ILLINOIS: SCHOOL BUS ELECTRIFICATION

A State Summary of Bus Electrification and Key Bus Indicators

September 2022
OVERVIEW

About the data
About school bus electrification
Benefits from transitioning the school bus fleet
Electric school buses in Illinois
Available funding sources
Federal investments
ABOUT THE DATA

• Where not otherwise sourced, data is drawn from Atlas EV Hub: www.atlasevhub.com

• EV Hub gives users quick access to key data and information on market, policies and regulations, and activities by EV community

• School bus stock and registration data is sourced from IHS. IHS data may not capture electric school buses that don’t use a unique chassis.
ABOUT SCHOOL BUS ELECTRIFICATION

Status of the electric school bus market around the country
ELECTRIC SCHOOL BUSES HIT THE ROAD

Committed Electric School Buses in the United States
12,720 Electric School Buses awarded, ordered, delivered, or in operation

Available School Bus Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Range (Miles)</th>
<th>Estimated Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC Bus CE</td>
<td>200</td>
<td>$365,000</td>
</tr>
<tr>
<td>LionC</td>
<td>155</td>
<td>$330,000</td>
</tr>
<tr>
<td>LionD</td>
<td>155</td>
<td>$350,000</td>
</tr>
<tr>
<td>GreenPower BEAST</td>
<td>150</td>
<td>Unknown</td>
</tr>
<tr>
<td>LionA</td>
<td>150</td>
<td>$300,000</td>
</tr>
<tr>
<td>Thomas Built Saf-T-Liner C2 Jouley</td>
<td>138</td>
<td>$325,000</td>
</tr>
<tr>
<td>Blue Bird All American</td>
<td>120</td>
<td>$362,605</td>
</tr>
<tr>
<td>Blue Bird Vision</td>
<td>120</td>
<td>$345,765</td>
</tr>
<tr>
<td>Collins Type A (Lightning eMotors)</td>
<td>105</td>
<td>$230,000</td>
</tr>
<tr>
<td>Blue Bird Microbird</td>
<td>100</td>
<td>$275,000</td>
</tr>
</tbody>
</table>

Midwest Transit Equipment & SEA
Electric to Power 10,000 Electric School Buses


Range from manufacturer websites. Estimated price based on data from publicly available bids or contracts.
PUBLIC FUNDING ON THE RISE

Public Funding for Electric School Buses by Year ($ Millions)

- $737 million awarded or made available to date
  - Includes $250 million from 2022 EPA Clean School Bus Program
- 1,645 electric school buses funded or committed
- 20 percent of Volkswagen Settlement Funds for electric vehicles awarded to school bus projects

Public Funding for Electric School Buses By Program

- California Clean Energy Jobs Act 10%
- California Climate Investments 11%
- California HVIP 15%
- Other 4%
- VW Settlement 26%
- EPA Clean School Bus 34%
ELECTRIC SCHOOL BUS MANUFACTURERS

LION
Saint-Jerome, Quebec
Joliet, Illinois
3 Models
390+ Buses on the Road

BLUE BIRD
Fort Valley, Georgia
500+ Buses on the Road

ITALIAN
Lisle, Illinois
Tulsa, Oklahoma
1 Model
18+ Buses on the Road
ELECTRIC SCHOOL BUS RETROFITS

Loveland, Colorado
Deploying more than 100 electric school buses with Collins Bus
Source: Lightning eMotors

Los Angeles, California
Converting 10,000 school buses to EVs with Midwest Transit Equipment
Source: SEA Electric

Highpoint, North Carolina
Deploying 326 buses in Montgomery County, Maryland
Source: Thomas Built
THE CASE FOR ELECTRIC SCHOOL BUSES

Research on the benefits of electrifying school bus fleets
WHAT MAKES SCHOOL BUSES WELL SUITED TO ELECTRIFICATION?

