Blue Bird Corporation
Electric School Bus Industry Update
February 2022

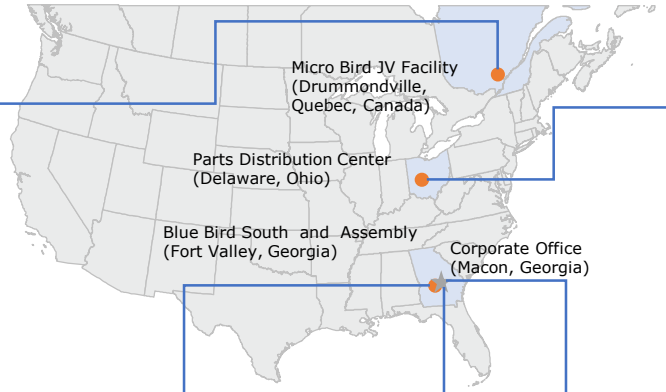
Agenda

- Company Overview
- School Bus Industry Overview
- Electric School Bus Growth
- Electric School Bus Industry Outlook

Blue Bird - A Rich History

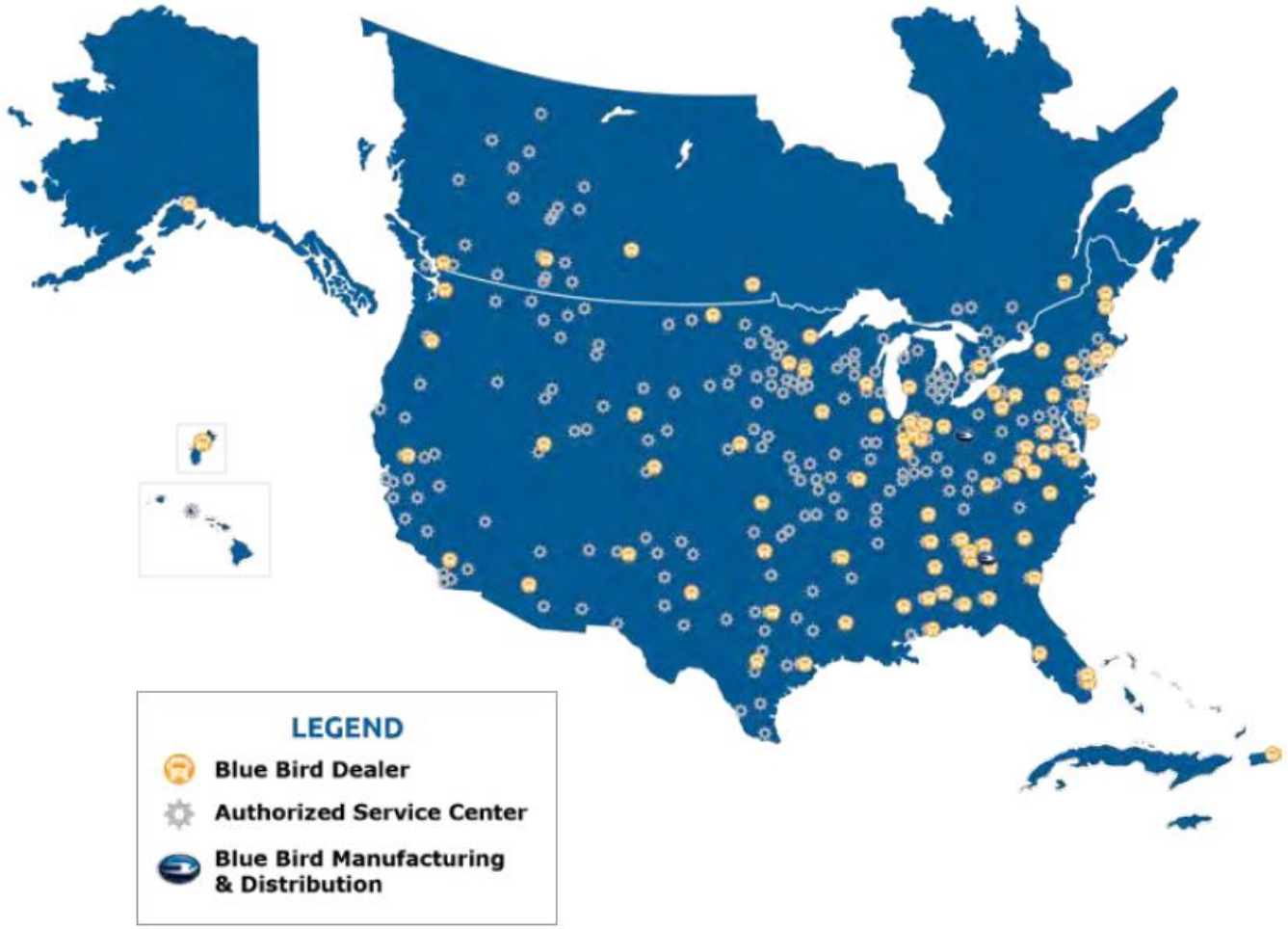
- Company founded in 1927 by Albert Luce in Fort Valley, Georgia
- Over 550,000 Blue Bird buses built since 1927 with over 180,000 are still on the road today
- In 2015, became publicly-traded company (BLBD)
- 1st school bus body built utilizing steel instead of all wood (1927)
- 1st all-steel body (1937)
- 1st school bus manufacturer to build its own chassis (1952)
- 1st Type D Compressed Natural Gas school bus (1991)
- 1st All-Electric powered school bus (1994)
- 1st OEM propane-powered school bus (2008)

