

Dawsongroup | vans

Your Complete Guide to Electric Vans



**TEAM
TARGET
ZERO**

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Why is becoming Net Zero so important?

With the government's 2035 deadline to stop the sale of new petrol, diesel and hybrid vehicles rapidly approaching, the journey to net zero is one that everyone must embark upon sooner rather than later.

Transport is one of the main contributors to carbon emissions and it is also the easiest way to lower your carbon footprint. Battery electric vehicles (BEVs) are going to play an increasingly important role in the UK van market as it evolves over the next few years. Thanks to new legislation such as the Zero Emission Vehicle (ZEV) mandate, more and more LCV manufacturers are increasing production levels and introducing new electric vans as a result.



Our commitment

At Dawsongroup vans, we are committed to staying at the forefront of the journey towards a net zero fleet. By staying ahead of the game, we are able to offer a consultative service on the importance of adopting a cleaner fleet, and support businesses making the transition to electric vehicles (EVs) and alternative fuel vehicles (AFVs) in the most efficient and effective way.

This guide will provide you with a good starting point into everything that is happening around net zero and electric vehicles. From legislation and the benefits alternative fuelled vehicles offer, to current market research around electric vehicles and charging capabilities, this will become your first port of call for anything you need to know about net zero and electric vehicles.

"Going into a relatively new and unknown area such as electrifying our fleet of vans, I felt safe in Dawsongroup's hands and knew that I could trust their opinions and guidance"

*Tim Smith-Burrows,
M&E Project Manager at Tom Willoughby.*

Legislation

Net Zero Strategy

Removing tailpipe emissions from cars and vans is fundamental to decarbonising transport. In 2019, cars and LCVs were responsible 19% of the UK's total domestic greenhouse gas emissions.

As part of the UK government Net Zero strategy, from 2035 there will be a ban on all new petrol and diesel vans and cars. This means by 2035, all new vans and cars must be zero tailpipe emissions.

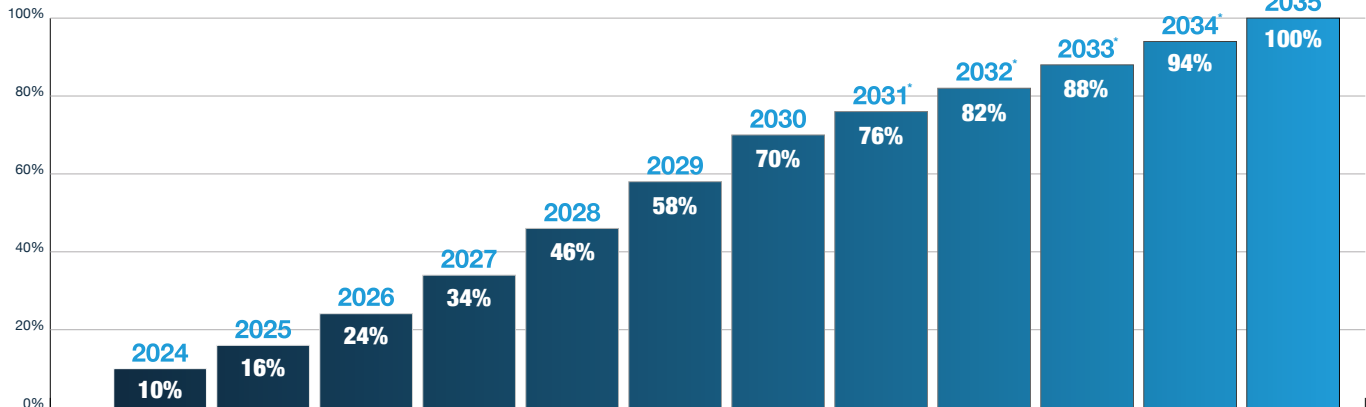
Zero Emissions Vehicle (ZEV) Mandate

The ZEV mandate is a government scheme which will require manufacturers to sell a certain proportion of zero emission vehicles each year from 2024 to 2035.

The annual targets for ZEV sales shares can be seen in the graph below, which shows that 10% all new vans sold in 2024 must be zero emissions and that in 2030, 70% of new vans sold will be zero emissions. The targets for 2031 to 2035 will be set out in future legislation later in the decade.

