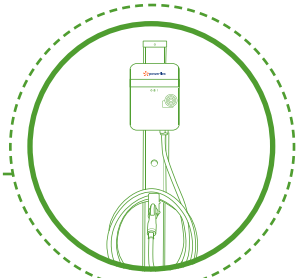


+ E-BOOK

Optimizing Commercial Fleet Charging

Power Through Site Constraints, Avoid Costly Utility Upgrades, and Keep Every Vehicle Route-Ready

6-Minute Read



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Why Commercial Fleets Are Going Electric

U.S. commercial registrations of battery-electric vehicles grew more than 20-fold between 2019 and 2024, from 4,000 to 87,000 units, according to S&P Global Mobility.

Beyond the obvious sustainability impact of zero-emission transportation, electrifying delivery vans, service trucks, and other light- and medium-duty commercial fleet vehicles offers significant business benefits.

For most commercial operators, the business case rests on three advantages:



Lower Fuel Costs

Electricity is generally less expensive and price volatile than gasoline or diesel, contributing to a lower total cost of ownership for EVs.



Less Maintenance

With fewer moving parts and less fluid use, maintenance for EVs runs about half the cost of a comparable combustion vehicle.



Future-Proof Operations

Electrifying now puts your fleet ahead of tightening regulations and insulates it from unpredictable fuel prices.

Electric fleet vehicles also open the door to new value. Their large batteries pair naturally with onsite solar and storage — and with bidirectional hardware, they can take part in revenue-generating **Vehicle-Grid Integration (VGI)** programs.

But that said, an electric fleet is only as reliable as the charging infrastructure behind it, which is where electrification projects run the risk of stalling.

Best Practices for Planning Fleet Charging

The decisions you make around charging infrastructure impact both your day-to-day operations and your future return on investment. PowerFlex recommends working through five steps before breaking ground.

1 Map your duty cycles

Document vehicle types, battery sizes, daily route miles, shifts, dwell times, and departure windows. These numbers drive every decision that follows.

2 Assess the site early

Review onsite electrical capacity, vehicle dwell areas, charger placement, and traffic flow for charging lanes.

3 Right-size the charger mix

Level 2 chargers add about 25 miles of range per hour and suit overnight depot charging. DC Fast Chargers can reach 80% in as little as 20 minutes for quick turnarounds.

4 Build the financial case

Compare total cost of ownership against combustion vehicles, stack incentives and utility make-ready programs, and weigh an upfront purchase against a Charging as a Service (CaaS) arrangement.

5 Pilot, integrate, and plan to scale

Start with a subset of vehicles, connect charging to telematics and fleet software, train staff, and build in capacity for future phases from day one.

Charging Without the Upgrade

For many depots, the biggest threat to budget and timelines is a utility service upgrade. New transformers and switchgear face long lead times, and the wait adds up: Pacific Gas & Electric reported in 2023 that energizing new EV charging service took an average of 198 days. This can be avoided when charging loads are adaptively managed.

How Adaptive Load Management Works

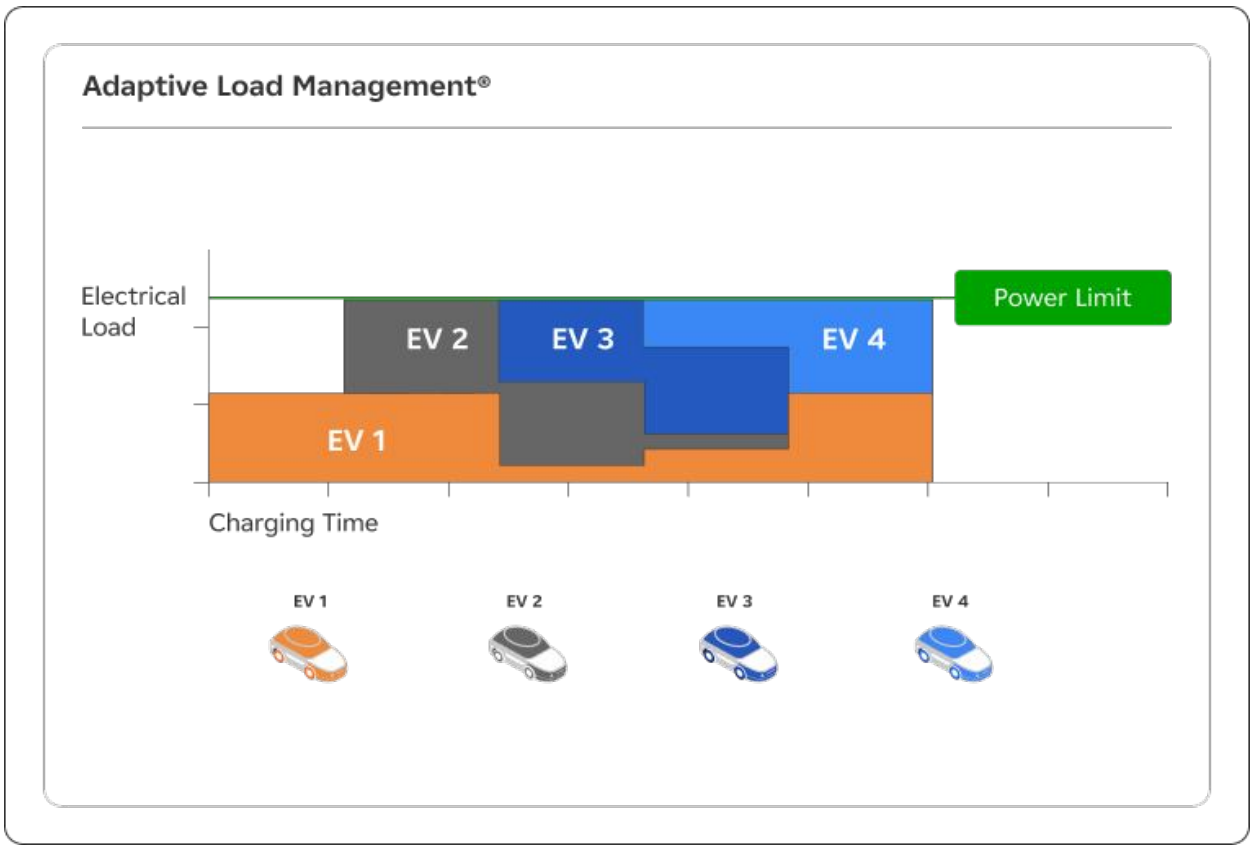
PowerFlex's **Adaptive Load Management® (ALM)** uses patented algorithms to balance charging demand across each individual station in real time. Power distribution is adapted to vehicle schedules, target state of charge, and the site's available capacity. That lets fleets install up to 10x more chargers than conventional setups on existing electrical infrastructure, and save up to 60% on system implementation.