- Travel consistent routes that rarely exceed 100 miles
- Adequate time to recharge between routes
- Proximity to vulnerable populations (school kids)
- Well suited for vehicle-to-grid
<table>
<thead>
<tr>
<th>Benefits of School Bus Electrification</th>
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<tbody>
<tr>
<td><strong>Equity</strong></td>
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<tr>
<td><strong>Climate</strong></td>
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<tr>
<td><strong>Health</strong></td>
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<tr>
<td><strong>Education</strong></td>
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<tr>
<td><strong>Economic</strong></td>
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</tbody>
</table>
EQUITY

Transportation pollution experienced most by communities of color
(Clark et al. 2017)

Low-income students ride school buses (70%) more than non-low-income students (45%)
(FHA data 2019)

Black Coloradans are exposed to 81 percent more air pollution from vehicles than white residents
(de Moura et al. 2019)
CLIMATE

- 480,000 school buses nationwide representing 80 percent of all buses
  - Less than 1 percent electric
- Potential reduction of 8 million tons of greenhouse gases per year if U.S. achieves total electrification of school buses (WRI 2021)
  - Represents 35 percent reduction in emissions from bus sector
- Zero tailpipe emissions and less than half the overall greenhouse gas emissions of a diesel school bus (2018 Massachusetts Pilot)*

*Depends on emissions profile of the grid. Will continue to get cleaner as more renewable energy is deployed.
Fine particulate concentrations (PM$_{2.5}$) on school buses often five to ten times higher than average levels  
(Wargo 2002)

Replacing diesel school buses means “less pulmonary inflammation, more rapid lung growth over time”  
(Adar et al 2014)

Replacing diesel school buses linked to "reductions in bronchitis, asthma, and pneumonia”  
(Beatty 2011)
School bus replacement could reduce absenteeism by an estimated 14 million days per year (Adar et al. 2014)

Link between cleaner school buses and higher test scores and school attendance (Austin et al. 2019)

Proximity to highways linked to lower test scores (Institute of Labor Economics 2019)
ECONOMIC

- Cost effectiveness over total cost of ownership expected by 2030
- Potential for vehicle to grid (V2G) revenue, with multiple utility pilot programs underway
- Potential for more than $200,000 in lifetime energy cost savings when paired with a distributed energy resource (NREL 2019)

THE GRID

Understanding the relative emissions of electric school buses in Illinois
ILLINOIS GRID DIRTIER THAN NATIONAL AVERAGE

- Illinois spans multiple grids but much of the population is served by the RFC West grid (RFCW):
  - 32.1% coal
  - 30.7% nuclear
  - 29.4% gas
  - 4.8% wind
  - 4% other
- Higher share of nuclear and coal than national average
- Higher CO₂ emissions than national average
- Illinois power sector to be zero-emissions by 2045

Source: Power Profiler | US EPA
AN ELECTRIC SCHOOL BUS PRODUCES LESS THAN HALF THE GHG EMISSIONS OF A DIESEL SCHOOL BUS

- Study (2019) shows emissions of MDHD vehicles based on national average grid emissions
- Average electric school bus emits less than half the GHG emissions of diesel school bus

ELECTRIC SCHOOL BUSES IN ILLINOIS

Deployments, funding, and policy in the Prairie State
ILLINOIS SCHOOL BUS INDICATORS

On the Road*
- 27,522 School Buses as of 2019
- 5.1% of National Total

New Registrations*
- 5,133 New School Buses Registered Since 2019
- 0.1% Electric

Alternative Fuel Buses on the Road*
- 712 Alternative Fuel School Buses
- 2+ Electric School Buses (24 more on the way)

Policy Environment
- 2 Supportive Policies
- 2 Incentive Programs

Utility Investment
- Approved: $0 Million
- Filed: $311 Million

Government Funding
- $5.6 Million Awarded
- 24th in the Nation
- 23 Buses Committed