Blue Bird Facilities



Two manufacturing plants – Fort Valley, GA and Drummondville, QC. Parts warehouse in Ohio

Exclusive Franchised Dealer Network



50+
Dealers Worldwide

250+
Service Centers

More than 85% of Blue Bird dealers dedicated to bus sales and service

Blue Bird
The Alternative Power Experts

OVER

30,000

ALT POWER SCHOOL BUSES

OVER

3000

SCHOOL DISTRICTS

POWERED BY PROPANE

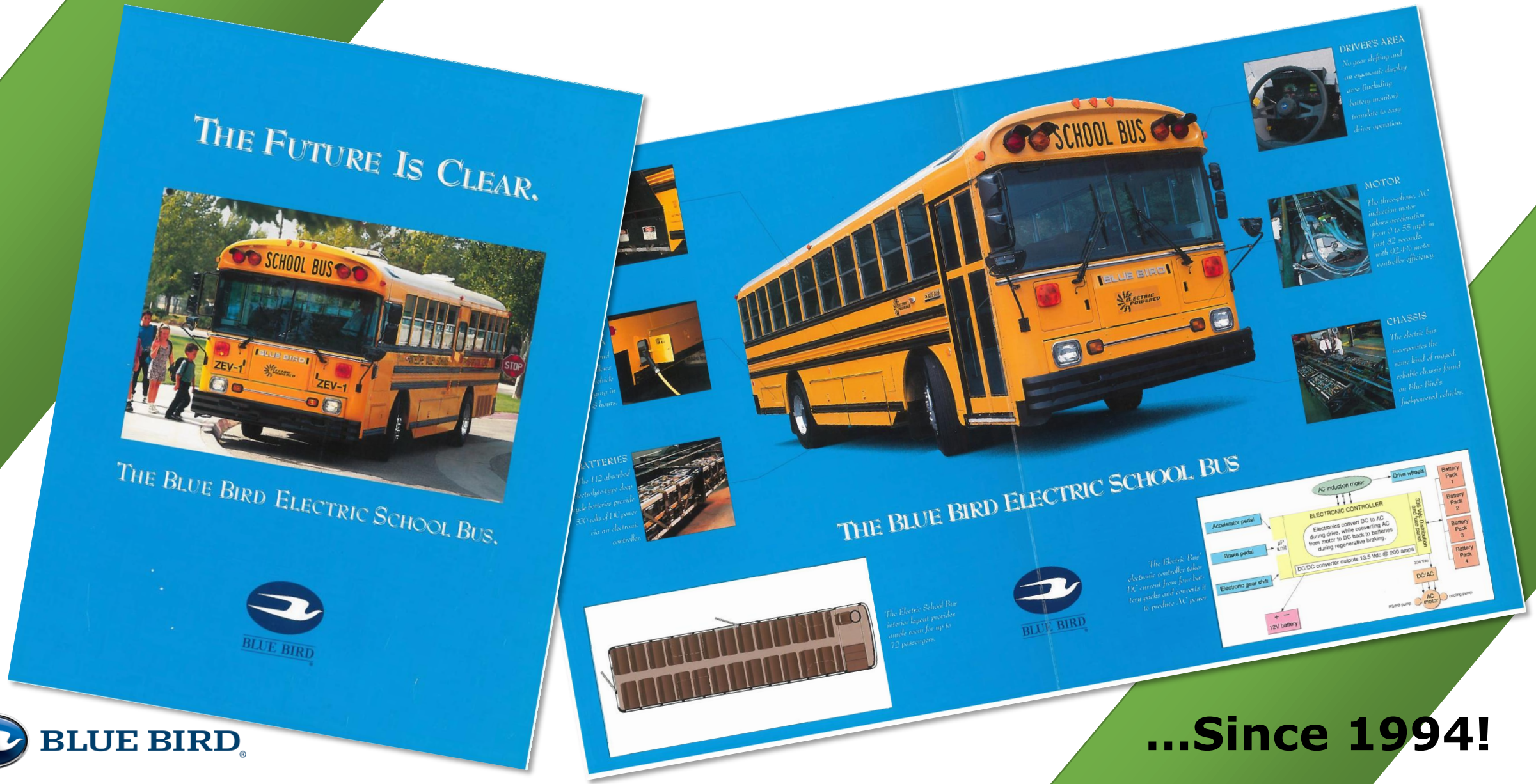
POWERED BY GASOLINE

POWERED BY CNG

POWERED BY ELECTRICITY

BLUE BIRD®

Blue Bird – First to Market with EV



BLUE BIRD®

...Since 1994!