Smarter Than Splitting the Difference

Many other load management methods divide power equally or charge vehicles in the order they arrive. Either way, a van with an early route can leave short of charge. ALM accounts for each vehicle's departure time, so vehicles that leave first, charge first — all while total draw stays within limits. Flattening consumption this way also avoids peak demand charges that inflate monthly utility bills.

Built Into PowerFlex X

ALM is a core feature of **PowerFlex X™**, the intelligent energy management platform that co-optimizes EV charging with building loads and installed energy assets at an individual site or across an entire portfolio. By coordinating charging with onsite solar generation, stored battery energy, and utility rates, PowerFlex X keeps EVs powered up while keeping costs down.



Case Study: DHL Express

DHL Express aims to electrify 66% of its last-mile delivery vehicles by 2030, and its U.S. depots can't afford a missed departure.

The Challenge

Each DHL distribution center runs 40-60 vehicles on routes of up to 300 miles, and vans must be ready to roll as early as 6 a.m. DHL needed fleet charging that could scale site after site without costly electrical upgrades.

PowerFlex's Solution

PowerFlex has built a network of more than 730 Level 2 chargers across 25 DHL sites, optimized by PowerFlex X with Adaptive Load Management®. By balancing power across each site, ALM has allowed DHL to install twice as many chargers as unmanaged charging would allow, within the same power limit and existing electrical infrastructure. Fleet teams track every site in PowerFlex X Fleet+, with telematics integrated alongside charging data.

738	25	13.8 GWh	24.5 M	10,700+
Level 2 Chargers	U.S. Installation Sites	Energy Delivered	Electric Miles Provided	Tons of GHG Avoided



> We selected PowerFlex to complete our EV charging stations because of their deep industry experience that helped us find a creative solution to meet our EV fleet charging needs.

Laurice Bancroft
SVP of Network Operations, DHL Express U.S.

Stay Route-Ready With PowerFlex X Fleet+

Load management keeps the site within its power limit. PowerFlex X™ Fleet+ gives depot managers the visibility to keep every vehicle on schedule, all within a single portal.

Easy Monitoring

View by station or by vehicle to see which vans are plugged in at a specific site or across your entire portfolio of hubs.

Seamless Scheduling

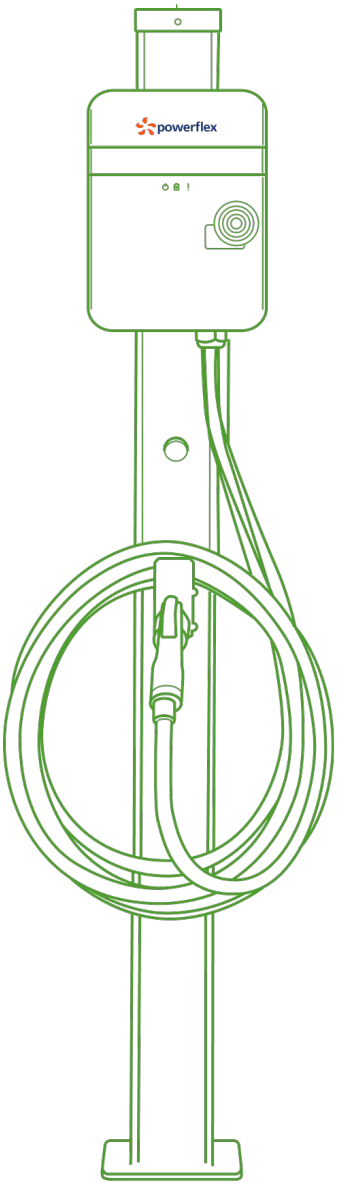
Bulk-upload schedules with departure times and requested state of charge, or adjust any vehicle individually.