*School Buses on the Road represents a snapshot from 2019. New Registrations represents new school buses registered from 2019 to date. Turnover in the existing fleet during this time is unknown. Data may omit electric school buses that don’t use a unique chassis.
MORE THAN 27,500 SCHOOL BUSES ON THE ROAD IN ILLINOIS

School Buses by County

School Buses by Fuel Type

Diesel 24,333 88%
Gas 2,475 9%
Propane 700 3%
CNG 12 0%
Electric 2 0%

School Bus Stock Data as of EOY 2019.
$5.6 MILLION AWARDED FOR 23 ELECTRIC SCHOOL BUSES FROM VW SETTLEMENT

23 Vehicles Committed*

- Triad Community Unit School District: 3 (Round 1), 3 (Round 2), 3 (Round 3)
- Huntley Consolidated School District: 4 (Round 2), 2 (Round 3)
- Wauconda Community Unit School District: 2 (Round 2)
- Chicago Public School District: 1 (Round 1), 1 (Round 2), 1 (Round 3)
- Richton Park School District: 1 (Round 1), 1 (Round 2)
- Chicago Heights School District: 1 (Round 1), 1 (Round 2)
- Collinsville Community Unit School District: 1 (Round 2)
- Edwardsville Community Unit District: 1 (Round 2)
- Township High School District: 1 (Round 2)
- Schaumburg School District: 1 (Round 2)
- Lake Park High School District: 1 (Round 2)
- River Trails School District: 1 (Round 2)
- Unknown: 2 (Round 3)

*Buses may not be deployed
POLICY SUPPORT RAMPING UP

**Climate and Equitable Jobs Act**
Governor Pritzker signs CEJA, establishing rebate programs and directing ComEd and Ameren to file beneficial electrification plans.

**Infrastructure Investment and Jobs Act**
President Biden signs IIJA, including $5 billion for a clean school bus program to be administered by the EPA

**Inflation Reduction Act**
President Biden signs IRA, establishing grant programs for clean heavy-duty vehicles and a suite of tax credits for EVs and charging infrastructure
ComEd - filed for a $300 million beneficial electrification package including $18 million for electric school bus rebates.

Ameren - filed for a $12 million beneficial electrification package including technical assistance for school bus fleets.
AVAILBLE FUNDING

<table>
<thead>
<tr>
<th>ComEd</th>
<th>VW Settlement</th>
<th>EPA Clean School Bus Program*</th>
</tr>
</thead>
<tbody>
<tr>
<td>$18 M proposed</td>
<td>$27 M remaining</td>
<td>$5 B appropriated</td>
</tr>
<tr>
<td>$120 to $180 K per bus</td>
<td>Up to 75% of project cost</td>
<td>First round closed August 2022</td>
</tr>
</tbody>
</table>

Source: ComEd
Source: Illinois EPA
Source: EPA

*Federal Program
FEDERAL INVESTMENT

Funding available for electric school buses in Infrastructure Investment and Jobs Act and Inflation Reduction Act
The Act (HR 3684) was signed into law on November 15, 2021

Total funding of $50.3 billion in EV eligible funding including:

- $8 billion for EV dedicated funding

Funding for electric school buses

- Clean School Bus Program ($5 billion)
  - $2.5 billion for zero emissions vehicles
  - $2.5 billion for low emission vehicles (including electric)
- State Energy Plans ($500 million)
- Grants for Energy Efficiency Improvements and Renewable Energy Improvements at Public School Facilities ($500 million)
BUSES IN INFLATION REDUCTION ACT

• The Act was signed into law in August 2022. Funding that may go to electric school buses includes:
  • $1 billion in grants for clean heavy-duty vehicles
  • Up to $40,000 in tax credits for zero-emission commercial vehicles
  • $3 billion for direct loans to finance advanced vehicle technology manufacturing
  • $2 billion for grants to support clean vehicle manufacturing.
  • Up to $100,000 in tax credits for charging infrastructure
  • $50 million in grants to reduce pollution at schools