

Highland

PA Medium- Heavy Duty Electric Vehicle Bootcamp and Display

June 20, 2023

The Highland story



Founded in 2019



\$253M capital raised



Largest electric school bus project in North America:
MCPS, Maryland



First commercial electric school bus V2G program in the U.S.



Leader in public-private partnerships:
375+ buses under contract



ELECTRIC FLEET

Community benefits



Community Health

Emissions-free vehicles eliminate toxic diesel fumes from school yards and neighborhoods.



Environmental Justice

Electric school buses improve air quality for traditionally poor and underserved communities.



School Budgets

Restore balance to your transportation budget with predictable energy pricing.



Driver Satisfaction

Recruit and retain drivers with quiet, easy-to-drive vehicles.



Climate

Upgrading your fleet to electric reduces greenhouse gas emissions.



Academic Success

When your students breathe cleaner air, they miss less school and perform better.



Emergency Resilience

As Distributed Energy Resources (DERs)—batteries on wheels—electric school buses can power your community in an emergency.

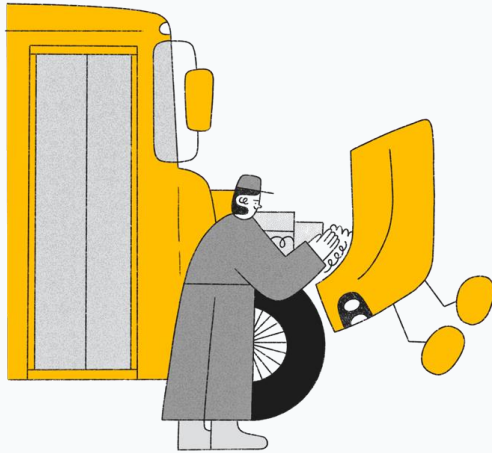


Grid Modernization

With vehicle-to-grid technology (V2G), electric school buses are helping build America's new energy grid, buffering peak demand and providing storage capacity for renewable energy.



