

The Hidden Economy of Electric Trucks

This summer in Oakland, under the beating Californian sun, there are 74 electric school buses plugged in and sending power back to the grid. With the heatwave causing higher energy demand, these buses' batteries are supporting grid stability by providing additional energy reserves. Better yet, their owners are being paid for it.

These yellow buses are a microcosm of a greater shift taking place that is reshaping the economic landscape of electric vehicle (EV) charging. It starts with vehicle-to-grid (V2G) charging, which allows power to flow from the vehicle back to the grid. It means owners of the vehicles make money for selling energy back to the grid as well as for other 'grid services' like their batteries being used for storage.

This 'bidirectional' flow is a feature not present in traditional chargers. Allowing for electricity to move from vehicle to grid, enables batteries to be new flexible and moveable assets. Given the significant battery size of electric vans, trucks and heavy goods vehicles (HGVs), this could mean big business.

Though the technology is not new - with Denmark introducing a residential car V2G program in 2013 - its application to trucks, vans and HGVs is only just beginning. It suggests now might be the moment for well-timed business opportunities in this industry, especially paired with an enthusiastic private and public sector.

For instance, in March of this year, the UK government announced £1 billion in subsidies for charger installation at depots as well as electric van and truck rollouts. In June, Scania disclosed some of the world's first demonstrations of V2G capabilities for heavy commercial vehicles, also combined with intelligent energy management to maximise grid efficiency and stability. Effective from the 1st January 2026, Germany removed 'double grid fees' - a barrier to financially rewarding V2G charging which made EV owners pay to refill their battery after sending power back to the grid.

The US has been similarly enthusiastic. The San Francisco Unified School District (in collaboration with student transport firm, Zūm) will be deploying 104 electric school buses in August of this year, with the total rising to 238 by 2028. With V2G charging, the latter figure could provide a considerable 8 megawatt-hours of power according to the World Research Institute's Electric School Bus Initiative. Similar electric school bus programs are being rolled out in North Carolina and Connecticut.

The financial incentive for the vehicle owners looks promising. Research by Stanford University estimates, for residential car users, a best-case annual return of \$1181 per car. The average electric car battery sits at the 40-60 kilowatt-hour (kWh) mark. Compare this with HGVs which can have batteries of around 400-500 kWh (sometimes greater) and the financial attraction of the V2G charging for these vehicles is clear.

All the more so for companies which - as part of standard business operation - will operate a fleet of these. Online shopping services, haulage companies, storage solutions and more. These companies, with fleets of HGVs, can now make proper use of downtime. Whilst they sit in depots, unused, these vehicles can form a new revenue stream for firms.

Birmingham-based electric HGV charging company, Voltempo, works with clients such as M&S, Menzies Distribution, and Bartrums Haulage & Storage. It's clear the potential for these companies to make the most from their fleet is being recognised.

What's more, it's helping shape the narrative on 'green' technology as the planet-friendly thing to do is increasingly also the profitable thing to do. To businesses driven by the income and the bottom line, this is ultimately a better draw. In fact Voltempo states on their website, 'We're not here to save the planet. We're here to make it the most profitable thing you'll ever do.'

The potential for V2G to reshape electric van, truck, and HGV usage is pronounced. However, the industry faces certain barriers. The regulatory work on V2G charging has been, at best, spotty. ISO 15118-20, the international standard for communication between chargers and vehicles, to enable V2G charging, was only released in 2022. Since then it has been amended, not universally implemented, and its text is open for interpretation. For V2G charging, many vehicles can only use one type of specific charger that corresponds with their EV, based often on proprietary technology. Grid codes (the rules that govern connection to a given grid) also vary between nations and even regions. The result, without proper regulatory oversight, is that vehicles may only be able to send energy back in a set region(s) of their country.

Ensuring standardisation is an essential part of a wide implementation of V2G charging for vans, trucks and HGVs. Especially since these are exactly the vehicles that will typically cross large distances over the course of a single journey. As the United Nations Economic and Social Council reaffirms, interoperability amongst different grids and technology is essential. This is a complex process - requiring open sharing of information, institutional arrangements, coordinated hardware, software and more - but it is necessary.

V2G charging for vans, trucks and HGVs demonstrates high potential. At this nascent stage, and with such clear support from businesses and governments alike, it's primed for a lucrative journey. However, regulatory progress will play a fundamental part in shaping the success of its implementation. It must go hand in hand with the increased investment and enthusiasm for this technology. Otherwise, the spark might not last.