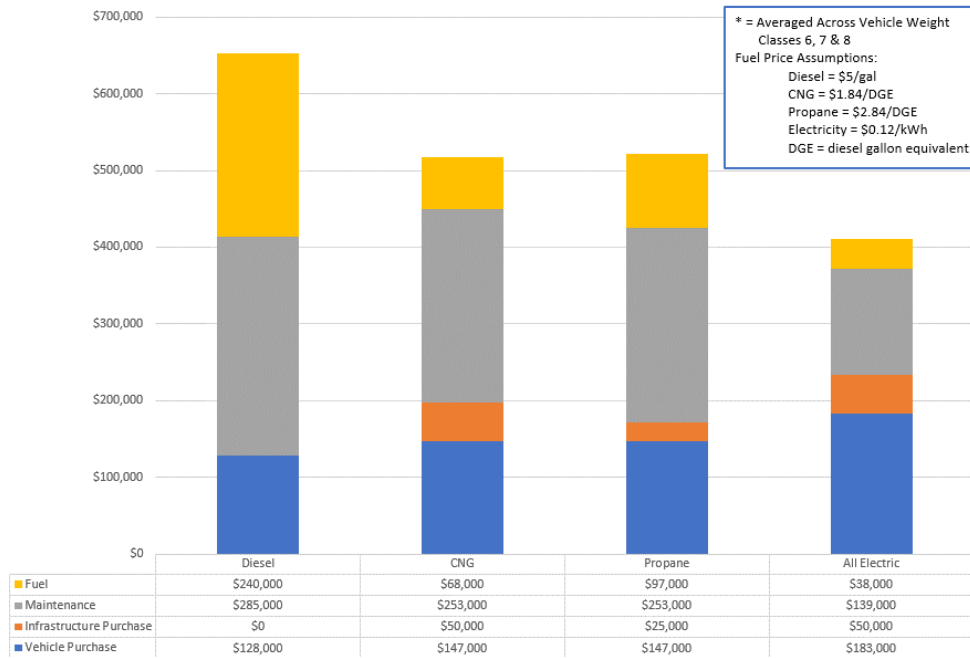


GREEN POWER MOTOR COMPANY

There are approximately 485,000 school buses operating in the U.S. today, and the vast majority of these are powered by fossil fuels. Diesel dominates the current fleet, with a few natural gas and propane-fueled models on the road. Transitioning to all electric school bus fleets would reap significant climate and public health benefits. Electric school buses are cost competitive with dirty alternatives, and although upfront costs are higher for electric versions, operational savings result in a favorable total cost of ownership. Electric buses don't require oil changes, they have fewer moving parts and the cost of electricity to fuel them is cheaper than diesel - all leading to considerable cost savings over the life of an e-bus.