Electric Recharged

- **2016**
  - Received a $4.9MM grant from US Department of Energy (US DOE) for development and commercialization of high power V2G school buses.
- **2017**
  - Launched current iteration of the Blue Bird electric bus at the STN Expo in Reno, NV
- **2018**
  - Delivered first electric-powered school buses to customers in California
- **2022**
  - Market Leader in electric school buses
  - Only manufacturer to produce and deploy electric school buses in Type A, Type C, and Type D
  - V2G capability standard on all of our Electric Buses
  - **1000 EV sales in 26 states and 4 Canadian Provinces!**

School Bus Industry Overview

BLUE BIRD®

School Bus Industry Products

Type C Buses
(Conventional)
Class 5, 6 & 7
Seating Capacity: 36-83
Fuel Types: Diesel, Propane, CNG, Gasoline, Electric

Type D FE Buses
(Front Engine, Transit-Style)
Class 6 & 7
Seating Capacity: 54-90
Fuel Type: Diesel

Type D RE Buses
(Rear Engine, Transit-Style)
Class 6 & 7
Seating Capacity: 66-84
Fuel Types: Diesel, CNG, Electric

Type A Buses
Class 3 & 4
Seating Capacity: 10-30
Fuel Types: Diesel, Propane, Gasoline, Electric

Industry Highlights

School buses are America's largest mass transit system

550,000
school buses in operation in the U.S. and Canada transporting
26 MILLION KIDS
to school on a daily basis

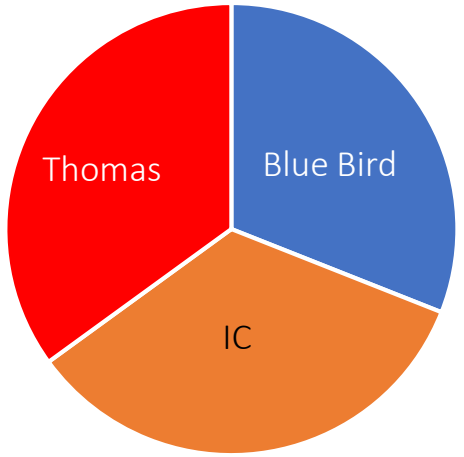
Industry Attributes:

High barriers to entry
- *Highly specialized product*
- *Dealer and service network*
- *Complex state and customer requirements*
- *Customer relationship driven business*

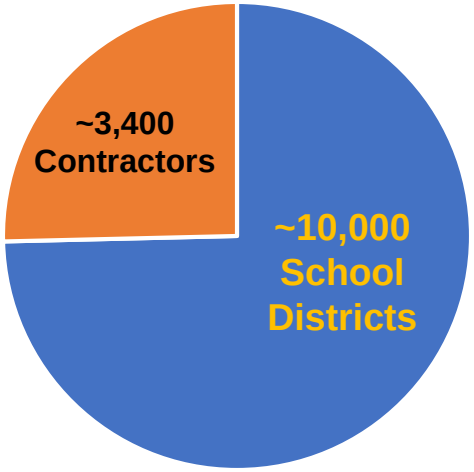
Demand Drivers
- *Population of school age children increasing*
- *Increasing average age of existing fleet*

Relatively Clear Funding Sources
- *Property taxes are primary source of funding; volume tracks housing prices*