Annual targets for ZEV sales for vans

*Target will be set out in future legislation later in the decade.



Emissions Zones

More and more local councils and cities are implementing low emission zones, clean air zones and zero emission zones to help reduce the amount of air pollution generated by vehicles. If your van does not meet the requirements of these emission zones, you could be charged up to £12.50 per day to operate within these areas.

Did you know, non-compliant vehicles entering the Glasgow Low Emission repeatedly could result in a Penalty Charge Notice of up to £480?

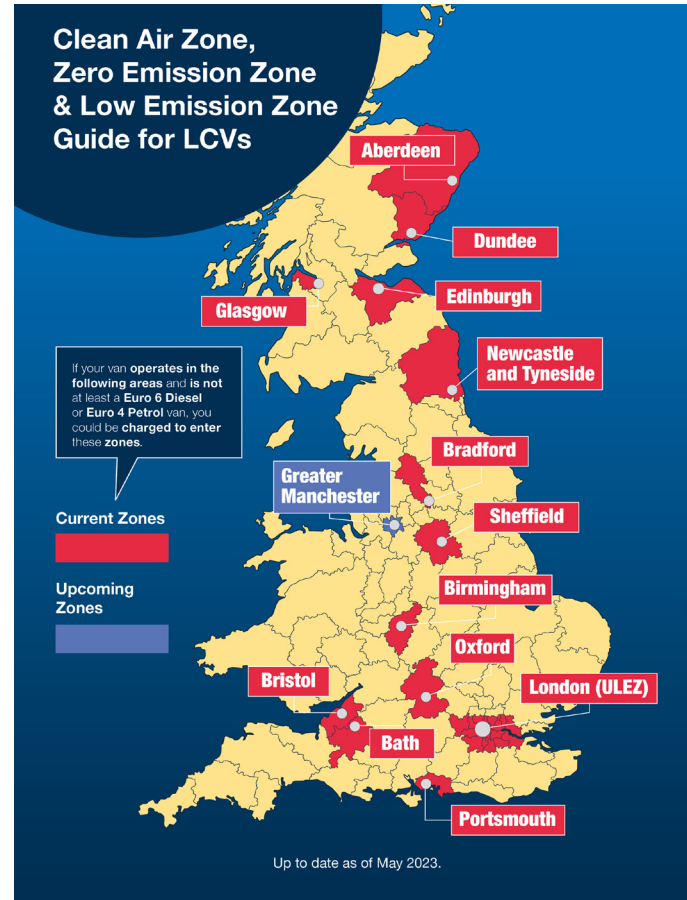
To help keep up to date with these zones and any operating charges involved, we have created an emissions zone guide on our website which is regularly updated.



To view the latest map of emission zones and clean air zones, scan this QR code or visit – <https://www.dawsongroupvans.co.uk/news/ulez-and-caz-guide-for-van-operators>

Scrappage Schemes

In certain cities (including Bristol, Birmingham, London and Portsmouth) the government has provided funding and support for people and businesses who need to upgrade their fleet to meet the new CAZ or low emission zone requirements.



Government Grants & Support



Plug-in Grant:

Offers up to £5000 off the initial cost of purchasing eligible vans.



Workplace Charging Scheme:

A voucher-based scheme that provides eligible businesses support towards the upfront costs of the purchase and installation of EV charge points.



EV Infrastructure Grant For Staff and Fleets:

This scheme is for SMEs in the UK and covers up to 75% of the cost of installing the infrastructure needed for charge points to operate.

Tax Benefits

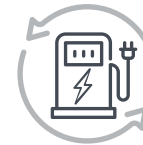


Benefit in Kind (BIK) rates of 2% for zero and low emission vehicles.

Some high polluting vehicles can have rates up to 37%!



Zero road tax for zero emission vehicles, compared to a diesel van costing £320 per year to tax as of April 2023.



VED supplement exemptions for zero emission vehicles with a price of over £40,000 until April 2025.

