

Power Surge: unleashing the Potential e-LCV Charging

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As the electric vehicle (EV) revolution gains momentum, three critical factors shape the future of Electric Light Commercial Vehicles (e-LCV) charging. First, range or charger anxiety, the arch-nemesis of operational fleets, combated through a detailed understanding of a fleet and combined with consultative Total Cost of Operation analysis. By scrutinizing driver journeys, we uncover the true costs and benefits of e-LCV ownership. Second, the charging infrastructure, spanning home, depot, and public charging, is where accessibility, cost implications, and operational effectiveness all come into play. Finally, we assess the battery size and range required and the evolution of battery technology. Join us as we illuminate the real-world barriers faced by fleets and dive into the world of e-LCV charging, where innovation continues to charge ahead...

First considerations

In the realm of electrification, strategic planning emerges as a pivotal element, as highlighted in our [previous blog post](#). As the transition unfolds, it is essential to consider the sector in which you operate, specifically identifying any model gaps within the e-LCV market. However, while change looms on the horizon, it is crucial not to hastily force the pace. A prudent approach ensures a smooth and successful process and transitioning the easiest parts of the fleet – at the very least – now provides many advantages to organizations in meeting commitments to stakeholders and shareholders alike, as well as accelerating change ahead of legislation changes and improving air quality. But in order to do this effectively, companies must plan carefully – the ultimate goal being to equip ourselves with fit-for-purpose vehicles and achieve operational effectiveness, the same or if not better than that of the current

ICE (Internal Combustion Engine) fleet. While there is broad agreement on the need for progress, there are certain concerns around range anxiety, charging infrastructure and the requirement for bigger and better ranges, which may at times act as brakes, as we'll discover..

Charging Infrastructure: An Introduction

The infrastructure puzzle divides into three pieces: home, depot, and public charging, each with its own cost and operational implications. Infrastructure stands as the main barrier deterring some companies from taking the plunge into electrification. It's high time we delve into this critical issue.

Home Charging: Overcoming Challenges

Let's start with home charging. In the UK for example an estimated 30-40% of households lack off-street parking, posing a challenge to return to home fleets. Companies operating this type of fleet must initially conduct driver surveys to assess who can charge at home and factor in the installation cost. And then they must dig deeper and ask themselves, "what about employee turnover?" Can the company easily remove the home charge units once fitted to the employees' house and factoring either removal of old, or additional new units costs into budgets? It may potentially even be simpler to leave the chargers in place... And what if employees have both a private car and a van, but only have a one parking space in their driveway? Leaving their private car on the road for charging isn't always an appealing option. If this is the case, the goodwill of drivers matters enormously, alongside the complexities of home site surveys, power upgrades, and grid approvals. Due diligence can quickly become intricate, however hugely valuable as the electric transition has been given thorough consideration, with potential challenges thought of and overcome ahead of ordering the first vehicles.

Depot Charging: A Smooth Transition to Electric

Operating a return-to-depot fleet will provide a company with the smoothest transition to electric. The advantage lies in centralized charging, bypassing home installation concerns and optimising the cost effectiveness of the fleet, through not being reliant upon driver goodwill, staff turnover or the public charging network. Fleets that may have previously allowed drivers flexibility in taking their vehicle home will now have to mandate overnight depot charging, with drivers now needing to commute with their own form of transport. This could incur additional private costs on the drivers, which may be seen as losing a perk from their point of view.

It is crucial for companies to plan depot charging with the required due diligence; prioritising sites according to local level compliance with existing or planned low emission zone restrictions and potential ownership complexity depending on freehold, or leasehold. Detailed future planning on e-LCV fleet growth at each depot requires completion, enabling sufficient grid capacity and cabling to be accounted for and requiring groundworks to be undertaken once. It's important to remember that the depot charging planning process can take up to a year. Keeping this in mind, potentially working with a third-party specialist can and will most likely save the company time and ensure a smoother removal of barriers to transitioning a depot fleet.