OEMs

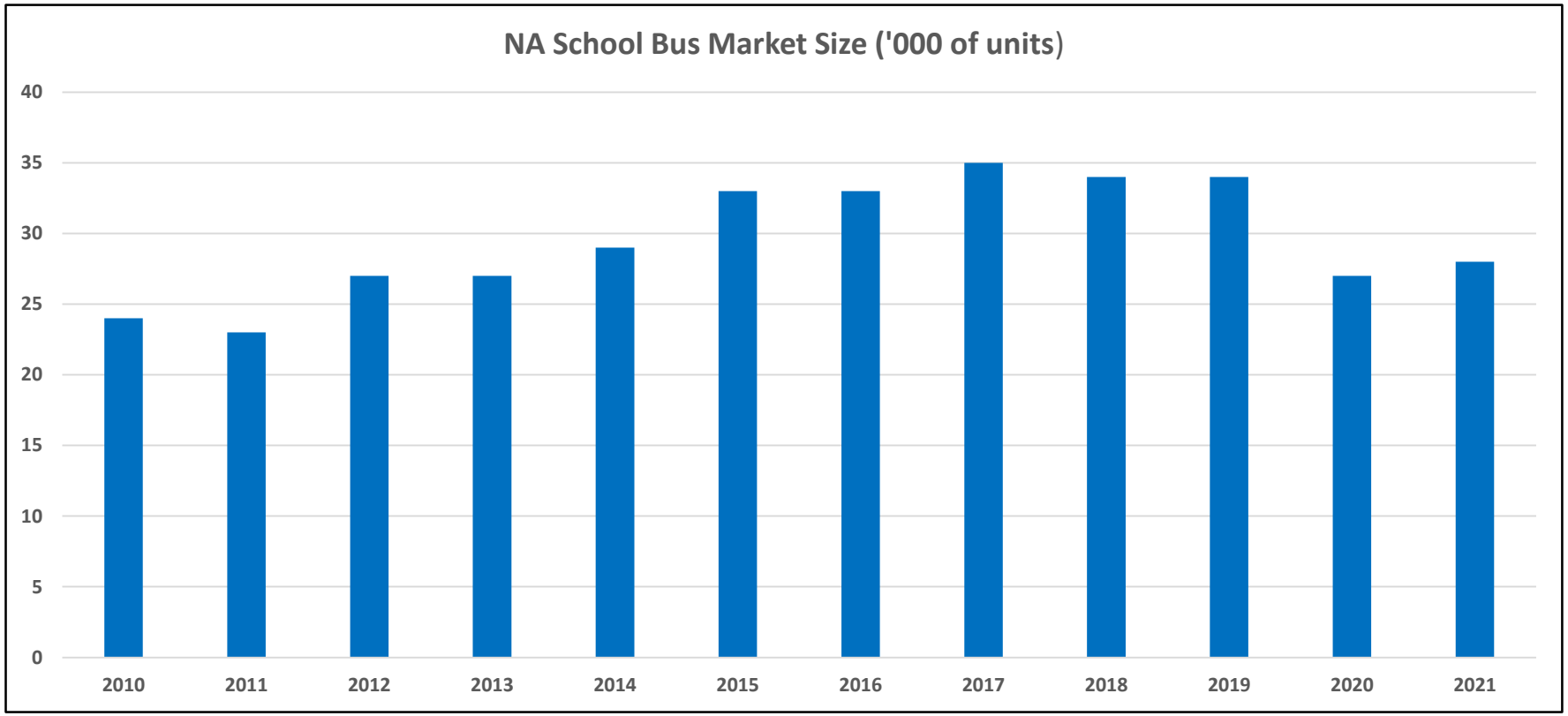


School Bus Customers



Safe and reliable transportation for over 26 million students each day

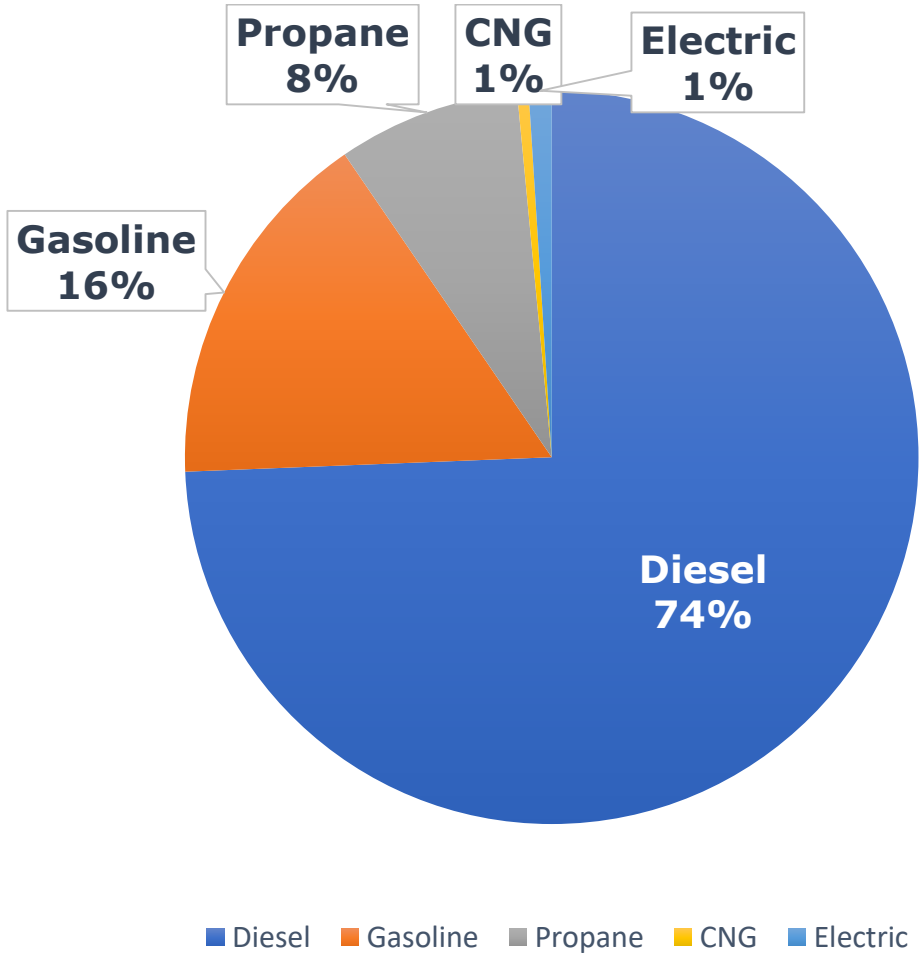
North America School Bus Market



Average School Bus Market is approximately 30k units

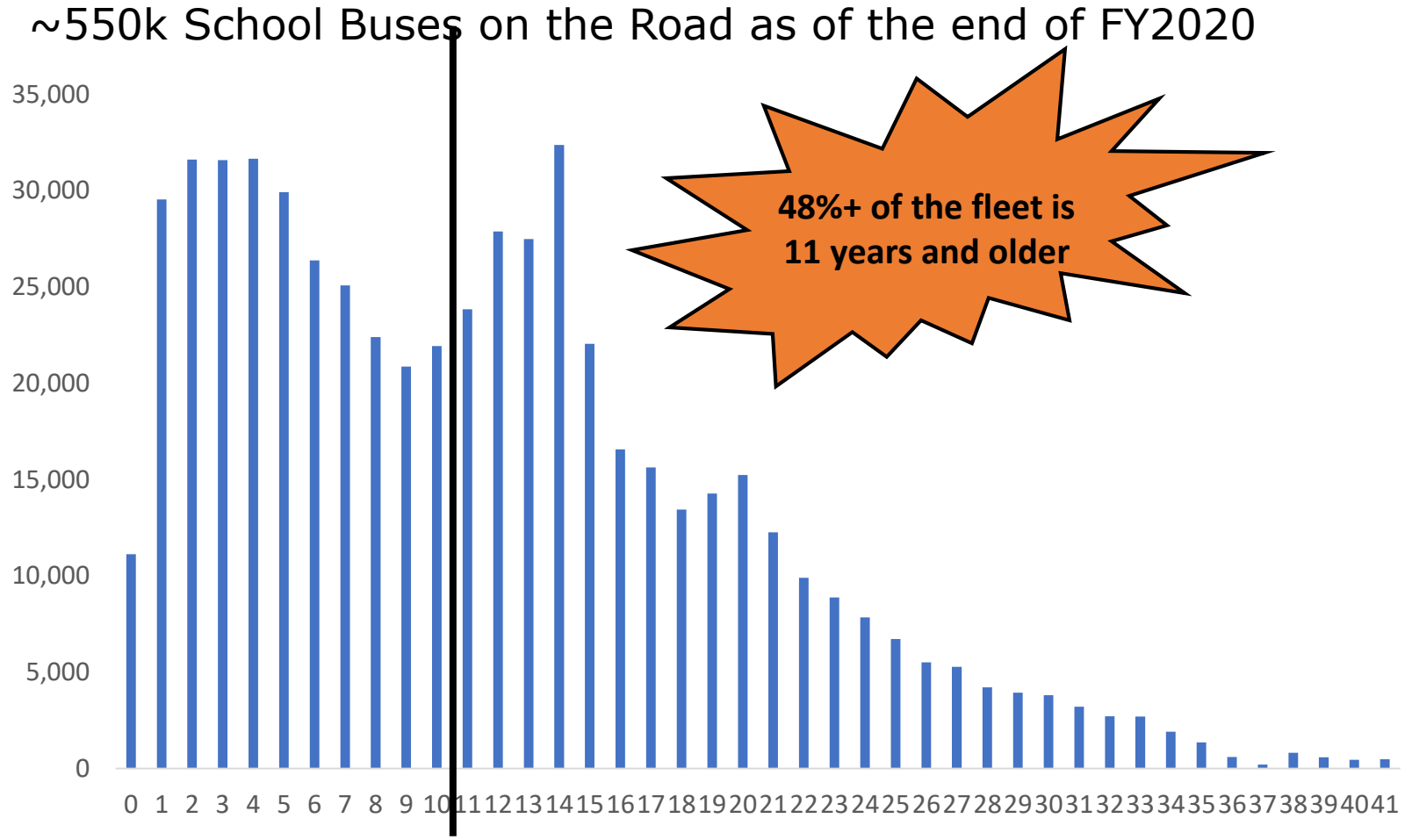