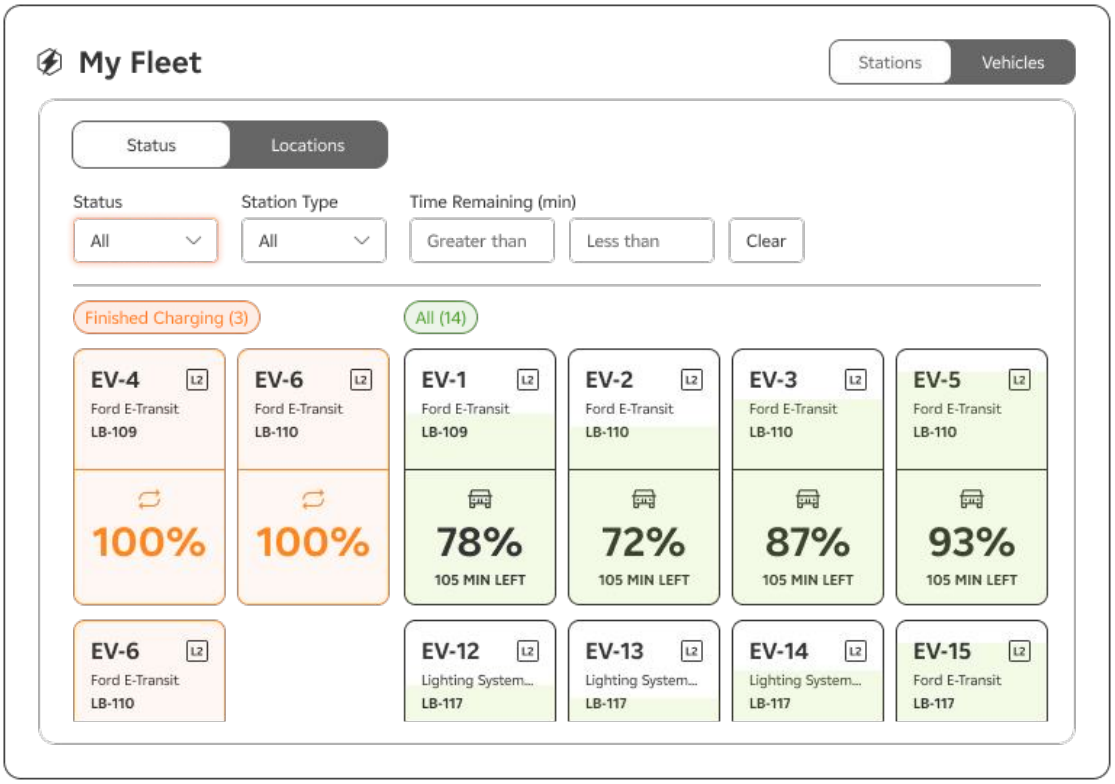
Integrated Telematics

Integrations with providers like Samsara and Geotab bring state of charge, range, and location into the dashboard.

Configurable Alerts

Get notified of low state of charge, missed sessions, or a vehicle set to charge during a high-rate period.





Fleet+ also removes interoperability concerns for fleet managers. As part of the hardware-agnostic PowerFlex X platform, Fleet+ works with a wide array of charger OEMs and vehicle manufacturers. Leveraging the latest OCPP 2.0.1 protocol, personnel can retrieve detailed configuration data on individual chargers, make targeted remote adjustments, and track equipment health at a granular level.

From the first site assessment through long-term operation, PowerFlex can deploy a commercial fleet charging solution tailored to your routes.

Talk to an Expert Today →

powerflex

About PowerFlex

PowerFlex is a clean technology solutions company making the transformation to carbon-free electrification and transportation possible. Our intelligent energy management platform PowerFlex X™ monitors, controls, and co-optimizes onsite assets like EV chargers, solar, energy storage, and microgrids — reducing overall energy costs through patented algorithms that maximize distributed energy resources.

PowerFlex is the largest installer of commercial solar in the United States, with over 500 megawatts (MW) of total solar capacity plus 50+ megawatt-hours (MWh) of battery energy storage. PowerFlex also manages more than 70,000 EV chargers nationwide, making it the largest hardware-agnostic EV charging provider in the U.S.

Through intelligent charging management and bidirectional vehicle-grid integration technology, PowerFlex enables electric vehicles to serve as flexible energy resources for transit agencies, school districts, and fleet operators.

PowerFlex is backed by EDF power solutions North America, Manulife Investments, and The Mobility House.

Visit **powerflex.com** for more information and connect with us on **LinkedIn** and **YouTube**.

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