

Electric Buses



Driving Cleaner and Quieter for Less

Electric transportation options continue to increase as more medium- and heavy-duty electric vehicles enter the market. Cities, schools, airports and other large organizations are specifically recognizing the benefits of making the switch to electric buses.

Benefits

Fuel Cost Savings

Electric buses are highly efficient, and running on 100% electricity is cheaper than diesel fuel. Electricity is also locally generated, and prices have historically been more stable than diesel.



Maintenance Cost Savings

Electric buses have fewer moving parts than their non-electric counterparts. Between fuel and maintenance savings, electric buses can save hundreds of thousands of dollars over their lifetimes, which can be invested back into the organization or community.



Economic Development

As demand for electric vehicles increases, more opportunities will be created for research and development, manufacturing, electrical contracting and more. In this region, there are already electric buses being designed and assembled, as well as increases in battery and charging equipment manufacturing.



Air Improvements

Both transit and school buses are often used in areas with high concentrations of people, and children are particularly susceptible to the negative effects of pollution, which has been linked to asthma and poor test performance in schools.¹ Without vehicle emissions and particulates, electric buses provide cleaner air for our communities. They are even superior when considering the electricity needed for charging.



Grid Resiliency

Electric buses can improve grid reliability and sustainability by helping to manage peak demand and supporting renewable energy integration. With their large batteries and energy storage capabilities, they also offer strong potential for vehicle-to-grid applications.



Safety and Reliability

Electric buses are safe, highly reliable and have similar rates of downtime as diesel buses. They are also much quieter than other technologies, helping to reduce noise pollution.



Charging Options

Charging Location	Off Route	Off Route	Off Route/On Route	On Route
Charging Method	DC Fast Charging - Port	DC Fast Charging - Port	Pantograph (overhead)	Inductive (wireless)
Bus Compatibility	School and Transit	School and Transit	Transit	Transit
Approximate Power	60 kW	125 kW	150-500 kW	200-300 kW
Charging Time	6-8 hours	3-5 hours	5-30 minutes	< 30 minutes*
Charging Port				

*Used mostly for quick opportunity charging

Case Studies

Transit Buses

Raleigh-Durham International Airport²

- 4 electric buses (more planned)
- Estimated annual fuel savings of \$5,000 per bus
- Estimated annual maintenance savings of \$20,000 per bus
- 60 kW off-route charging
- Complete a full 8-10 hour shift without needing to charge

School Buses

White Plains City School District, New York³

- 5 electric buses
- Vehicle-to-grid compatible, able to supply power to the grid during summer month peaks
- 4-6 hours of charge time

Sources

1. Georgia State University
2. Plug-in NC
3. Westchester Magazine
4. Union of Concerned Scientists
5. U.S. PIRG

By the Numbers

14.7 The mpg a diesel bus would need to achieve for life-cycle emissions to equal that of an electric bus. The actual mpg of a comparable diesel bus is approximately 4.8.⁴

67% The savings in grams of CO₂ per mile of electric buses when compared to diesel buses and charged with the energy mix of North Carolina.⁴

\$2,000 Potential annual fuel savings of electric school buses.⁵

\$4,400 Potential annual maintenance savings of electric school buses.⁵

120 Approximate range in miles of electric transit and school buses.