Highland®

The Affordability and Public Health Benefits of Bidirectional Electric School Buses

July 2025

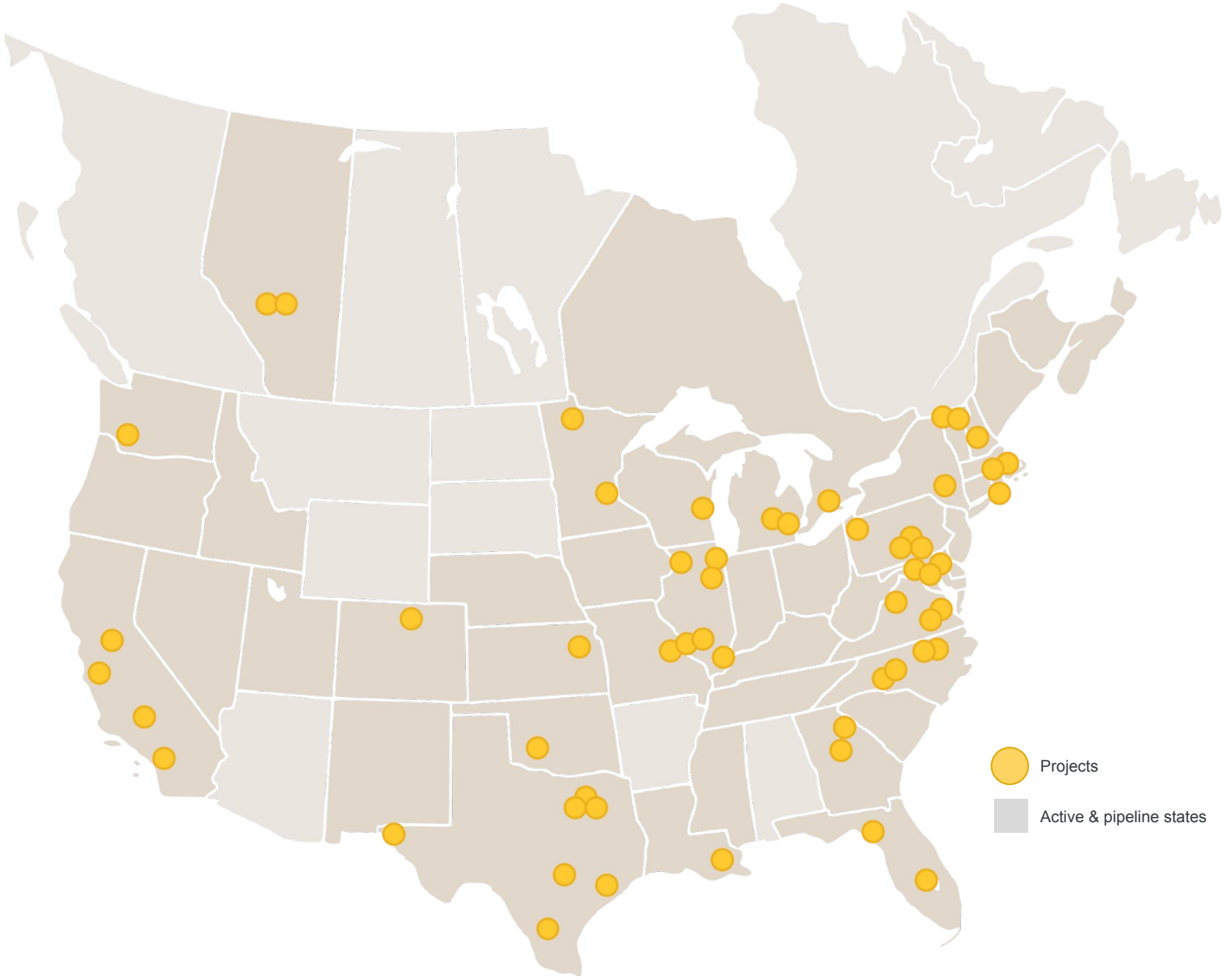
Our Projects

>4.5M ELECTRIC MILES DRIVEN

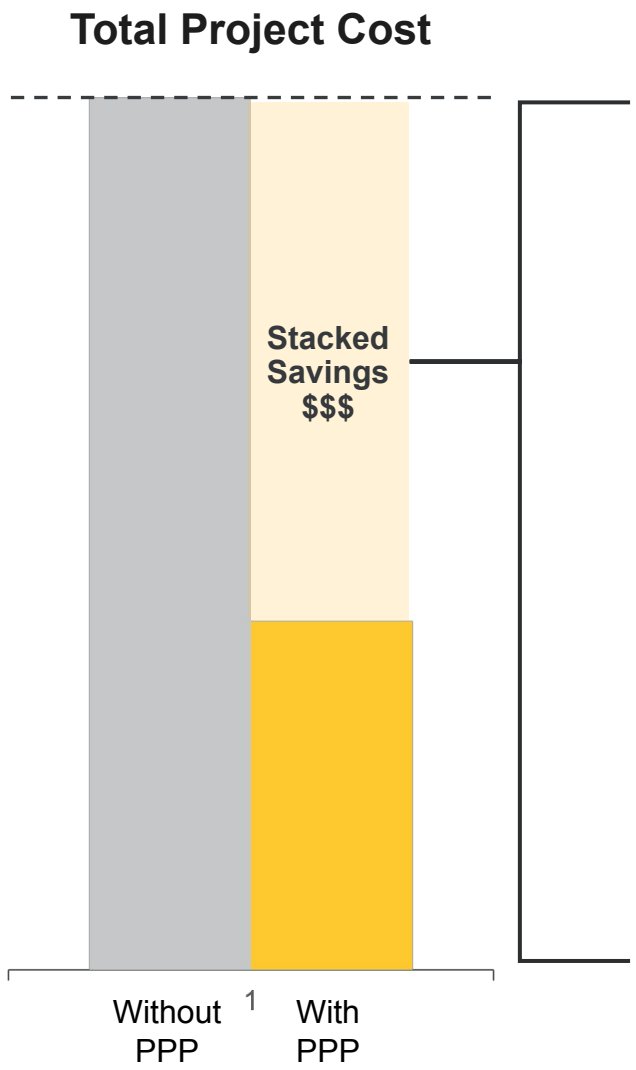
~900 ELECTRIC SCHOOL BUSES UNDER CONTRACT

130+ SCHOOL DISTRICT PARTNERS

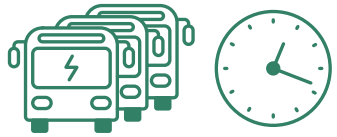
16 PROJECTS IN RURAL OR UNDERSERVED COMMUNITIES



Stacking financing tools can make electric fleets affordable



Grants & Incentives



Scale & Contract Term

Tax Credits, Depreciation, & V2G

Maintenance & Fuel Savings

EV TRANSITION

Why Lead with the School Bus?

School buses are the perfect electric vehicle use case – predictable routes, single charging location, equitable benefits.

Predictable

Defined routes, limited range & uniform depots

Versatile

Large & underutilized bidirectional battery

Available

4+ EV models with fierce OEM competition

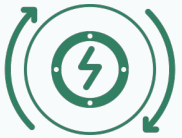
*Sample savings, not guaranteed

Vehicle-to-grid (V2G)

# 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 fleets 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**.

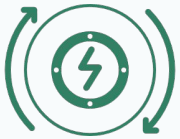
From A Load Growth Driver to a Solution: Managed Charging

Annual cost of charging

Unmanaged Charging	Managed Charging	Total Savings
$159,126	$84,996	$74,131

10 buses, 12,600 annual miles

(180 school days, 70 daily route mileage)



Highland ensures that we are charging at the right time by comparing peak utility rates in on-peak vs off-peak times

By incorporating “just-in-time” scheduling we ensure that we are never putting more energy in a bus than needed, but it’s always ready for operations

How does this impact EV buses?

When Highland schedules charging on a per-bus basis, it 1) extends the life and efficacy of the battery, 2) prevents unnecessary spend from your transportation budget, 3)enables opportunities to dynamically change charging needs to complement V2G events.

Commercial Program Participation

	ConnectedSolutions	Flexible Load Management Program
Utility	National Grid	Green Mountain Power
Depot Site	Beverly Middle School	South Burlington Public School
Specifications	3 60kW V2G chargers, 3 TBB	4 60kW V2G chargers, 4 TBB
Years Active	5 years	3 years
Cumulative Dispatch Events	333 hours	234 hours
Average $/Bus/year	~$9K	~5k

Final thoughts

- Evaluate program mechanisms – creating a market for V2G in California.
- Encourage PPP – V2G projects require lots of moving pieces. Having a dedicated partner can ensure success.
- The technology is here – we need to drive policies and markets that encourage scale.

Thank You

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