Vehicles & Fuel Types

Different vehicles types

Internal Combustion Engine (ICE)

A vehicle that is powered by a regular internal combustion engine, burning fossil fuels.

Battery Electric Vehicle (BEV)

A vehicle that runs solely on electricity stored in a battery pack, which powers an electric motor.

Hybrid Electric Vehicles (HEV)




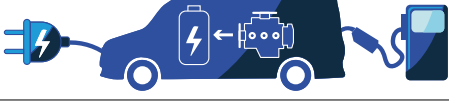



Low emission vehicles that use an electric motor to assist internal combustion engines.

Plug-in Hybrid Vehicles (PHEV)

These vehicles have a larger battery that HEVs that can be charged by being plugged into the grid, but it is also powered by an internal combustion engine.

Hydrogen Fuel Cell Vehicles (HFCEV)

Vehicles that produce electricity through a chemical reaction between hydrogen and oxygen in a fuel cell stack. Refuelling is a lot quicker than BEVs and is done via a pump system like ICES.

Powertrain	Components and energy sources
ICE	
HEV	
PHEV	
RE-EV	
BEV	
H2 Fuel Cell	
H2 Fuel Cell RE-EV	

Different fuel types



ELECTRIC

Battery packs are charged and stores electricity within the vehicle, which then power an electric motor.



BIOFUELS

These are fuels produced from biomass, such as plant and animal waste. For transport, biofuels are blended with petrol or diesel, effectively reducing the overall CO₂ output.



HVO

Hydrotreated vegetable oil (HVO) is an eco-friendly biofuel that uses hydrogen as a catalyst to create a renewable energy source from vegetable oils. HVO100 Renewable Diesel is fully compatible with regular diesel, and can also be used in most ICE vans.



COMPRESSED NATURAL GAS (CNG)

CNG is natural gas mainly made up of methane and is stored under high pressures. CNG's use for vehicles is more common in commercial vehicles as they tend to have more spare storage space for the CNG cylinders.



HYDROGEN

Hydrogen can be mixed with oxygen to create electricity as a fuel source for vehicles. You can refuel hydrogen in a similar way you would a petrol or diesel-fuelled vehicle.

Components of an electric vehicle

DC-DC Converter

distributes power from the battery to required components at required level.

Traction Battery Pack

what powers the electric motor.

Thermal Management System

maintains an operating temperature for the key components within the vehicle

Controller

Regulates the electrical energy from the batteries to the electric motors.

Transmission

what transfers the power from the electric motor to the wheels.

Charge Port

What connects the EV to charging points to charge the battery packs.



Auxiliary Batteries

source of electrical energy for the non-driving elements in the vehicle

Electric Motor

What converts the electrical energy into kinetic energy.

Onboard Charger

Converts the AC supply from the charge port to DC supply.

Power Inverter

What converts the direct current (DC) power to alternating current (AC) power



Available **electric vans** with **Dawsongroup** vans

We currently have a range of different, quality electric vehicles on fleet that are available to rent on either a fixed or flexible rental agreement.

Our dedicated team of experts will be able to support you through every step of your net-zero journey, recommending the most suitable vehicles on a rental agreement that meets your specific business needs.



DIMENSIONS

External		Weights(kg)	
Wheelbase (mm)	3275	GVW	3025
Length (mm)	4959	Kerb Weight***	2025
Width inc Mirrors (mm)	2204	GTW	4025
Height (mm)	1905	Payload	1000

Internal	
Length (mm)	2512
Width (mm)	1636
Load width between arches (mm)	1258
Height (mm)	1397
Rear Aperture Height (mm)	1220
Rear Load Floor Height (mm)	613
Cubic Capacity (m³)	5.3

*** Kerb weight does not take into consideration the driver or passengers.

TECHNICAL DATA

Summary		Engine	
Body Style	SWB-EV	Fuel Type	Battery EV
Transmission	Auto	BHP	136
Gears	1	Battery Capacity (kWh)	75
CO ² Emissions (g/km)	0	Maximum Charge Capacity (kWh)	100
Drive (FWD/RWD)	FWD	Electric Range (Miles)*	205
Charge time AC**	11.5hr	Charge time DC (Rapid Charge)**	45mins

*Electric range figures will depend on variations in weather, driving styles, vehicle load and other factors - please refer to manufacturers website for full info

** Charging times are subject to the power available at the location where the vehicle will be charged as well as factors such as temperature and cable type used. DC Rapid Charge time based on 80% charge at 100 kWh, AC charge time based on 7.4 kWh.