Optimizing Van Usage for Electric Fleets

It's important to remember that the transition to electrification demands careful attention from all company stakeholders. While mileage analysis is crucial, it's only half the story. Knowing the when, where, and how of van usage is equally important. If vehicles stop for charging during the workday, downtime increases, and the costs escalate accordingly, both in terms of public charging and that of the employee who could be earning the company money, instead of charging.

Addressing Charger Anxiety and Reliance on Public Charging

In today's landscape, range anxiety for small and medium segment e-LCVs take a backseat to charger anxiety due to the availability and speed of public chargers. Although this concern can be alleviated if vehicles don't require daytime charging, expanding fleets inevitably necessitate some reliance on public charging and this must be considered at the start of the transition journey.

Finally, public charging must serve as a fallback option due to the increased cost of public charging vs home/depot, for example in scenarios where home or depot systems are down. By way of comparison: Home charging in the UK = £0.28 per Kwh vs £0.33 – £1.00 in public, while depot can be lower than both. Here, the critical questions revolve around off-road time and the availability and accessibility of charging points. Are they free at night or capable of supplying faster "in-life" charges during the day? Overreliance on public charging is unsustainable, especially with the surge of EVs hitting the roads. Availability remains a significant challenge, with charge points concentrated in a limited number of countries. Businesses serious about the transition must conduct thorough tariff analysis, considering long-term price fluctuations amid global uncertainties.

Battery life

When it comes to batteries, the burning question is: should we transition now or wait for technology to evolve? Small vans can currently cover up to 280km, medium vans up to 330km, and large vans approaching 350km. Do we truly need bigger and better batteries urgently? While published ranges may differ based on driving styles, payload, and weather conditions, fleets must put vehicles to the test in winter, when the vehicles will be operating in the worst conditions. However, this is a process most car manufacturers will embrace to see their products in action. Battery ranges are improving, however particularly in the large segment for long-distance travel, carrying heavy loads, or towing, range and weight pose challenges. Increasing battery size means reducing payload capacity, a quandary that can only be resolved by increasing range, whilst maintaining the same battery weight. However, with forthcoming battery technology advancements, we could witness vehicles with a greater range that require charging only every 2 to 3 days rather than daily for example, which could result in greater adoption by fleets who currently require greater reliance upon the public charging network. Currently, the technology developments lean toward the introduction of solid-state batteries, which can potentially be introduced within the next five years with some claims for cost reduction. What is likely is the emergence of a two-tier system where current lithium batteries are supplied alongside solid-state batteries, with a price difference between the two. And let's not overlook alternative energy sources which you can [learn more about in this article](#).

In the realm of batteries, the choice between seizing the moment or waiting for further progress looms large. While the current battery ranges for vans are perfectly suited to a large number of fleets, there is still a need for more advancements, particularly in the large vehicle segment for long-distance journeys. Through regular analysis and planning, the introduction of home, or depot fleet charging the organization can be more than ready when the operationally fit for purpose vehicles are introduced. With the prospect of vehicles then requiring charging only every few days, the future holds promise. Although the development of technologies like solid-state batteries is on the horizon, holding out for perfect conditions is unnecessary and could result in you failing to meet ESG targets. The path to progress is paved by taking action now.

In conclusion, the electrification of e-LCVs is a transformative journey that hinges on three critical factors: range anxiety, charging infrastructure, and battery advancements. To ensure a successful transition, fleet managers must conduct a detailed understanding of their fleets, analyse TCO, and consider the sector in which they operate. Strategic planning is essential, with a prudent approach that allows for a smooth and phased shift to electric vehicles. While challenges such as charger anxiety and infrastructure complexities exist, they can be overcome through thorough planning and consultation with third-party specialists. Additionally, the choice between seizing the moment or waiting for further battery advancements is a pivotal decision. Taking action now, rather than waiting for perfect conditions, can help organizations meet their environmental, social, and governance (ESG) targets and pave the way for a sustainable future. As innovation charges ahead, embracing these challenges head-on will drive us toward a greener and cleaner tomorrow.