Why it's time to transition to an e-LCV fleet

How to start the journey towards emission-free business mobility

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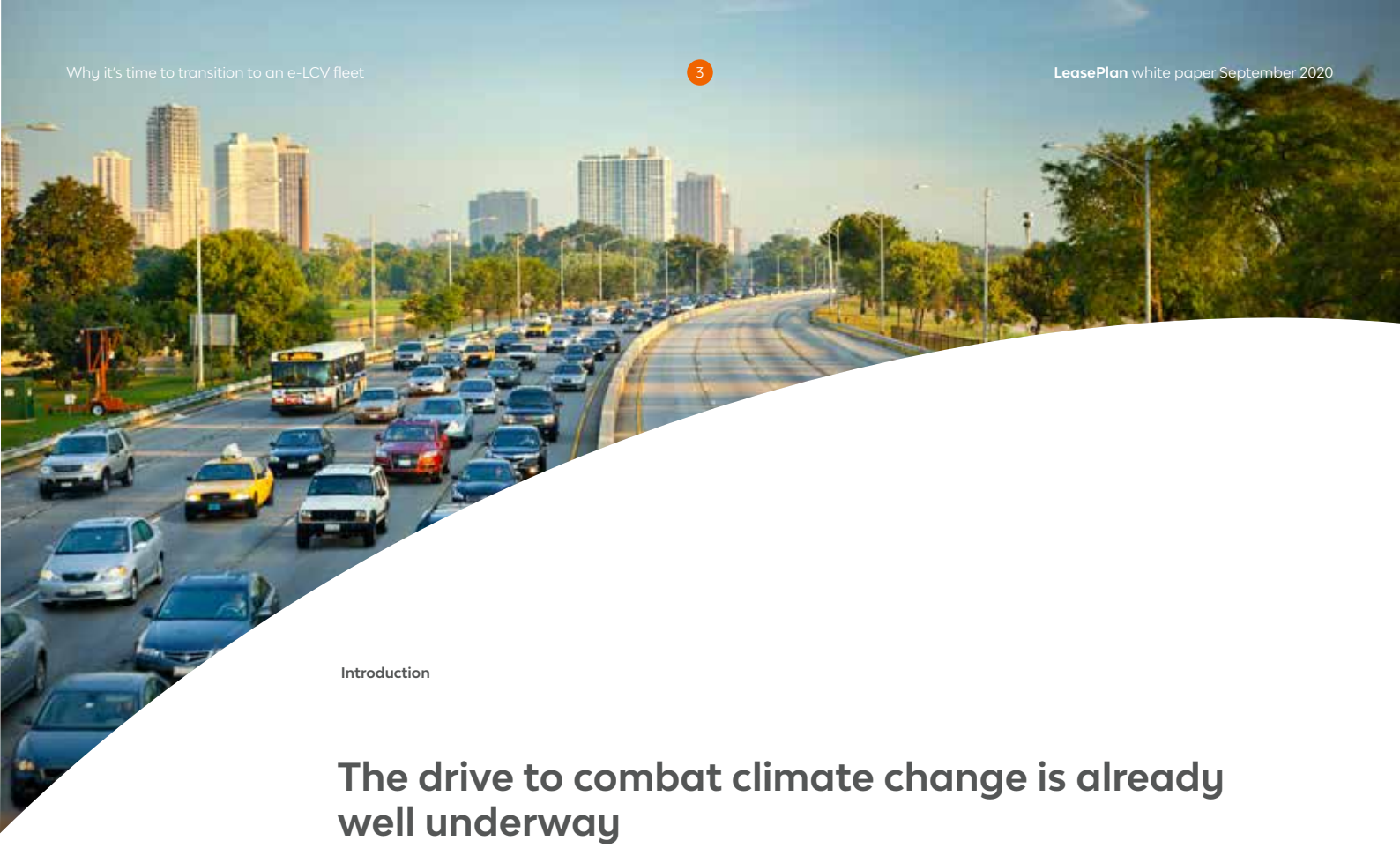