Market size dipped in ‘20-’21 due to pandemic, school closures, and driver shortages

Industry Fuel Mix



Diesel is the predominant fuel type

Fleet Age Profile Supports Industry Growth



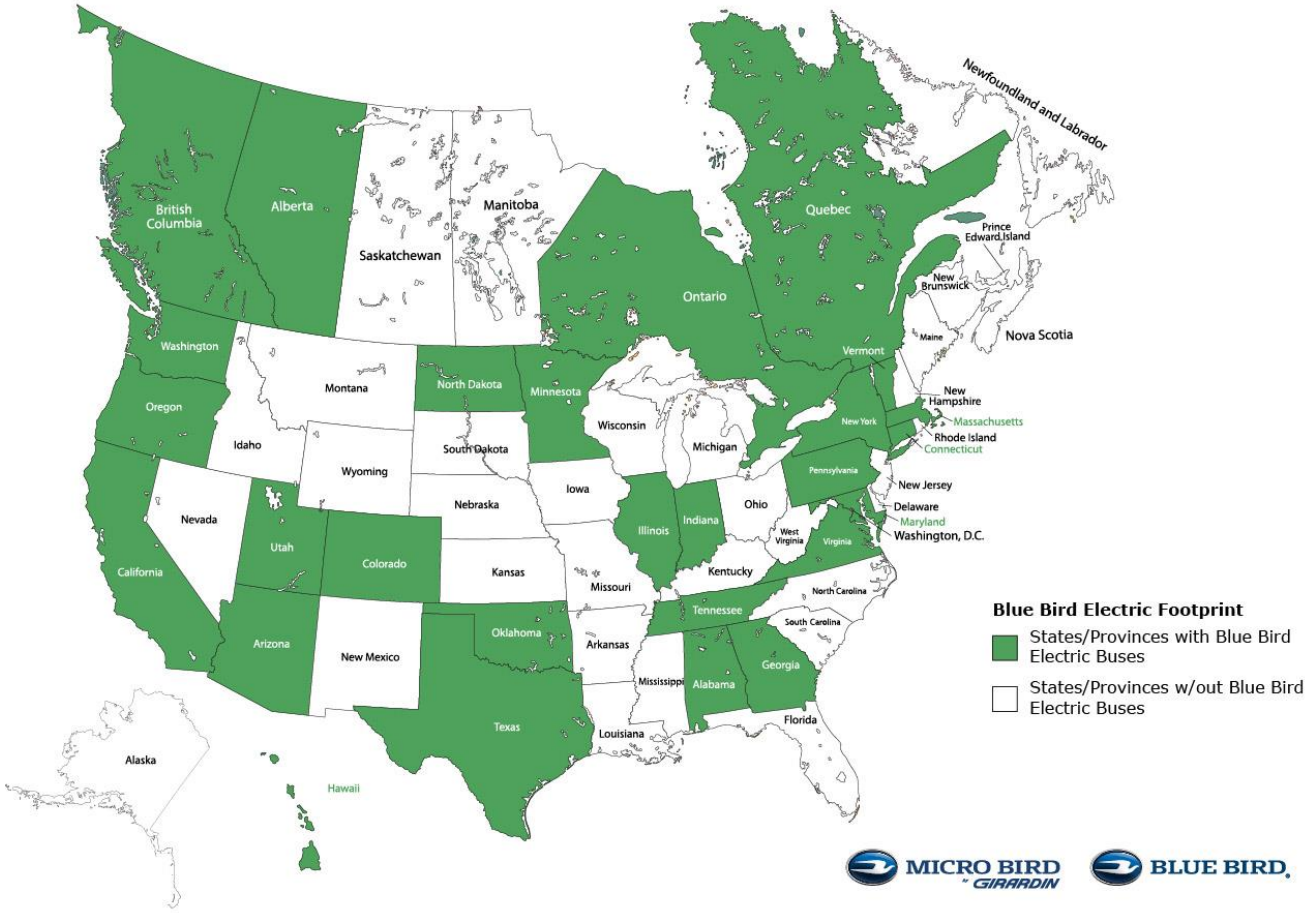
~292K buses in service for more than 10 years supports high annual replacement volume