Other Key Features

Seating	3
Warranty (Years)	3
Mileage (k)	100

DAWSONGROUP STANDARD SPECIFICATION

- Air conditioning
- Cruise control
- Bluetooth
- DAB Radio
- USB port
- 'Moduwork' load through bulkhead
- Dual passenger seat
- Adjustable drivers seat with armrest
- Twin side loading doors
- Remote Central deadlocks
- Multi-function trip computer
- Hill Start Assist
- Electric Parking Brake
- Apple Car Play™, Android Auto



TECHNICAL DATA

Summary		Engine	
Body Style	LARGE-EV	Fuel Type	Battery EV
Transmission	Auto	BHP	184
Gears	1	Battery Capacity (kWh)	68
CO ₂ Emissions (g/km)	0	Maximum Charge Capacity (kWh)	115
Drive (FWD/RWD)	RWD	Electric Range (Miles)*	157
Charge time AC**	11.5hr	Charge time DC (Rapid Charge)**	34mins

*Electric range figures will depend on variations in weather, driving styles, vehicle load and other factors - please refer to manufacturers website for full info

** Charging times are subject to the power available at the location where the vehicle will be charged as well as factors such as temperature and cable type used. DC Rapid Charge time based on 80% charge at 100 kW, AC charge time based on 7.4 kWh.

DIMENSIONS

External		Weights(kg)	
Wheelbase (mm)	3750	GWW	3500
Length (mm)	5981	Kerb Weight***	2549
Width inc Mirrors (mm)	2474	GTW	N/A
Height (mm)	2533	Payload	951

Internal	
Length (mm)	3533
Width (mm)	1784
Load width between arches (mm)	1392
Height (mm)	1786
Rear Aperture Height (mm)	1648
Rear Load Floor Height (mm)	695
Cubic Capacity (m ³)	10.2

*** Kerb weight includes 75kg for the driver

Other Key Features

Seating	3
Warranty (Years)	3
Mileage (k)	100

DAWSONGROUP STANDARD SPECIFICATION

- Air conditioning
- Keyless start
- Bluetooth
- DAB Radio
- Heated front seats
- Quickclear heated windscreen
- Electric parking brake
- Rotary gear shift dial
- Dual passenger seat
- Integrated rear bumper step
- Unique 3 bar grille with anodised blue bars
- 270° double-wing rear doors
- Wide bodyside mouldings
- Double locks
- 8 metre charging cable
- Selectable drive modes



TECHNICAL DATA

Summary		Engine	
Body Style	SWB-EV	Fuel Type	Battery EV
Transmission	Auto	BHP	136
Gears	1	Battery Capacity (kWh)	75
CO ² Emissions (g/km)	0	Maximum Charge Capacity (kWh)	100
Drive (FWD/RWD)	FWD	Electric Range (Miles)*	196
Charge time AC**	11.5hr	Charge time DC (Rapid Charge)**	45mins

*Electric range figures will depend on variations in weather, driving styles, vehicle load and other factors - please refer to manufacturers website for full info

** Charging times are subject to the power available at the location where the vehicle will be charged as well as factors such as temperature and cable type used. DC Rapid Charge time based on 80% charge at 100 kWh, AC charge time based on 7.4 kWh.