Introduction

The drive to combat climate change is already well underway

The role of businesses in achieving as many zero-emission miles as possible, as fast as possible

Cities have long been battling congestion and air pollution, and the pressure is further increasing as the number of home deliveries and parcel deliveries – so-called 'last-mile' delivery services – continues to rise. To tackle this problem, governments across Europe are stimulating the transition to electric driving in a push to achieve as many zero-emission miles as possible, as fast as possible. For example, a growing number of local authorities are introducing tougher legislation, clean-air and low emission zones (LEZs) to restrict high-polluting vehicles in urban areas. Electric light commercial vehicles (e-LCVs) are a good way of circumventing this legislation. In addition to safeguarding the access to city centres that is essential for their business continuity, companies benefit from favourable tax rates for e-LCVs to offset the higher purchase price, plus soon-to-be-launched e-LCV models offer more tech than ever before. This paper explores how – with electric vehicles now on the verge of becoming mainstream – the next wave of electrification is set to revolutionise the light commercial vehicle segment. Read on to find out not only why it's the right moment for companies to ignite the transition towards an e-LCV fleet, but also how to get started on the journey towards emission-free business mobility today!

Why should you include e-LCVs in your fleet?

The introduction of LEZs continues to gather pace

Tighter emissions regulations for ICEs are propelling electric vehicles into the mainstream

The implementation of ever more – and stricter – low emission zones (LEZs)[i] in cities across Europe is continuously strengthening the business case for the e-LCV. Companies cannot afford to run the risk of being unable to enter a city centre to conduct their core business activities. Whilst today's relatively new ICEs[ii] are still allowed in almost all city centres, the speed with which new LEZs are being introduced and the trends in terms of the restrictions that are being imposed underline the risks associated with ICE vehicles.

With zero tail pipe emissions, electric vehicles are well placed in this respect. Moreover, depending on where the EV's battery is produced and where the EV is ultimately driven, EVs have a smaller carbon footprint than ICEs over the entire vehicle lifecycle[iii]. As a result, and especially in combination with renewable energy and the ability to deliver electricity back to the power grid, EVs and hence e-LCVs have a bright future.

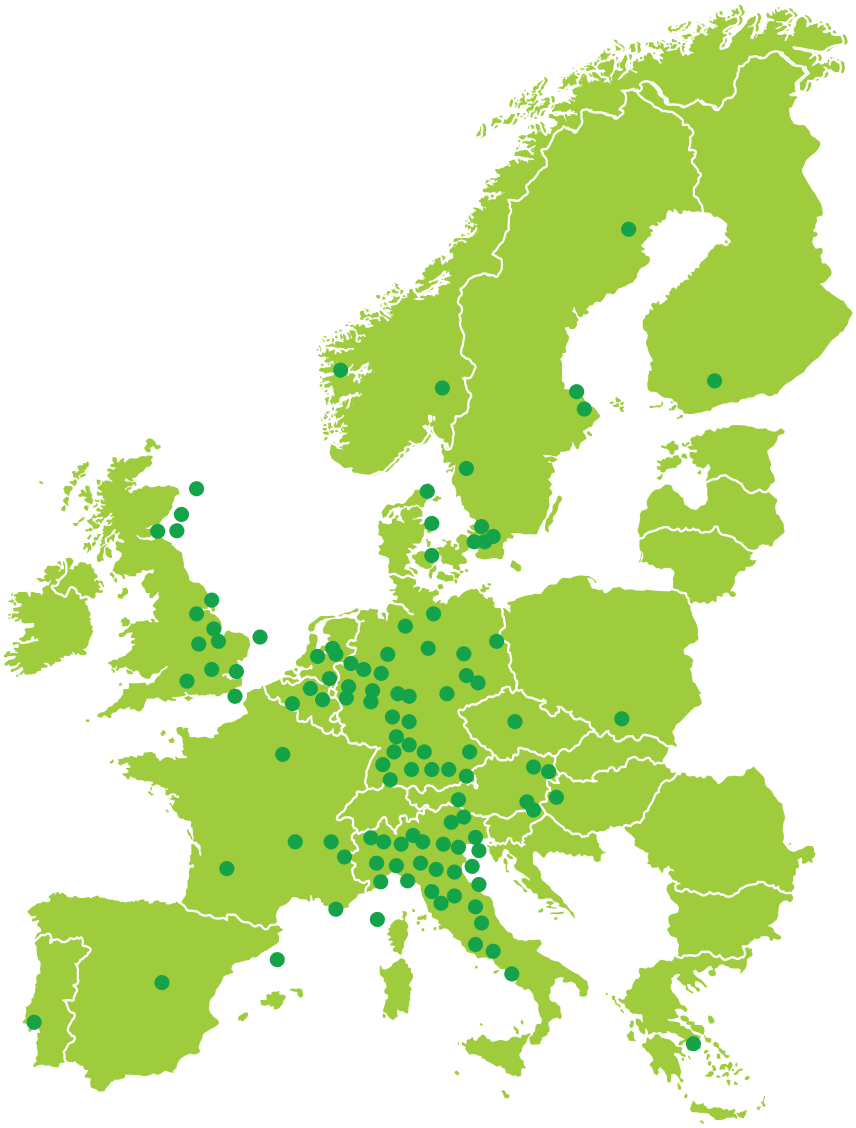
Electric vans work best for fleets that cover short distances and provide so-called 'last-mile' delivery services. These companies largely operate in urban areas and make multiple stops on a route from the depot.

