

# Electric School Buses in NYS

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# Agenda

- > State of the Market
- > NYS ESB Mandate
- > NYSERDA Efforts and Support



# State of the Market: where are we now?

- > Buses are available and meet range requirements for most school bus trips
- > Manufacturers are scaling up production capacity based on expected demand (supply chain issues)
- > Vehicle charging options also exist, at a variety of speeds, costs, and layouts
- > Technology is improving on...
  - Vehicle range
  - Charging speed
  - Charger space and layout

# State of the Market: what are the options?

Thomas



Blue Bird



IC Buses



Lion



	Passenger Capacity	Bus Range	Manufacturers	Cost Estimate
Type A	16-20	100-150 miles	Lightning eMotors, Lion Electric, Micro Bird, Motiv Power Systems, Phoenix Motor Cars	\$265,000- \$450,000
Type B	20-30	NA	NA	NA
Type C	60-72	100-120 miles	Blue Bird, IC Bus, Lion Electric, Thomas Built	\$300,000-\$400,000
Type D	72-90	120-155 miles	Blue Bird, BYD, GreenPower Motor Company, Lion Electric	\$345,000-\$410,000

# State of the Market: Charging Electric Buses

- > Buses charge with AC or DC power (or both)
- > Charging rates are between 10 and 150 kW
  - Between 2 and 10 hours to charge fully
  - Level 2 chargers (slower) cost ~\$10k installed
  - DC chargers (faster) cost ~\$25k to \$100k installed, depending on power level
- > For a fleet of 50+ buses, major electrical upgrades would likely be needed to charge all buses at the same time
  - However, smart management of charging can reduce need for upgrades and overall costs; Coordinating charging times can reduce overall peak charging
  - Companies have expertise in reducing costs while ensuring buses are fully charged when they need to start their routes
- > Even with managed charging, a fleet may still need electrical upgrades – talk to your electrical utility early!

# NYS ESB Mandate

- > Full transition of the school bus fleet from combustion engine vehicles (diesel, gas, natural gas) to zero-emission vehicles ESBs and fuel-cell ESBs
- > By 2027: all school bus purchases must be zero-emission vehicles
- > By 2035: all school buses in operation must be zero-emission



Today:  
NYSERDA ESB  
Roadmap & Guidebook  
in development



2027: All new bus  
purchases required to be  
zero-emission



2035: All buses on  
the road required  
to be zero-  
emission

# NYSERDA: ESB Roadmap & Guidebook

- > NYSERDA is developing a Guidebook to provide guidance to school stakeholders on how to begin the fleet conversion process
- > Roadmap: a resource for policymakers to:
  - Identify challenges, roadblocks, and gaps
  - Develop solutions to support districts, operators and stakeholders to navigate the transition
  - Identify funding needs and resources
  - Propose policy changes
- > Guidebook: resource to help with:
  - Navigating the ESB market
  - Comparing bus & charger models
  - Planning purchases
  - Exploring funding options
  - Engaging with utilities
  - Planning site & facility upgrades
  - Incorporating solar and battery upgrades
  - Understanding workforce impacts
  - Developing job (re)training programs
  - Scaling to full fleet conversion

# NYSERDA: ESB Advisory Group

- > Support development of ESB Roadmap and Guidebook by providing guidance and information on:
  - Best practices
  - Implementation strategies
  - Key stakeholders and how best to reach them
  - Operational issues, e.g., safety, routing, charging, workforce training
  - Information about existing conditions
  - Critical needs for achieving ESB goals



# NYSERDA: Technical Support

- > **P-12 Clean Green Schools Initiative** (<https://www.nyserda.ny.gov/All-Programs/P-12-Clean-Green-Schools-Initiative>)
  - Program for schools designated as High-Need by SED or located in a disadvantaged community
  - Provides up to 100% of the cost for technical assistance for energy efficiency and electric school bus projects
- > **P-12 Green and Clean Energy Solutions** (<https://www.nyserda.ny.gov/All-Programs/P-12-Green-and-Clean-Energy-Solutions>)
  - Green and Clean Energy Solutions is for any schools that pay into SBC on their electric bills
  - Provides up to 75% of the cost for technical assistance for energy efficiency and electric school bus projects
- > Schools may choose their own contractor or use a NYSERDA FlexTech contractor to complete their studies

# NY Truck Voucher Incentive Program

- > \$58.3M incentive pool supporting adoption of clean trucks, transit buses, school buses, and repowers
  - \$6M for zero-emission school buses
- > Vouchers reduce the upfront purchase cost and accelerate or eliminate the payback period associated with cleaner vehicles
- > Brings together vehicle manufacturers, dealers, and fleets to get cleaner trucks and buses on the road
- > Scrappage ensures removal of the oldest, dirtiest diesel engines from New York State roads
- > **Vouchers of up to \$220,000 per bus for electric school buses**
- > More information at <https://www.nyserda.ny.gov/All-Programs/Truck-Voucher-Program>

# Utility Support for Electric Bus Charging

- > Utility make-ready programs can support a portion of the cost of charging station installations
  - Cover up to 100% of the installation costs on the utility side of the electric meter
  - Fleets must participate in the NYTVIP
- > Utilities also offer fleet advisory services to provide technical assistance, particularly on electrical needs of electric buses

# Additional State and Federal Funding

- > EPA Clean School Bus Program
  - \$5 billion program from IIJA that funds electric school buses and associated charging stations, to be committed over five years
  - First awards expected soon
- > NYS Environmental Bond Act (public referendum, Nov 2022)
  - Includes \$500 million to support school bus electrification that would be available if the referendum passes

# How You Can Get Involved

- > Help get responses to our survey (link to follow soon)
- > Keep your school districts updated and engaged, and encourage collaboration (transportation, facilities, communications, business officials all have a role!)
- > Encourage districts to apply to Clean Green Schools Technical Assistance
- > Encourage districts to connect with their utility provider early: many provide fleet assessment services to help fleet owners get started

# Questions?

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