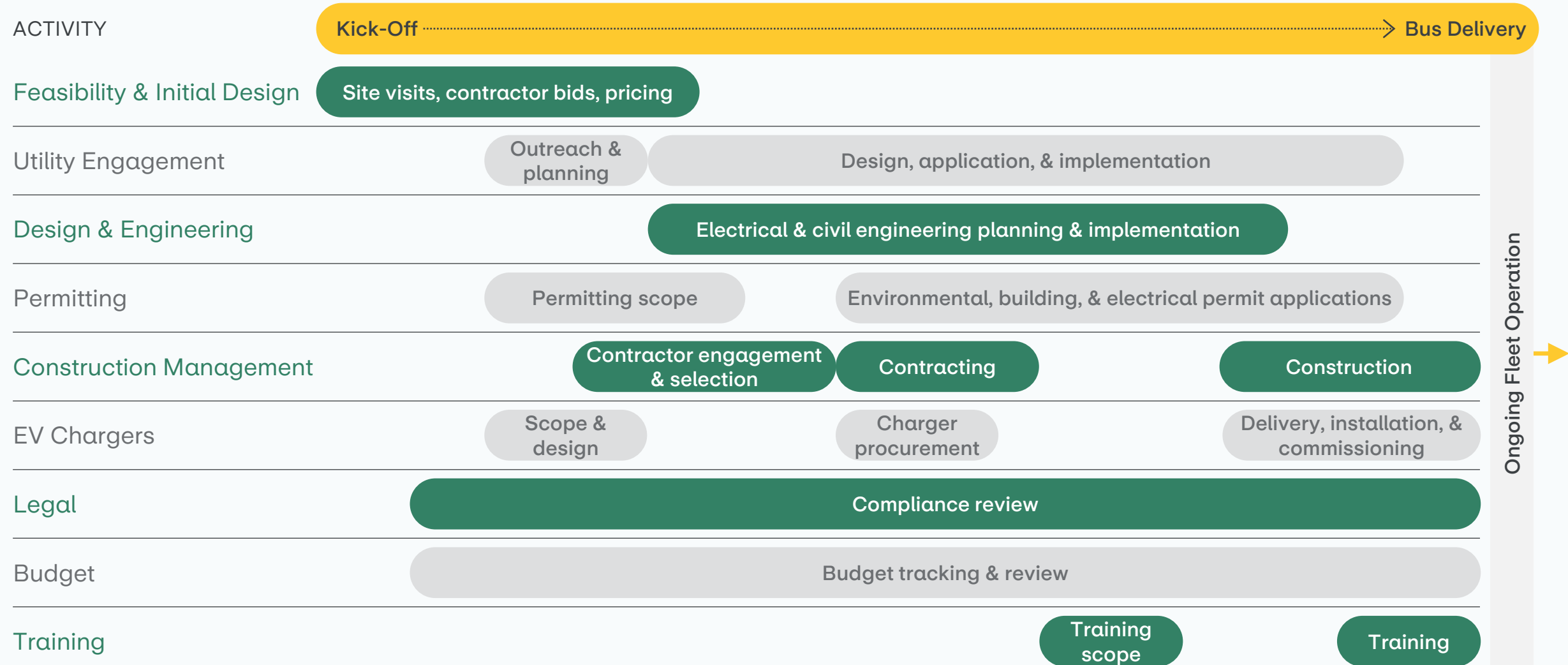
Fleet Electrification Steps



- 1 Plan** We design and implement the entire project.
- 2 Budget** We create a budget together that encompasses all aspects of your electric fleet.
- 3 Build** We procure school buses & infrastructure and manage the construction of depot upgrades.
- 4 Train** We train your drivers & mechanics to operate & maintain your new fleet.
- 5 Charge** We charge the school buses during off-peak hours, ensuring a “full tank” before each trip.
- 6 Maintain** We provide a complete service plan, reimbursing for all repair costs, including parts and labor.