DIMENSIONS

External		Weights(kg)	
Wheelbase (mm)	3275	GVW	3025
Length (mm)	4959	Kerb Weight***	2025
Width inc Mirrors (mm)	2204	GTW	4100
Height (mm)	1905	Payload	1000

Internal	
Length (mm)	2512
Width (mm)	1636
Load width between arches (mm)	1258
Height (mm)	1397
Rear Aperture Height (mm)	1220
Rear Load Floor Height (mm)	613
Cubic Capacity (m ³)	5.3

***Kerb weight does not take into consideration the driver or passengers.

Other Key Features

Seating	3
Warranty (Years)	3
Mileage (k)	100

DAWSONGROUP STANDARD SPECIFICATION

- Air conditioning
- Adjustable drivers seat with armrest
- Apple Car Play™, Android Auto
- Twin side loading doors
- Bluetooth
- Remote Central deadlocks
- DAB Radio
- Dual passenger seat
- USB port
- Hill Start Assist
- Multi-function trip computer
- Electric Parking Brake



TECHNICAL DATA

Summary		Engine	
Body Style	SWB-EV	Fuel Type	Battery EV
Transmission	Auto	BHP	114
Gears	1	Battery Capacity (kWh)	66
CO ² Emissions (g/km)	0	Maximum Charge Capacity (kWh)	80
Drive (FWD/RWD)	FWD	Electric Range (Miles)*	162
Charge time AC**	9hr	Charge time DC (Rapid Charge)**	35mins

**Electric range figures will depend on variations in weather, driving styles, vehicle load and other factors - please refer to manufacturers website for full info*

*** Charging times are subject to the power available at the location where the vehicle will be charged as well as factors such as temperature and cable type used. DC Rapid Charge time based on 80% charge at 100 kWh, AC charge time based on 7.4 kWh.*

DIMENSIONS

External		Weights(kg)	
Wheelbase (mm)	3200	GVW	3200
Length (mm)	5140	Kerb Weight***	2393
Width inc Mirrors (mm)	2244	GTW	3200
Height (mm)	1910	Payload	807

Internal	
Length (mm)	2831
Width (mm)	1685
Load width between arches (mm)	1270
Height (mm)	1391
Rear Aperture Height (mm)	1261
Rear Load Floor Height (mm)	558
Cubic Capacity (m ³)	6

***Kerb weight include 75kg for driver.

Other Key Features

Seating	3
Warranty (Years)	3
Mileage (k)	Unlimited

DAWSONGROUP STANDARD SPECIFICATION

- Air conditioning
- Apple Car Play™, Android Auto
- Bluetooth
- DAB Radio
- Cruise control
- Headlight Assistant
- Reverse camera
- 17" steel wheels
- Tyre pressure monitoring
- Active brake assist
- Attention assist
- 180 degrees opening rear barn doors
- Heated, electrically adjusted mirrors
- Twin sliding doors
- Driver and co-driver airbag
- Type 2 charging cable

The **perfect** **solution** for transitioning to **electric** vans

Dawsongroup vans range of customisable rental solutions will help give businesses the confidence to start adopting electric vans, without having the worry of owning a relatively new, depreciating asset.

Through our flexible and fixed rental solutions, we can help overcome the high initial cost barrier associated with electric vans, whilst also giving the customer full control over its fleet and the reassurance knowing that they can adopt the latest, cleanest technology in the most risk-free way.



Scan the QR code
to begin your
transition to
electric vehicles!



Suitability of Electric Vans for businesses

Current electric van market in numbers

42,000+
electric vans
registered as of
December 2022

16,744
battery electric
vans registered
in 2022

5.9%
of all vans
joining UK roads
last year were
electric vans.

1 in 22
vans joining UK
roads in Jan-23
was a battery
electric van.

More than **90%**
of LCV fleets that trial
electric vans opt to
keep them on long
term.

Market influences for adopting EVs within 3 years:

55%

driven by better environmental impact

50%

driven by a lower total cost of ownership

40%

would adopt to improve company image

Benefits of adopting electric vehicles



Eco-friendliness

Electric vans produce no CO² or NO_x emissions when being driven, meaning widespread adoption of electric vehicles has the potential to dramatically improve air quality.



Running costs

Typically electric vans are considerably cheaper to run than diesel alternatives. The cost per mile of electricity is lower than petrol and diesel, even with the recent rises in energy prices. There are also fewer moving parts to malfunction and they have better braking systems, reducing maintenance costs.



Buying Incentives

Financial incentives such as the government grants, including the Plug-in Van Grant, and substantially reduced tax burdens are helping break down the financial barrier to transition over to EV.