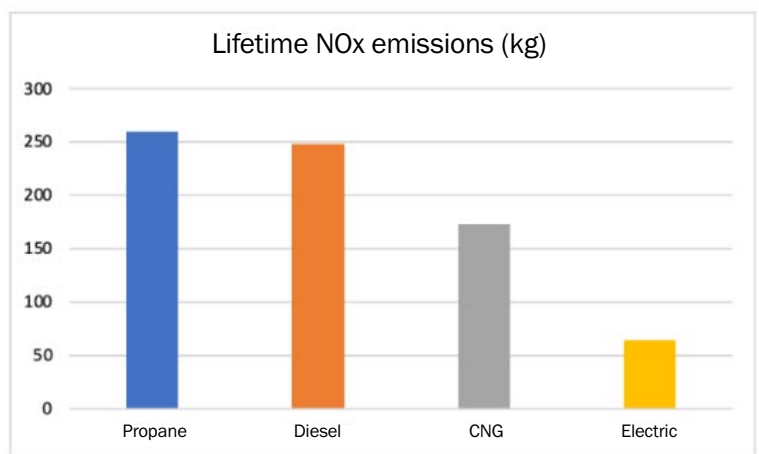
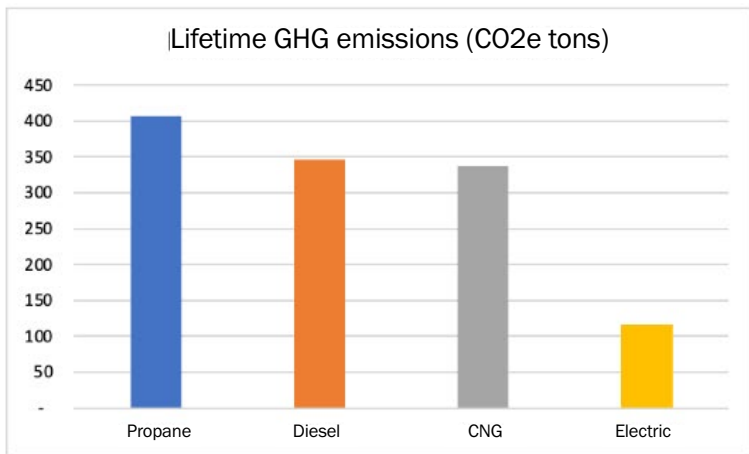
This informational sheet compares the total cost of ownership among diesel, compressed natural gas, propane and electric school buses. TCO sums all costs of a vehicle over its lifetime, including purchase price, fueling infrastructure, lifetime fuel & maintenance costs.

Total Cost of Ownership for Average\* School Buses Purchased in 2023



## ELECTRIC BUSES ARE CHEAPER OVER THEIR LIFETIME

As shown in the chart above, electric school buses have the highest vehicle purchase price and charging station cost. However, electric school buses have the lowest fuel and maintenance costs, which makes up for the upfront cost. Summing these four values provides the total cost of ownership (TCO) over the lifetime of each vehicle: \$653,000 for diesel, \$518,000 for CNG, \$522,000 for propane, and \$410,000 for electric. Thanks to the better fuel efficiency (22 miles per diesel gallon equivalent compared to the average fossil fuel-powered school bus of 6 mpdge) as well as lower maintenance and fuel costs, a 2023 model electric school is the least expensive option compared to its fossil fuel-powered counterparts.



## CLEANER AIR

Electric school buses are the only zero-tailpipe-pollution option on the market. On the other hand, fossil-fuel-powered school buses release pollution harmful to the environment, like carbon dioxide, as well as emissions that directly harm human health, like particulate matter.

To show just how much more harmful fossil fuel-powered buses are, we calculated the lifetime greenhouse gas emissions (climate pollution) and nitrogen oxide emissions of diesel, propane, compressed natural gas and electric school buses. The average greenhouse emissions from fossil-fuel-powered school buses are 363 tons compared to electric school buses's 116 tons over the lifecycle. Most of the greenhouse emissions associated with the electric vehicles come from upstream processes, such as vehicle production and the electricity powering the vehicles, assumed to be made up of 50% natural gas power and 50% renewable power (although power supply is much cleaner in many locations). In addition, the average NOx emissions for electric buses are about 70% less than their fossil fueled-counterparts - with any NOx emissions from the former emitted from power sources, not tailpipes.

**Thanks to better fuel efficiency and lower maintenance costs, a 2023 model electric school bus is less expensive than its fossil fuel-powered counterparts.**

## EVERY PENNY COUNTS

Over a 12-year lifetime, electric school buses are the most economical and beneficial to community health compared to various fossil fuel-powered school buses. School buses are prime candidates for electrification because more driving means more savings. With a driving average of 180 days per year (5 days of operation per week) at an average of just over 60 miles of daily range, the upfront cost of switching to electric can be recouped in five years. With new federal and state funding sources, savings can be realized even more quickly.



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For more information, please contact Larissa Koehler, [lkoehler@edf.org](mailto:lkoehler@edf.org) and Ali DySard, [adysard@edf.org](mailto:adysard@edf.org)

257 Park Avenue South  
New York, NY 10010

**EDF.org**  
T 212 505 2100

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New York / Washington / San Francisco / London / Beijing / La Paz, Mexico / and other cities