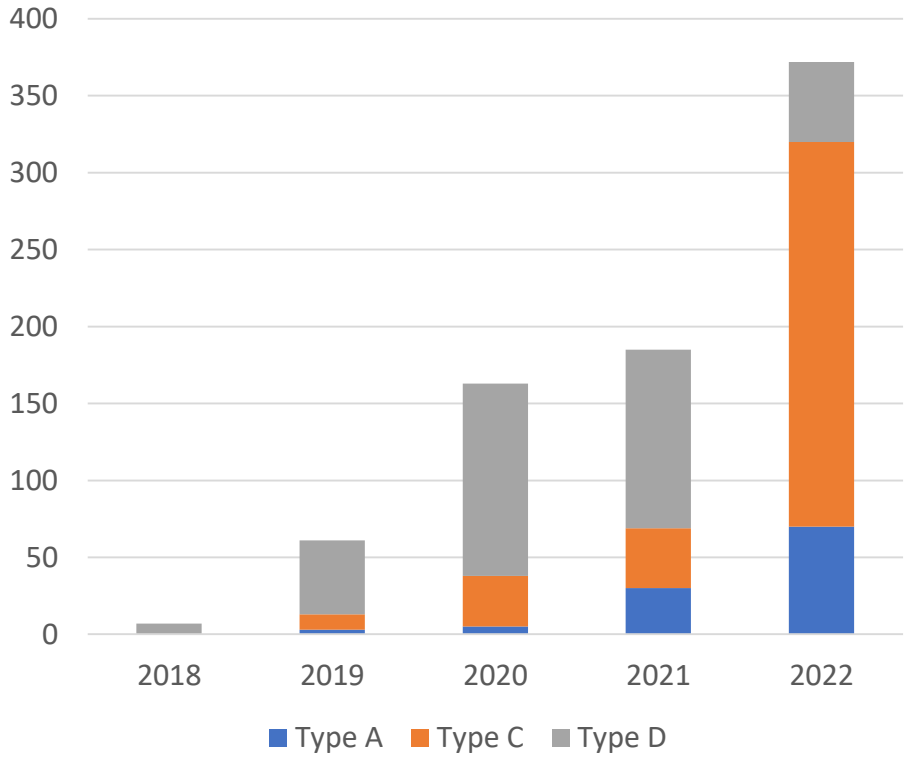
Source: R.L. Polk Registrations, based on Type C/D school bus fleet at the end of BB fiscal year

Electric School Bus Growth and Why

BLUE BIRD

EV Deployments and Growth





Benefits of Electric School Buses

ZERO EMISSIONS
Cleaner air for our children

VEHICLE TO GRID TECHNOLOGY
V2G technology allows the sale of energy back into the grid

REDUCED MAINTENANCE COSTS
Fewer and much simpler parts = substantially less maintenance

QUIET OPERATION
Less sound pollution in neighborhoods, and safer driving

OUTSTANDING PERFORMANCE
Drive motor max torque and power at very low RPM's

GRANT FUNDS AVAILABLE
Bus and Infrastructure

Benefits of Zero Emissions

Diesel buses create tailpipe pollution, which causes a wide range of health issues.

Tailpipe pollution from buses is shown to trigger asthma attacks, interfere with lung development, contribute to cancer — and even reduce children's ability to learn.

Children are more vulnerable to diesel pollution than adults.

Young lungs and hearts work harder than those of adults. Children take more breaths, and their hearts beat faster. Their organ systems are still growing — especially their lungs, which aren't fully mature until around age 20.