Daily driving incentives

People driving EVs are rewarded by local authorities to encourage EV adoption. Some of these rewards include free parking in many areas and exemptions from the paying emission zone charges.



Vehicle Availability

With current low availability of new diesel vans due to supply chain issues, new electric van availability could soon exceed new diesel vehicles. With new electric vans having considerably shorter lead times, adopting electric vans on a flexible rental model could help businesses keep up with current demand, and trial EVs without a long term commitment.



Driver comfort

Electric vans will offer a more pleasant drive for LCV drivers. In addition to being quieter, the instant torque provides a smoother, quicker drive. E-vans also come with a range of convenience features, including sophisticated sat-nav systems and the ability on many vehicles to set the climate control system to your preferred temperature while charging before driving, saving time and charge.



Company Image

With a growing importance for businesses to act sustainably and reduce carbon emissions, adopting electric vans and running a zero emissions fleet will help achieve this.

Main barriers for adopting electric vans



Vehicle range anxiety

this is the biggest issue amongst the LCV industry. While driving range is improving all the time, electric vans will not travel as far on a single charge as conventional vans will on a single tank of fuel.



Charging time

Even though there are rapid charging systems available which can achieve 80% charge in around 40 minutes, the best-case scenario will take longer to recharge an e-van than to refuel a diesel van.



Charging availability

In addition to longer charging times, there are also currently a lot less charging stations available when compared to the current diesel and petrol station infrastructure.



Purchase cost

Despite the long-term financial benefits EVs offer and the range of incentives available, due to the more technologically advanced components involved, EVs do have a higher upfront cost than ICE vehicles.



Vehicle Weight

Electric mobility technology is also very heavy. Things such as more battery packs involved with electric vans means that payloads for these vehicles are lower than ICE vehicles. As e-mobility technology advances to improve power density, this will improve.



Range variance

As with all vans, you need to take the efficiency of an electric van as quoted by the manufacturer with a pinch of salt. They are very open about the factors which may impact the vehicle efficiency – such as payload, driving style and even the weather.



Battery performance over time

An unavoidable reality of all electric vehicles is that their batteries deteriorate over time, meaning they gradually begin to hold less charge. This, however, is why most battery packs are covered by extended warranties (up to eight years in some cases), ensuring they see out the working life of the van.



Residual values

At present, there is uncertainty in the used market about electric vans, meaning that they currently lose value faster than their diesel counterparts. However, some used electric vans have started to go through trade auctions at higher prices which is a good sign.

Driving differences for electric vans



Smooth acceleration and braking will help achieve the most range out of your vehicle



Anticipate the need to brake and take your foot off the accelerator earlier than you usually would. The vehicle will use the engine brake and recharge the battery at the same time.



Release the accelerator when driving downhill as the forward will recharge the battery



Check the tyre pressure regularly as deflated tyres can cause you to lose charge quicker



Use the vehicles onboard apps and data regularly to learn more about your driving habits to get the most out of your vehicle



Programme your EV to preheat or cool before you start your journey, and where possible with the vehicle still plugged in charging. Saves your battery life and allows you to climatise your vehicle.



Considerations before transitioning to electric vehicles

Charging Times & Infrastructure

Simply put, it takes longer to recharge an electric van than filling the tank of a regular van. DC rapid charging will charge your battery back up to 80% in under 60 minutes on most vans with the fast-charging capability. Home charging point will get you back to 100% overnight, while a 3-pin plug charger might take a full day. Collaborating with our Dawsongroup power solutions business, we are able to offer a comprehensive solution for your transition to EVs, taking into account your future power requirements and charging capabilities when planning your journey to electrification.

Range Anxiety

It's a real thing but based on the simple fact that electric vans will not travel as far on a 100% charge as a ICE van will on a full tank. However, a lot of electric vans are now capable of travelling nearly 200 miles on a single charge. Few van drivers - aside from last-mile delivery drivers - are driving 200 miles in a single day, so overnight charging at off-peak rates should help reduce range anxiety.

Higher Purchase Cost, But Longer-Term Savings

While the initial purchase price may be higher, you do save money over the vehicle's lifetime in terms of lower operational and maintenance costs. Hiring electric vans also removes the risk of having to pay a high initial cost and owning a depreciating asset.



