

## ALTERNATIVE FUELS

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# Massachusetts Celebrates First V2G Benefits from Electric School Bus

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The Saf-T-Liner C2 Jouley offers 226 kWh of total energy capacity from its Proterra battery system. Over the summer, the bus delivered nearly three megawatt-hours of electricity to the regional grid.

*Photo courtesy Thomas Built Buses*

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For what may be the first time in Massachusetts, an electric school bus over the summer successfully delivered power back to the electricity grid for more than 50 hours.

It's among the first instances in the United States that an electric school bus has supported an electricity grid through vehicle-to-grid (V2G) technology. Both Cummins and The Lion Electric Co. also worked on similar projects in the past few years.

Proterra reported that, in conjunction with Highland Electric Fleets and National Grid, a Thomas Built Buses Saf-T-Liner C2 Jouley school bus in the Beverly Public Schools transportation fleet discharged nearly three megawatt-hours of electricity to the regional grid from a Proterra battery system over the course of 30 events.

That's enough electricity to power the average American home for more than three months.

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### ***How V2G Can Help Create Cleaner Rides for Students***

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“Highland is thrilled to be a part of this groundbreaking program as the integrator of industry-leading technology, forward-thinking energy policy, and tremendous community leadership to solve some of the country’s toughest challenges,” said Highland CEO Duncan McIntyre. “We’re so honored to support those on the ground making amazing stories like this come to reality every day.”

Highland provided the bus, chargers, and all electricity to Beverly Public Schools under a mileage-based subscription, worked with National Grid to ensure the site was prepared for energy discharge, and coordinated their participation in their Connected Solutions Daily Dispatch Program. Under this program, National Grid used the energy stored in the electric school bus to reduce demand on the grid during peak periods.

“By delivering stored clean energy back to the grid when it’s needed most, electric school buses can help create a more resilient local power system and reduce the dependence on expensive fossil fuel power plants,” said Gareth Joyce, Proterra president. “Switching to zero-emission, electric school buses signals a transformational shift towards clean transportation and clean energy to help protect the health of our children and the communities they live in.”

The bus used Proterra’s bidirectional charging system. By sending power back to the grid, the school bus helped reduce local emissions and decreased the need to fire up fossil fuel “peaker” plants. National Grid compensates participants in the program for their energy services, incentivizing the use of distributed energy resources to strengthen the local grid.

Participation in National Grid's program may help some districts close the up-front cost gap between traditional diesel school buses and electric school buses, as revenue from V2G programs improve the economics of electric school bus ownership.

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### ***Future Proof Your Electric Bus Charging with Vehicle-to-Grid***

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The average school bus transports students for about six hours a day, 200 days a year, and are otherwise parked or idled when not in operation. They could prove especially useful as an electricity resource during summer months, when electricity demand is often at its highest.

In Beverly, Highland provided a turnkey, fixed-price subscription that eliminated the up-front cost, risk, and complexity of managing the electric school bus. This allowed Beverly to benefit from the V2G services provided by the bus through a lower subscription price.

“Beverly is proud to lead in electrifying our school bus fleet and to be at the forefront nationally, to successfully discharge battery-stored electricity back to the grid,” said Beverly Mayor Mike Cahill. “We look forward to taking full advantage of the economic, environmental, and operational benefits that V2G technology offers.”