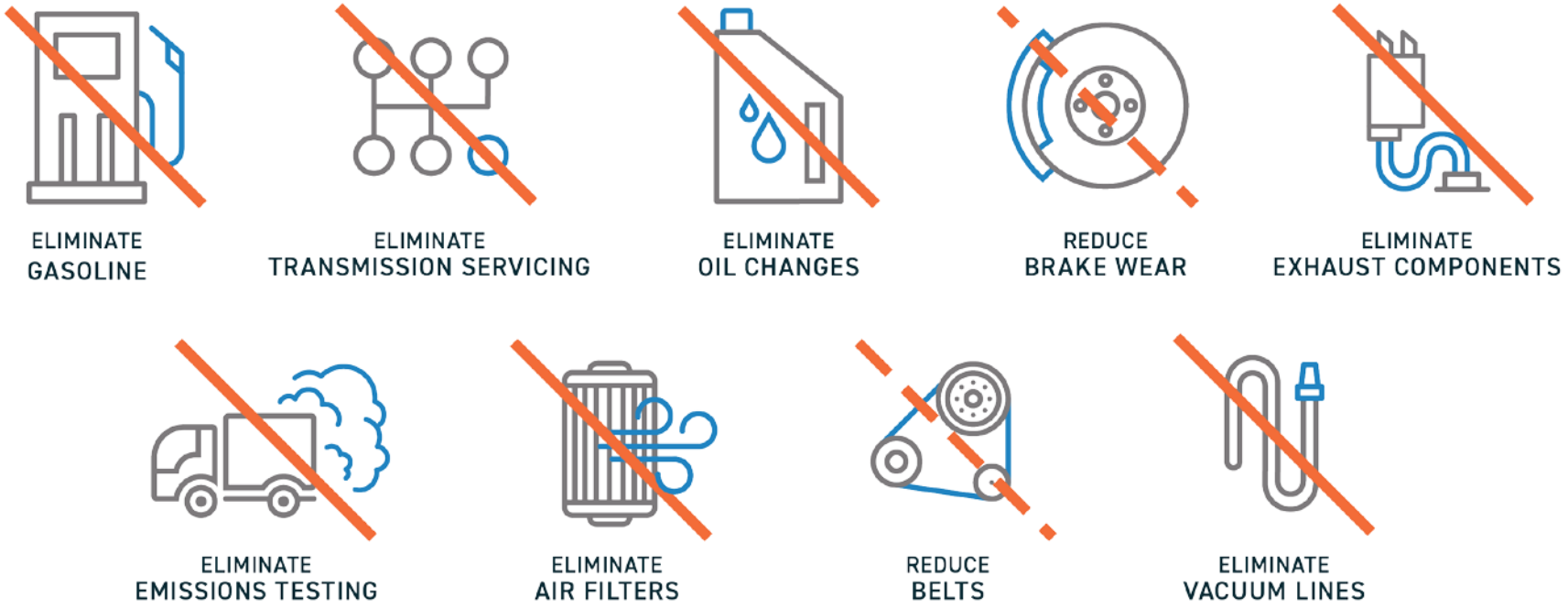
The air inside a school bus can be more polluted than the air outside of it.

Diesel pollution can seep inside the bus cabin from the tailpipe, and then get trapped inside. This is bad for the children, and bad for the bus drivers, too. Diesel buses also add dangerous climate pollution to our air.

If half of all school buses in the country switched from diesel to electric, about 2.1 million tons of carbon dioxide (CO_2) could be reduced annually (even when accounting for emissions from electricity generation).

EV Operational Savings

When switching to **ALL-ELECTRIC**, you not only save the environment, but you also save on recurring fuel, maintenance, and operation costs.

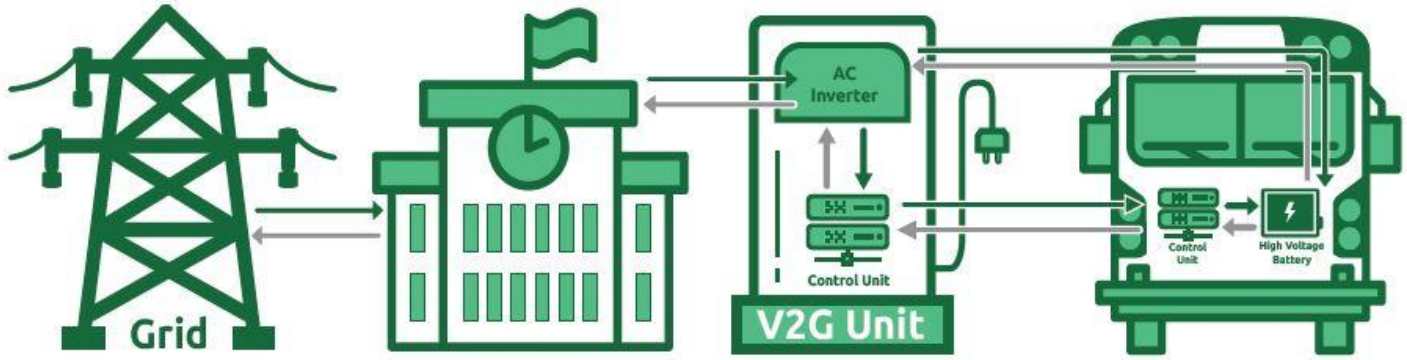


Estimated 60% - 80% operational savings over the life of the vehicle

Diesel vs Electric Bus Performance

	Diesel	Electric
Power	300 HP	315 HP
Torque	2,046 ft-lb (1st gear @ max rpm)	2,400 ft-lb (instantaneous)
Acceleration (0-60 mph)	45 s	20 s
Fuel Cost / mile	$0.44	$0.17*
Fuel Cost / year	$5,280	$2,040
GHG Emissions / year	23 tons	Zero
Maintenance	Engine Oil Change Transmission Fluid Change Fuel Filter Change DEF Fluid & Filter Air Filter Change	Coolant Flush

What is Vehicle-To-Grid?



V2G creates opportunities for utilities to <u>"buy back" stored energy</u> that the buses are not using.

V2G also creates the ability <u>redirect the excess power</u> to other structures like the building or fuel island.

This is valuable for peak season consumption times, as well as natural disasters when energy needs increase.

