

FPG Electrified Announces Findings from Successful Bi-Directional Vehicle-to-Grid (V2G) Integration Project

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FLANDERS, NEW JERSEY, UNITED STATES OF AMERICA, April 14, 2022 /EINPresswire.com/ -- [First Priority Group Electrified](#) (FPGe), a division of [First Priority Group \(FPG\)](#), a diversified manufacturer and dealer of emergency and specialty vehicles, is pleased to announce the findings from a three-year bi-directional Vehicle-to-Grid (V2G) integration project led jointly by FPGe and Con Edison. As the first of its kind in the United States, the findings from this project support the belief that electric school buses can help stabilize grid services, while saving money and reducing carbon emissions.



This project included five total electric school buses at a National Express bus depot located in White Plains, New York, a Con Edison service territory. The five electric buses, owned by National Express, were equipped with 104 kWh Li-ion batteries for the demonstration of this project. Three of the five electric school buses were upfitted with bi-directional onboard chargers (OBCs), auxiliary inverters, supplemental software and circuitry while the other two were used as control buses. The OBC's allowed Con Edison to reverse the flow of power from the buses into the grid when not in use transporting students. Additionally, all five buses were connected to Level 2 (19.2 kW) electric chargers. The bus depot was equipped with a new high voltage distribution unit, charger junction box and cooling circuitry.

The intent was to investigate the technical and economic viability of using V2G-equipped school buses to support the grid during peak demand, e.g., hot summer afternoons. [Con Edison reported](#) that using power from the batteries "reduces stress on electric-delivery equipment and can keep costs lower for customers."



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Robert Lupacchino, Vice President of FPG Electrified

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The biggest technical challenge was the retrofit of the buses and the inter-communication complexities among the vehicle management unit, the OBC’s and onboard charging software. Engineering teams spent several months examining communication problems,

troubleshooting systems and updating software until all three systems were synchronized and fully operational. Findings revealed that the drain on the batteries from the vehicle-to-grid discharge was nearly equivalent to the energy used while driving, without the benefit of regeneration. This information suggests that vehicle batteries used for export to the grid would degrade faster than through normal driving cycles.

“Vehicle-to-Grid integration is the next step in the evolution of EV fleet power technology and we are pleased to have collaborated with our partners in making this happen,” said Lupacchino.

FPGe functioned as the project developer, administrator and general contractor on this project. Additionally, FPGe brokered the sale of the buses, engaged the sub-contractors, wrote the contracts/inter-agreements among the consortium partners and co-managed the three-year implementation plan with quarterly reporting. FPGe is currently pursuing V2G project development opportunities with several other U.S. utility companies.

Consortium partners included Con Edison, The Lion Electric Company, National Express, Nuve Inc., Current Ways Technologies and ChargePoint.

About First Priority Group

Established in 1998, First Priority Group (FPG) is a diversified manufacturer and dealer of emergency and specialty vehicles. FPG's Conversion Division is one of the largest upfitters of emergency, command and specialty vehicles, providing custom solutions to law enforcement, emergency and commercial customers throughout the US. FPG's EMS Division is the exclusive authorized ambulance dealer for the Demers Braun Crestline (DBC) group in New Jersey, Maryland, Delaware and Washington D.C., while also serving as one of the leading ambulance remount manufacturers in the United States. FPG Electrified was created to assist our fleet customers with an end-to-end solution to electrify their fleets and create a line of purpose-built electric emergency vehicles.

Learn more at www.1FPG.com or call 1-800-526-5106.

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