



Electric School Bus Guidebook

Guide 2: ESB Purchasing



NEW
YORK
STATE

NYSERDA



Various electric school bus models are available across all types of school buses.

This chapter of the *Electric School Bus Guidebook* answers these questions:

- Which electric school bus (ESB) models are currently available?
- What are the typical prices, battery ranges, and passenger capacities?
- What are the existing ways to purchase ESBs?
- What are some new/different ways to purchase ESBs?
- What are the most common questions about purchasing ESBs?
- What are some additional resources to help you get started?

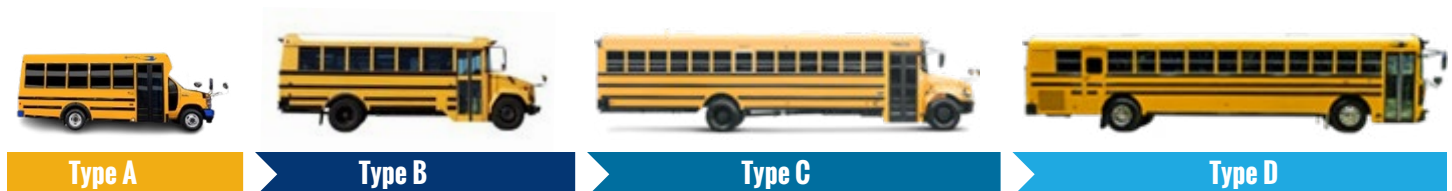
Key Activities

Initial actions you can take after reading this chapter include:

- Review available ESB models.
- Consult with ESB dealers to identify options that meet your service requirements.
- Review your contracting options and select your preferred procurement method.
- Prepare and issue RFIs and/or other contract materials.

Electric School Bus Models Currently Available

There are four types of school buses, classified as Type A, Type B, Type C, and Type D, as shown below. The characteristics of each school bus type vary by the size, passenger capacity, and shape of the bus. Type C bus models have been on the market the longest and are the most prevalent electric school buses adopted across the United States. However, Type A school buses are becoming increasingly popular as urban school districts are beginning to electrify, and more manufacturers are expanding their model offerings for this bus type. Based on a recent survey of bus operators across New York State and New York State DOT registration records, approximately 44% of buses statewide are Type A and, within NYC specifically, the percentage of Type A's rises to 65%.



As a best practice, plan to use no more than 80% of the battery capacity before recharging

Battery Capacity and Range

Battery capacity, measured in kilowatt-hours (kWh), specifies the maximum quantity of electricity that an ESB's battery can store. The estimated maximum range of the vehicle (measured in miles) indicates how far the bus can travel on a full charge. Many manufacturers offer multiple battery capacity options per bus model, providing operators with more flexibility to meet their routing requirements. The larger the battery capacity, the more miles the bus can cover on a single charge. Operators should contact ESB dealers, NYSERDA, and other ESB operators to obtain a realistic estimate of how many miles they should expect given their specific routes, driving style, road/route conditions, and weather. As a best practice, plan to use no more than 80% of the battery capacity before recharging. Adjust your estimated range accordingly.

Current electric school buses have sufficient range to cover most school bus routes in New York State. It is important to match the ESB range capabilities with the length of the route and the charging schedule. Work with your dealer, manufacturer, or transition planning contractor to identify the routes and/or mileage that each bus is capable of running. As technology advances and battery range and access to charging locations increase, ESBs will be able to cover longer routes and extended field trips. In the near-term, we recommend using ESBs on shorter routes or routes where midday charging is feasible.



Batteries do not charge as quickly or provide power as efficiently in very cold weather, and a significant portion of battery energy can be used to heat the cabin of a school bus. Bus and charging manufacturers offer and are developing technologies to address the need for cabin heat and better battery performance, including automatic pre-heating of batteries and interiors while connected to power and auxiliary cabin heaters that can reduce battery draw for cabin heating. Electric transit buses are integrating new heat pump technology that provides more efficient heating and cooling than traditional heaters and this technology is expected to be incorporated in future ESB models too. In the near-term, diesel or propane fired heaters may be needed where buses are expected to face prolonged cold weather conditions.

The websites below discuss factors to consider when procuring an electric school bus, including the manufacturer, model name, estimated range, battery capacity, and passenger capacity.