Electric School Buses are a perfect fit for V2G

EV school buses have very large battery packs

Only used for a short and predictable period of the day

Available for energy discharge when energy demand is at it's peak – midday and during the hottest summer months

If half of the school buses in the U.S. went electric and used V2G batteries, they could store enough energy to power:

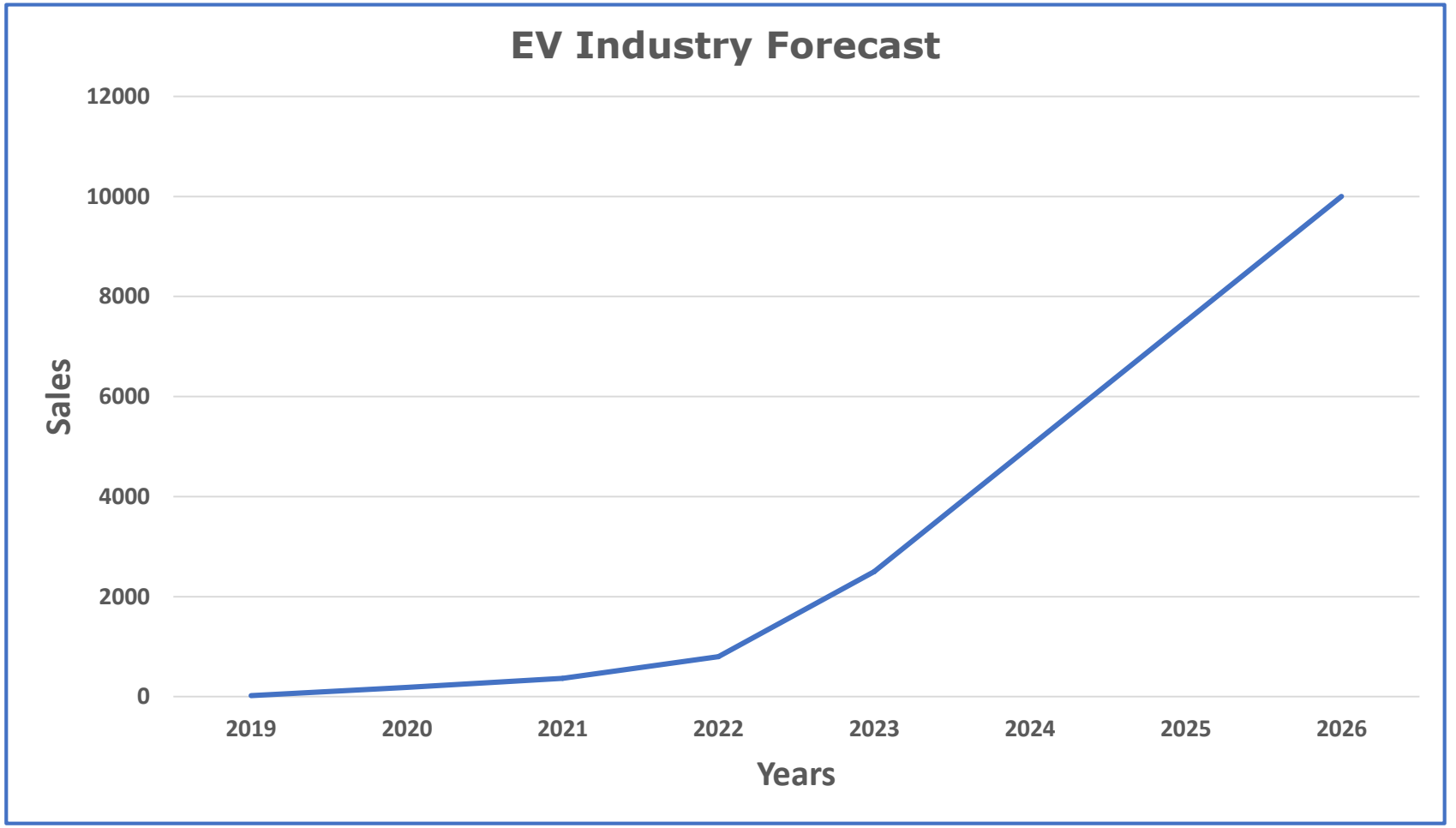
- Over half the homes in Vermont for up to three days
- 15 million school laptops—enough for nearly every high school student in the U.S.—for a month

Vehicle-To-Grid

Industry Outlook

BLUE BIRD

EV Industry Forecast



State Lawmakers Driving EV Policies

15 states signed a multistate agreement to increase ZEVs in the medium- and heavy-duty sector:

California	Maryland	Pennsylvania
Colorado	Massachusetts	Oregon
Connecticut	North Carolina	Rhode Island
Hawaii	New York	Vermont
Maine	New Jersey	Washington

The agreement commits participating jurisdictions to achieving ZEV sales targets for new medium- and heavy-duty vehicles of 30% by 2030 and 100% by 2050. In addition to these commitments, states are considering targeted legislation aimed at deploying more ZEV medium- and heavy-duty vehicles.

Future EV Funding

- Bipartisan Infrastructure Law
  - The Bipartisan Infrastructure Bill was signed into law by the President on 11/15/21.
  - Clean School Bus Funding is $5B. Allocation:
    - $2.5B for a new electric school bus program
    - $2.5B for a new alternative fuel school bus program (electric, propane and CNG)
    - First cycle of funding could be released as early as April 2022.
- Zero Emission Transit Fund in Canada
  - $2.75B expected to transform 5,000 zero emission buses in transit and school bus applications and build supporting infrastructure
- Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP)
  - California Program - $569.5 million for FY21-22 with a $130 million carve out for EV school bus.

New entrants in the Electric School Bus Market

BYD

GreenPower

Lion Electric

Thank You!

BLUE BIRD®