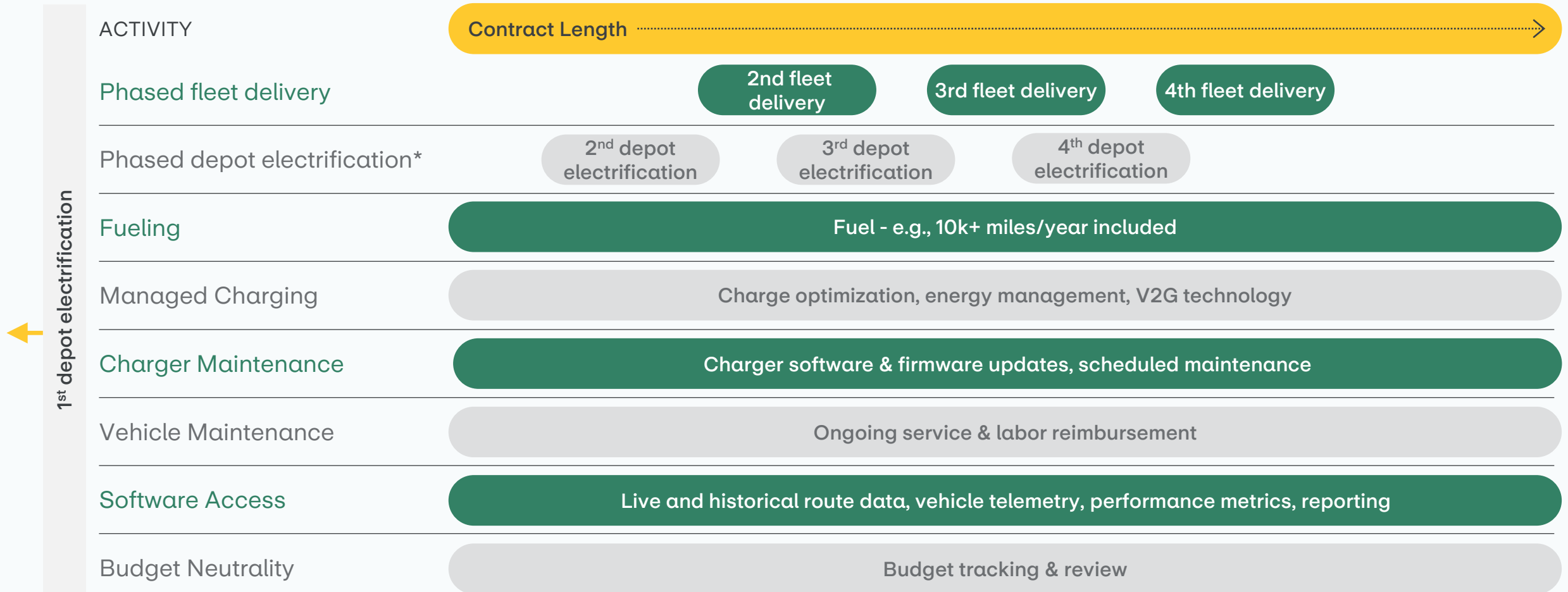
Sample depot electrification timeline

Project development must begin at least 12–18 months before buses arrive



Ongoing electric fleet operation

A lot happens behind the scenes to keep buses running smoothly



*Additional depot construction or existing depot expansion

Vehicle-to-grid (V2G) with Highland

# OF BUSES	ENERGY CAPACITY	IMPACT TO COMMUNITY
25	5 MWh	116 Local Homes for 1 Day
275	58 MWh	1,400 Local Homes for 1 Day
1,100	231 MWh	5,500 Local Homes for 1 Day



Electric school buses are essentially batteries on wheels. They're ideally suited to provide capacity, stability, and emergency power to the grid.



500k electrified buses add 60GWh of storage capacity.



Highland uses V2G participation to offset the upfront cost of electric buses and make your fleet more affordable.

Real Results

In the summers of 2021 and 2022, Highland orchestrated a commercial V2G program with National Grid in Beverly, MA, that sent **10.8 MWh** back to the grid over **158 hours**.

EPA Clean School Bus Program

FY22-FY26



Authorized through the Bipartisan Infrastructure Law




\$5 Billion over 5 years



To replace existing school buses with zero-emission and low-emission models



EPA Clean School Bus Program Round 2

Round 1		Round 2
Rebate, Random lottery	 STRUCTURE & MECHANISM	Grant, Competitive application
\$1B	 AMOUNT	\$400M
Federal	 ADMINISTRATION	EPA Regions
Minimal application requirements, 400 applications awarded	 GOALS	Detailed application requirements, 25–50 awardees anticipated
25-bus cap	 # OF BUSES PER APPLICATION	15–50 buses (schools) 25–100 buses (third-parties)

Round 2 is fundamentally different than Round 1

The competitive application will reward high-quality proposals that compete within the program's rules and that demonstrate robust planning, relevant experience, high likelihood of project success, and cost-sharing.

Key Dates

- Q+A Submission by: 7.26.23
- App Due Date: 8.22.23
- Win Notification: Nov.-Jan. 2024
- Awards Release: March 2024

Inflation Reduction Act Overview

Current Timeline



H.R. 537
Released

July 27th



Passed
Senate
August 7th
\$369 billion
towards
climate
initiatives



Signed into law
August 16, 2023

Key Electric School Bus Provisions

- **Clean Heavy Duty Vehicles Program:** \$1 billion grant and rebate program to replace Class 6 and 7 heavy-duty vehicles with zero-emission vehicles
- **Commercial Clean Vehicle Tax Credit (45W):** \$7,500 for vehicles with GVWR of 14,000lbs, \$40,000 for all others
- **Infrastructure Property Tax Credit (30C):** 6% base rate and 30% bonus rate for zero-emission fueling infrastructure

Notable Climate Takeaways

40%

Reduction in greenhouse gas emissions by 2030

10yr

Extension to tax credits, including technology neutral and clean vehicle credits amounting to ~\$68bn

\$27bn

EPA administered Greenhouse Gas Reduction Fund

~\$26bn

Grant and loan programs for economy-wide low and zero emission technology adoption



Additional State level Programming

Utilities and other state agencies have several additional programs that support school Bus electrification

PECO & Duquesne Utility Support

- PECO Fleet Electrification Petition
- Make Ready

Driving PA Forward

- Vehicle and EVSE funding utilizing VW settlement funds- final round to be released in summer 2023

AFIG

- Vehicle and EVSE funding – applications are currently closed for this year

Competitive Program Elements

Requires significantly more
information than a random lottery

QUALITY OF APPLICATION

Knowledge of project structure, information on existing fleet, & why you should win

RELEVANT EXPERIENCE

Ideally with electric school bus deployment, but any sustainability experience helps

PROBABILITY OF SUCCESS

Show that you know what's involved & how you will address any gaps

MAXIMIZATION OF APPLICATION SCORE

Pay attention to selection criteria and scoring system

Highland can help you meet electrification goals



OUR PUBLIC-PRIVATE PARTNERSHIP MODEL:

- Removes the upfront cost of electrification and guarantees savings
- Eliminates complexity
- Guarantees performance
- Makes electrification programmatic and predictable
- Provides a plan to get you to 100% electrification

Thank you



Jane Culkin
303.601.3442 | jane@highlandfleets.com