- [New York Truck Voucher Incentive Program](#)
- [Zero Emissions Technology Inventory \(ZETI\)](#)

To learn more about the various manufacturers that have electric school bus models approved for sale in New York State, please visit the websites below:

- [Blue Bird](#)
- [BYD](#)
- [Green Power](#)
- [IC Bus](#)
- [Lightning eMotors](#)
- [Lion Electric](#)
- [Motive/Collins/TransTech](#)
- [Phoenix Motorcars](#)
- [Thomas Built](#)

Procurement Methods with Capital Funding

School districts have several procurement options for purchasing electric school buses. The method a school district selects will depend on its procurement requirements, the number of buses it plans to purchase, the type of ownership it is seeking (e.g., purchase, lease, or lease-to-own), add-ons, and any related services. Examples of add-ons include electric vehicle supply equipment (EVSE) and bus upgrades (e.g., wheelchair lifts, air conditioning). Examples of related services include fleet management software and charge management.¹ In addition, school districts and fleets can access incentives to offset the purchase price of electric school buses. See the Financial Incentives guide for detailed information about these programs. Below are some procurement methods a fleet operator can select.

Quote/Purchase Order

A typical approach to procuring a school bus is to reach out to your existing school bus dealer and request a quote for the model(s) you would like to procure. A school district can then submit a purchase order either with the dealer, or in some cases directly with a manufacturer. For school bus manufacturers with dealer networks, such as Blue Bird, Collins, IC Bus and Thomas Built, the school district submits a purchase order that will be fulfilled by the local dealership. Some manufacturers sell directly to school districts and the purchase order is placed directly with the manufacturer.

¹Charge management is a service that optimizes ESB charging to avoid demand charges.

Office of General Services State Contract

The New York State Office of General Services (OGS) Procurement Services (“School Buses, Award Number: 23254”) has a contract that school districts can use to purchase electric school buses at a pre-established price from a list of approved dealerships. OGS updated the State contract in December 2022 through a competitive procurement process that selected dealers based on their ability to meet predefined specifications and service requirements. The [OGS contract](#) includes 17 different models of ESBs from eight different dealerships. Prices on the contract are firm but change quarterly based on inflation. Existing dealers can add products if new buses are approved by the New York State Department of Transportation. The contract also provides periodic recruitment, allowing new dealers to be added. Purchasing from the State contract list can save school districts the time and effort associated with seeking quotes or competitive solicitations. Reach out to your district procurement staff or to OGS for [guidance on how to use the OGS state contract](#).



Request for Proposal

While most districts who own buses typically purchase them off the State Contract right now, a school district can also choose to issue a Request for Proposals (RFP). This may become more common for electric school bus purchases. This approach may make sense if the district:

- is seeking a large number of buses
- is looking for assistance with operations and/or deployment
- has unique add-on needs
- is interested in including both buses and charging infrastructure in a single purchase package.

An RFP process may also be applicable in cases in which a school district contracts out its bussing services. An RFP typically provides information about the project scope, electric school bus specifications (including range requirements and/or battery capacity needs), charging infrastructure (including speed and quantity of chargers), and services requested.²

If you are seeking electrification assistance from a third-party contractor, the RFP may also contain requirements that the contractor operate a certain number of ESBs or work with the school district to fully electrify by a specific date. An example of a third-party contractor RFP that includes electrification, as well as a presentation on partnering with a third-party contractor, can be found in the Additional Resources section below. Reach out to your district procurement staff for more information and guidance on using this procurement method.

Cooperative Purchasing³

With cooperative purchasing, multiple school districts can work together to purchase buses under a single contract. This method enables districts to increase their purchasing power and reduce the amount of time and effort spent on procurement. Cooperative purchasing also can result in reduced pricing and/or more favorable terms and conditions, but it typically requires all participating districts to agree on the same bus specifications.

Piggybacking

Although uncommon at this time, a school district may piggyback on a contract that another school district or municipality already has in place with a dealer or manufacturer.⁴ This approach can satisfy the typical procurement process requirements for competitive bidding and streamline the procurement process for the piggybacking school district. A school district might choose this option over the State contract if the bus pricing and/or terms and conditions are more favorable.

² Many of the elements that would be included in an RFP will be specific to a school district's unique needs, including the bus's battery size and what types of chargers needed. This information can be defined through a fleet transition planning exercise or through outreach to bus dealers and charging providers.

³ The action taken when two or more entities combine their requirements to obtain advantages of volume purchases, including administrative savings and other benefits. A variety of arrangements, whereby two or more public procurement entities (or agencies) purchase from the same supplier or multiple suppliers using a single Invitation for Bids (IFB) or Request for Proposals (RFP). https://ogs.ny.gov/system/files/documents/2019/05/29_Cooperative%20Procurement.pdf

⁴ Piggybacking is where one governmental entity will extend the pricing and terms of their contract to others. It's competitively awarded and will include language allowing other governmental entities to utilize the contract. Here in New York, you must purchase the exact same item – using the same terms and conditions as presented in the original solicitation.