Considerations before transitioning to electric vehicles continued ...

Vehicle Weights & Payloads

Electric vehicle technology is currently large and heavy, meaning it increases the gross vehicle weight of a van, decreasing the payload it can carry. The Government has foreseen this issue and remedied it by increasing the GVW for electric vans from 3.5 tonnes to 4.25 tonnes.

Range Variance

If a van manufacturer claims a 205-mile range on its electric van, you can safely assume you'll most likely get closer to 180 miles. Stated miles come from test environments where the vans are left running over extended periods of time. In real life, vans are always being stopped, started, windows rolled down, harsh braking and many more things which impact the vehicles charge. Also, the chemicals in batteries do not react well to colder conditions, which can also reduce effective range in the winter.

Battery Lifespan & Longer Warranties:



Like all batteries, the ones in electric vehicles degrade over time, but most manufacturers are so confident in their technology that they provide up to 8-year warranties on the batteries! That kind of warranty terms will more than cover you for the duration of a lease.





Charging and Infrastructure

Different types of chargers

Similar to phones, different electric vehicles will have different charging connectors that fit into the vehicle.

Type of charger	When to use	Exact charger types	Charger Visual	Charger features:
Slow & Fast Charging (Alternating Current)	This type of charger is typically used for a planned charge e.g. Home charging	Type 1		Common for American vehicles Single-phase plug Can charge at a speed of 3.7 to 7 kW.
		Type 2		Standard for European and Asian vehicles Can carry three-phase power if available Can charge at a speed of 3.7 to 7 kW – or 22kW if charging via three-phase

Type of charger	When to use	Exact charger types	Charger Visual	Charger features:
Rapid Charging (Direct Current)	This type of charger is typically used for en route charging e.g. Public charging stations	CHAdEMO		Can charge at a speed of 50kW and 100kW
		Combined Charging System (CCS)		Can charge at a speed of 50kW, 150kW and 350 kW

Most DC rapid charging stations will have cables with both a CHAdEMO and CCS connector attached so you will just have to choose which fits to your vehicle socket.

Primary concerns around charging

In a recent survey of 500 van drivers ...

Charging Availability

52%

52% said they would not have access to charging at home, and only 20% had chargers currently at work

Charging Time

44%

44% didn't think they would have time to charge within the working day

Charging Knowledge

42%

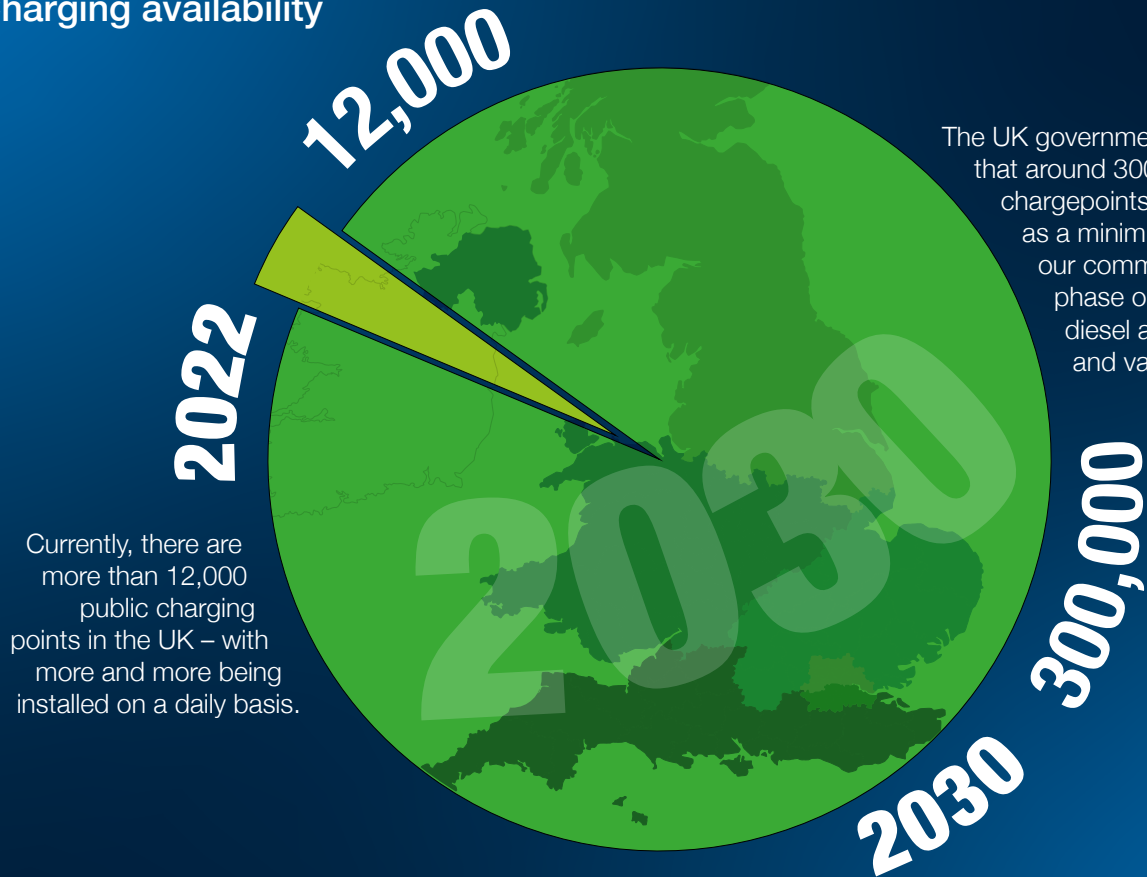
42% didn't know how to charge an electric van

