



## **Fact Sheet: New York Electric School Buses**

Prepared by Bethlehem Tomorrow

<https://www.bethlehemtomorrow.org/>

### **Electric School Buses are:**

**Affordable** Life cycle costs for electric and diesel buses are comparable. The higher purchase price is offset by grants, lower operating costs, and, potentially, V2G payments. Electric buses have fewer moving parts -- no oil changes or replacing brake fluids and pads, spark plugs or belts -- and therefore have lower operation, maintenance and repair cost.

- Cost comparison available upon request. Sources:
- <https://www.empirecleancities.org/pastevents.html>
- <https://stnonline.com/partner-updates/electric-school-buses-are-more-affordable-than-you-think/>

**Cleaner** Electric buses emit no greenhouse gases (GHGs) during their operation. Their GHG emissions from electric “fueling” are much lower than burning diesel, and decreasing as New York’s power grid transitions to renewable sources such as wind, solar and hydro. For example, in 2016, NYC electric transit buses emitted 84% less GHGs than their diesel counterparts, and upstate power sources are even cleaner. Electric buses will also help us reach emission reduction goals required by the 2018 Climate Leadership and Community Protection Act.

- Source: Electric Bus Analysis for New York City (2016) at 13, Figure 5, <http://www.columbia.edu/~ja3041/Electric%20Bus%20Analysis%20for%20NYC%20Transit%20by%20J%20Aber%20Columbia%20University%20-%20May%202016.pdf>

**Healthier** Electric buses eliminate emissions of fine particulate matter, nitrogen oxides (which cause smog and ground-level ozone), hydrocarbons, carbon monoxide, and many carcinogens such as benzene, arsenic and formaldehyde. These pollutants are a problem not just for local communities near bus routes, but for kids especially. Diesel pollution inside school buses has been measured up to four times higher than in cars driving in front of the buses!

- Source: Electric Buses Clean Transportation for Healthier Neighborhoods and Air, at 6-9, <https://uspirg.org/sites/pirg/files/reports/Electric%20Buses%20-%20National%20-%20May%202018%20web.pdf>

**Ready for the heat and cold** Electric heating, ventilation and air conditioning (HVAC) systems provide optimal comfort during all seasons, keeping buses at calibrated temperatures even in severe weather. Electric systems are also more efficient than traditional belt-driven systems, as they only operate when needed; and when in use, they operate at a constant, optimum speed.

- Source: <https://www.forbes.com/sites/energyinnovation/2018/05/21/electric-buses-can-save-americas-local-governments-billions-chinas-showing-us-how-its-done/#277882a95f78>

**Quieter** The noise produced by electric buses is the equivalent to a human conversation.

- Source: Chicago Transit Authority, <https://web.archive.org/web/20180206213131/http://www.transitchicago.com/electricbus/>

**A Potential Source of Revenue from Utilities** Utilities are beginning to pay school districts to use electric school buses as peak-time battery storage during the summer months. They charge the batteries at night when demand is low and draw power back from the batteries during the day. These V2G (Vehicle-To-Grid) programs are in pilot stages in White Plains and elsewhere.

- Source: Buses By Day; Energy Storage by Night, <https://nylcv.org/news/buses-day-energy-storage-night/>

**Reliable** Bus manufacturers and distributors typically offer generous warranties plus optional extended warranties for batteries and other parts.

- Sources: <https://www.green-technology.org/gcsummit18/images/ZEV-School-Buses.pdf> (5-year warranty on batteries plus optional extended warranty by Blue Bird); <https://thelionelectric.com/en/parts> (5-year limited chassis & body warranty, 5-year, 160,000-mile electric powertrain warranty, 8-year battery warranty by Lion Bus)

**Built to go far** The range on a Type-C electric bus typically runs between 100 and 150 miles.

- Source: <https://www.veic.org/Media/success-stories/types-of-electric-school-buses.pdf>

Longer trips are not a problem because fleets typically will be transitioned over five to ten years, leaving some diesel buses available for long trips. Moreover, states and the U.S. are rapidly building out networks of EV charging stations, including fast-charging stations, at public places.

- Source: New York Expands Electric Vehicle Charging Efforts with \$250M Investment, <https://dms.psc.sc.gov/Attachments/Matter/8585a156-6a13-4bbf-a0f5-9eb769b41f2f>

**Valuable for Battery Re-Sale** Utilities are interested in purchasing batteries at the end of the school bus life to use for additional storage.

- Source: Electric School Buses - Ingenious Solution to Build More Battery Storage, <https://www.fastcompany.com/90436347/electric-school-buses-are-an-ingenious-solution-to-help-utilities-build-more-battery-storage>

**Available from Multiple Vendors** Electric school bus manufacturers include Thomas, Lion, Bluebird, Trans Tech, Collins and others.

- Sources: <https://online.ogs.ny.gov/purchase/spg/pdfdocs/4052423000Summary.pdf>, <https://www.veic.org/Media/success-stories/types-of-electric-school-buses.pdf>

**Easy to Charge** New York will be requiring utilities to “make ready” for electric chargers, so installing your own charging station will be easier and less expensive.

- Source: <https://www.governor.ny.gov/news/governor-cuomo-announces-make-ready-program-electric-vehicles>

### **A Source of Emergency Power**

With necessary hardware and software, EV batteries can discharge power back to a building (V2B), so if power is lost, the school bus can serve as a back-up power supply. A single bus battery could provide 20 to 60 kW for up to five hours -- enough to power critical energy needs, such as communication equipment, lights, refrigeration, or building ventilation.

- Source: Electric School Buses Feasibility in Vermont, <https://www.veic.org/docs/resourcelibrary/veic-electric-school-bus-feasibility-study.pdf> at 19.