Typically, the contract must include language allowing other municipalities or districts access. The established contract must also meet procurement requirements for the school district looking to piggyback on the contract. If interested in using an existing contract for procurement, consult with vehicle dealers or other local school districts to inquire about the availability of existing contracts that allow piggybacking.

Financing Methods

The procurement methods discussed above are typically used by school districts when districts have capital and/or incentive funding available to put towards the purchase. School districts lacking upfront capital or that would prefer to spread out costs by financing them over time can use the financing methods described below.

As-a-Service Contracts

With as-a-service contracts (also known as fleet-as-a-service or electrification-as-a-service contracts), school districts pay a monthly or annual fee to a third-party provider that finances and manages the district's transition to electric school buses. This approach enables school districts to treat the costs of electric school bus adoption as an ongoing operating expense rather than a capital expense. As-a-service models also allow school districts to transfer the responsibilities of procurement, installation, and in some cases operation, to the as-a-service contractor. The as-a-service contractor will typically leverage its experience and buying power to provide school districts with some or all of the following: electric school buses, chargers and charging infrastructure, utility interconnection, managed charging, and/or operational services. As-a-service providers can often provide this equipment and service at a lower total cost of ownership over time than the school district would be able to obtain on its own. Ongoing costs to the school district vary based on the number of buses, the number of chargers, additional services needed, ownership, and add-on features (e.g., wheelchair lifts).

As-a-service providers differ from traditional school bus transportation contractors in that they typically do not operate buses; they provide financing, charge management, and maintenance services. This allows both district-owned fleets and contractor-owned fleets to take advantage of these services. For more information on this topic, review the World Resource Institutes (WRI's) Electric School Bus Business Models Guide and School Bus Electric-as-a-Service Directory in the Additional Resources section below.

NY Green Bank

NY Green Bank is a New York State-sponsored investment fund that helps finance projects that advance clean energy within the State. NY Green Bank can provide financing for electric school bus projects. To apply, submit a response to NY Green Bank's open RFP at any point throughout the year. Visit [NY GreenBank](#) to apply.

Additional Resources

[NYS OGS Award](#) – A list of ESB models that have been approved for sale in New York State and their respective prices under the OGS contract. The list also includes approved dealers and provides their contact information.

[NYS Piggybacking Guide](#) – Guide to contract piggybacking in New York State. OGS publishes information on how to piggyback, including the forms needed and how to submit the request.

[Sample RFP](#) – A sample invitation for RFP for a school district that is seeking bids for ESBs and charging infrastructure. The sample school district is seeking a bid for building charging infrastructure and leasing 4 ESBs.

[Template RFI](#) – An RFI template for school districts interested in gathering information from school bus Original Equipment Manufacturers (OEMs), dealers, and Transportation-as-a-Service (TaaS) companies to electrify all or part of their fleet.

[Working with Third-Party Contractor Working Group Recording](#) and [Slide Deck](#) – The Electric School Bus Network hosted this Northeast/Mid-Atlantic Working group meeting to share the process and experience of electrifying with a third-party operator. Zum and Oakland Unified School District shared their partnership experience working towards electrification.

[WRI Electric School Bus Business Models Guide](#) – A resource for school districts to identify the appropriate business model to support electrification of school transportation (such as electrification as a service). The Guide includes further discussion of benefits and considerations, and school districts can weigh in assessing business model options.

[WRI ESB Buyers Guide](#) – A resource for school districts interested in fleet electrification. It includes case studies from multiple school districts across the United States, a map of ESB OEMs, similarities and differences between ICE vehicles and ESBs, charger overviews, and a suggested ESB adoption timeline.

[WRI Procure Buses and Other Services](#) – Guide from the World Resources Institute (WRI) on how to procure electric school buses, chargers, and other related services. This link includes a list of action items, questions for consideration, and follow-up resources.

[WRI School Bus Electrification Roadmap Template](#) – Step by step process for developing a District or Contractor-Specific Roadmap to Electric School Buses

[WRI School Bus Electric-as-a-Service \(EaaS\) Directory](#) – This directory includes firms that offer services that can help school districts transition to electric fleets. The directory characterizes firms according to the services they provide as well as their geographic reach.