Charging Cost

29%

29% said the initial cost of electric vans and charging infrastructure is a barrier

Charging availability



Currently, there are more than 12,000 public charging points in the UK – with more and more being installed on a daily basis.

The UK government estimates that around 300,000 public chargepoints will be needed as a minimum to support our commitment to phase out sales of new diesel and petrol cars and vans by 2030.

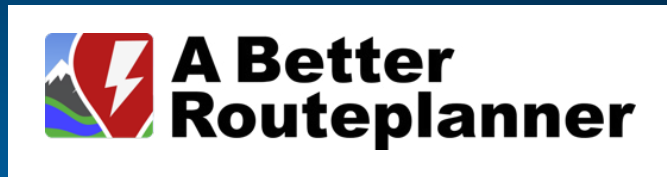


Helpful Tools

Most electric vans will come with a built in sat-nav that will have a database of available charging stations for the driver if needed.

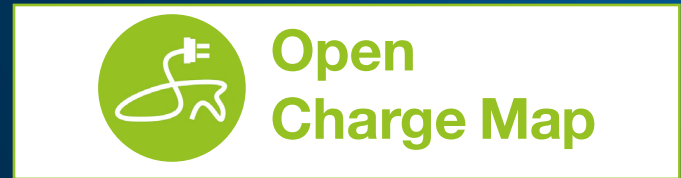


Zap Map allows you to filter on the type of connection you require, what network you prefer, payment methods and location - to identify chargers available nearby that work for you.



A Better Routeplanner allows you to enter your exact electric vehicle model and your preferred charger type to calculate the best route, including details of approx. cost per charge and the level of battery you should expect upon your arrival.

In addition to this, there are plenty of apps drivers can use to find stations nearby and plan routes around available chargers ...



Open Charge Map is a non-commercial, non-profit, electric vehicle data service, providing a high quality, public, free, open database of charging equipment locations globally.



Did You Know...

Being part of Dawsongroup, we can provide you with a wide range of supply chain solutions outside of commercial van rental?

One of these solutions is through our **Power Solutions** business unit who offer renewable energy solutions to help reduce your energy costs and carbon emissions.



For more information about our Power Solutions please scan the QR code.

Dawsongroup | power solutions

Dawsongroup | vans

Are **you ready** to introduce **electric vans**
the right way? **Get in touch** with our
team of experts today

contactus@dawsongroup.co.uk

0844 381 9000

dawsongroupvans.co.uk



Scan the QR
code to begin
your transition to
electric vehicles!

