CONNECTICUT GREEN BANK

Why Electric School Buses (ESBs) Matter

Public Act 22-25: The Connecticut Clean Air Act established a mandate that all school buses that serve environmental justice communities shall be zero-emission buses by 2030 and all school buses in the state should follow by 2040. The Green Bank can support this mandate by promoting investment in projects that deploy electric vehicles and infrastructure, while ensuring at least 40% of investment reaches vulnerable communities. This transition will create numerous benefits for Connecticut residents:

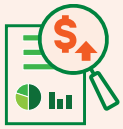
PUBLIC HEALTH

Replacing older buses leads to increased air quality creating direct (children on bus) and indirect (community-wide air quality) benefits.

AIR QUALITY The state experiences poor air quality conditions, receiving a smog grade of F in four counties and C in three counties.[1]

CHILDREN'S HEALTH

Children in Connecticut experience very elevated rates of asthma prevalence, which are substantially higher in overburdened communiiteis.



12.3% of students in CT public schools suffer asthma[2]

15.7% of students in highest quartile of free & reduced-price meal students

Nationally, 6.5% of children have asthma

BENEFITS OF REPLACING OLDER BUSES

Diesel fuel combustion creates soot/particulate matter (PM), nitrous oxides (NOx), sulfur oxides (SOx), and hazardous air pollutants (HAPs). The World Health Organization classifies diesel engine exhaust as "carcinogenic to humans." Public health benefits are estimated at $43,800 per ESB deployed.

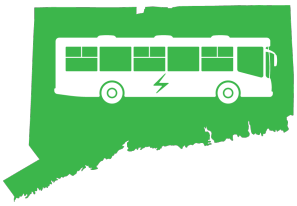
ENVIRONMENT & EMISSIONS

CO2 EMISSIONS MHD vehicles, including school buses, are 6% of on-road vehicles in Connecticut, but account for 25% of GHG emissions. Climate benefits are estimated at $40,400 per ESB deployed.

Replacing

250,000-mile school bus life cycle = **250 METRIC TONS** in avoided CO2 or **636,640 MILES** driven by average gasoline-powered cars or **33 homes'** energy use for one year or a **310 kW solar system**

SAFETY



LOWER FIRE RISK

ESBs are significantly less likely to catch fire than a diesel bus.[3]

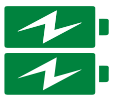
OVERALL SAFETY

School buses are designed to be safer than any other passenger vehicle type, are the most regulated vehicles on the road, and are required to meet more Federal Motor Vehicle Safety Standards than any other vehicle.

BATTERY TESTING & CHEMISTRY

ESB batteries follow globally-recognized automotive safety standards for the batteries (SAE J2929) and the systems in the vehicle that monitor and control the batteries (ISO 26262). The LFP (Lithium-iron-phosphate) batteries used in almost all electric school buses have better thermal stability compared to NMC (nickel-manganese-cobalt) batteries commonly used in passenger EVs.

GRID RESILIENCE



VEHICLE-TO-GRID (V2G) CHARGING

As our grid gets smarter, large storage systems can play an important role in smoothing out peak demand. ESBs tend to be available during these grid peaks – such as hot summer afternoons – and can serve as an important resource to increase grid reliability and reduce costs. Scaling V2G charging opportunities can create a valuable revenue stream for schools and operators, and shorten the diesel to electric breakeven timeframe. One MA pilot demonstrated average payments of $2.18 per kWh when responding to summer events.

1 According to the American Lung Association report 2024. https://www.lung.org/research/sota/city-rankings/states/connecticut
2 https://portal.ct.gov/-/media/departments-and-agencies/dph/dph/hems/asthma/pdf/asthma-report-2024.pdf
3 https://electricschoolbusinitiative.org/all-about-electric-school-bus-battery-safety

Learn more by visiting ctgreenbank.com/fleet-electrification-accelerator/

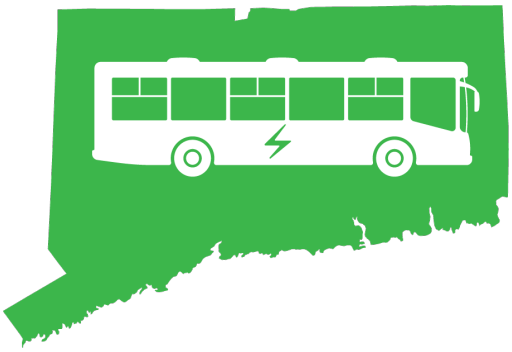
CONNECTICUT GREEN BANK
INVESTMENT SOLUTIONS

ESB Deployment - How We Make an Impact

Capital Efficiency

The Green Bank's upcoming ESB investments leverage the ability to "braid" funding sources, including potential federal or state grants, with low-interest financing. The successful Green Bank model can amplify or unlock significant funding opportunities. Full project cost breakdowns range between:

- Federal Grant + Tax Credits ≈ 50-70%
- DEEP Grants ≈ 10-20%
- Green Bank Financing ≈ 10-40%



Planning and Technical Assistance

The Green Bank has been directed by PURA to administer a Fleet Electrification Accelerator program focused on school bus electrification.

Fleet Electrification Accelerator

• Short-duration (8-12 weeks) planning program for school districts and school bus operators to develop site-specific school bus electrification road maps

  o Vehicle and route analysis, local charging capacity assessments, financial modeling and capital stack advisory, etc.

  o Final Deliverable: "Fleet Electrification Plan" tailored to each district that bolsters federal and state grant application success

• 2025 cohorts limited to Distressed Municipality participants, who are eligible to participate for free

Fleet Deployment

•Extended engagement opportunity for schools and operators electing to move forward with electrification

•Services – EDC coordination, RFP and contract support, training and operational support, etc.

Investment Opportunities

Green Bank investment can help federal grant recipients optimize their funding allocation to eligible uses (buses, chargers, and electric infrastructure) and lower overall compliance and project delivery costs.

Hardware

• Buses

• Charging Stations

• Make-ready Infrastructure

Bridge Loans

• 45W Tax Credit

• 30C Tax Credit

• Utility Incentives

• State Grant Awards

More information on the Fleet Electrification Accelerator at ctgreenbank.com/fleet-electrification-accelerator