Why should you include e-LCVs in your fleet?

If you are involved in last-mile deliveries, making the switch to e-LCVs will:

- Decrease your fleet's CO_2 emissions
- Contribute towards meeting air quality targets
- Prepare you for LEZs appearing in cities across Europe over the next few years (see Figure 1 for the latest status)

Figure 1: Low emission zones across Europe[iv]

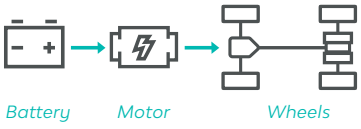


Electric vehicle technology
How is the market evolving?

There are two main types of electric vehicles (see Figure 2). In pure electric vehicles (BEVs), the battery is the only power source. Examples include the Nissan E-NV200 or the Renault Master ZE. In contrast, plug-in hybrid vehicles (PHEVs) have both a battery and an internal combustion engine (ICE), with the electric motor and/or the engine providing drive. Examples include the Mitsubishi Outlander PHEV and the Ford Transit Custom.

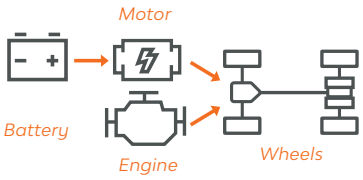
Figure 2: The two main types of electric vehicles

01. Pure electric vehicle ('BEV')
Battery is only power source



e.g. Nissan E-NV200, Renault Master ZE

02. Plug-in hybrid ('PHEV')
Battery and internal combustion engine (ICE) with motor and/or engine providing drive



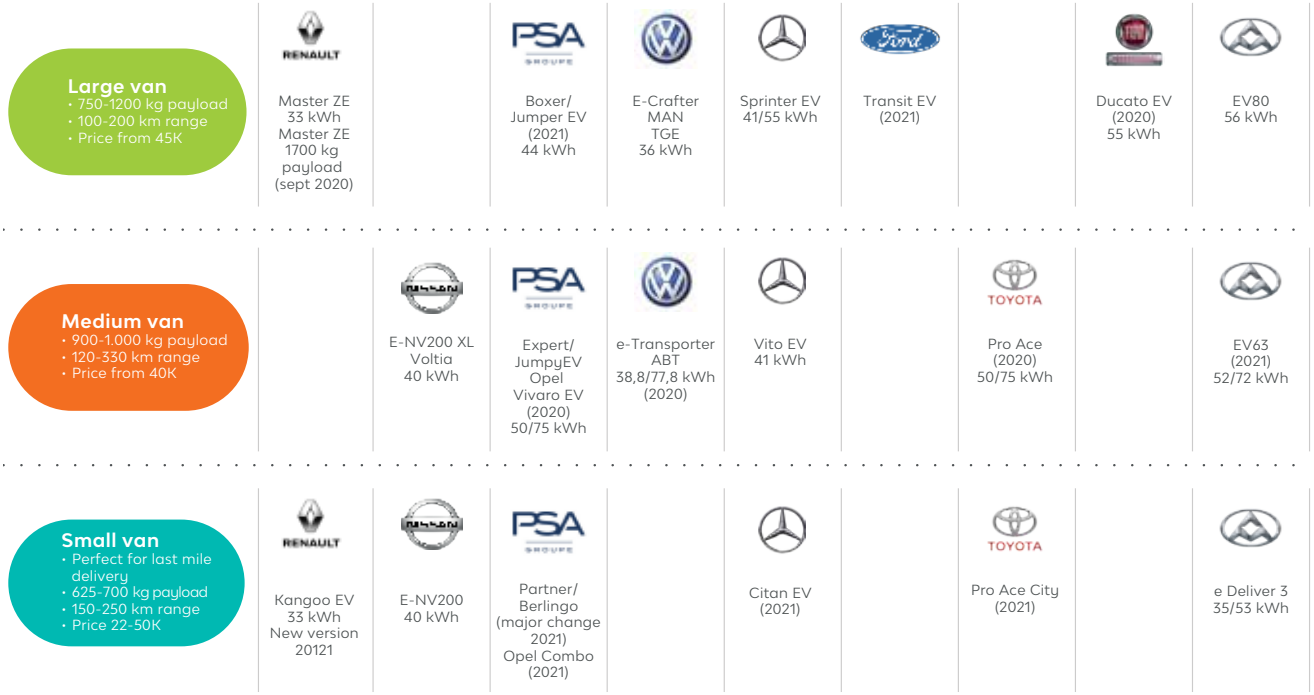
e.g. Ford Custom Transit

Which e-LCV models are currently available on the market?

While manufacturers were initially focused on launching small electric vans, many are now turning their attention to electrifying the larger vans in their ranges, because research has revealed that last-mile businesses tend to be focused on cargo volume rather than maximum payload. Therefore, although the current availability of e-LCV models is mainly in the small segment, the situation is changing rapidly with the introduction of mid- to large-size e-LCVs, such as the Mercedes eVito and e-Sprinter, along with many others.

e-LCV technology & market developments

Figure 3: Examples of currently available and soon-to-be-launched e-LCVs



How do e-LCVs measure up in terms of performance?

Universal truths and frequently asked questions

Pure electric vehicles generally offer a very pleasant driving experience. There are a few universal truths:

- **Refinement**: Electric vans are quieter than ICEs at all speeds. While that can result in wind and road noise becoming more noticeable, overall they offer a far more refined and relaxing driving experience.
- **No conventional gearbox**: Since electric vehicles do not have a clutch, they are less tiring for the driver in congestion. Additionally, the running costs are lower over the total life of the vehicle.
- **Brakes**: e-LCVs require less braking because the electric motor turns into a generator when the accelerator is not in use. This process – which is also known as 'one-pedal driving' – not only recovers energy to top up the batteries, but also acts to slow down the vehicle. Less use of the conventional brakes reduces overall wear and tear, and hence costs.
- **Road handling**: Since the motor provides maximum torque instantly, the acceleration is responsive meaning that e-LCVs are usually quite sprightly to drive. Moreover, the positioning of the heavy battery and other components low down in the chassis reduces body roll and increases road holding in the turns.

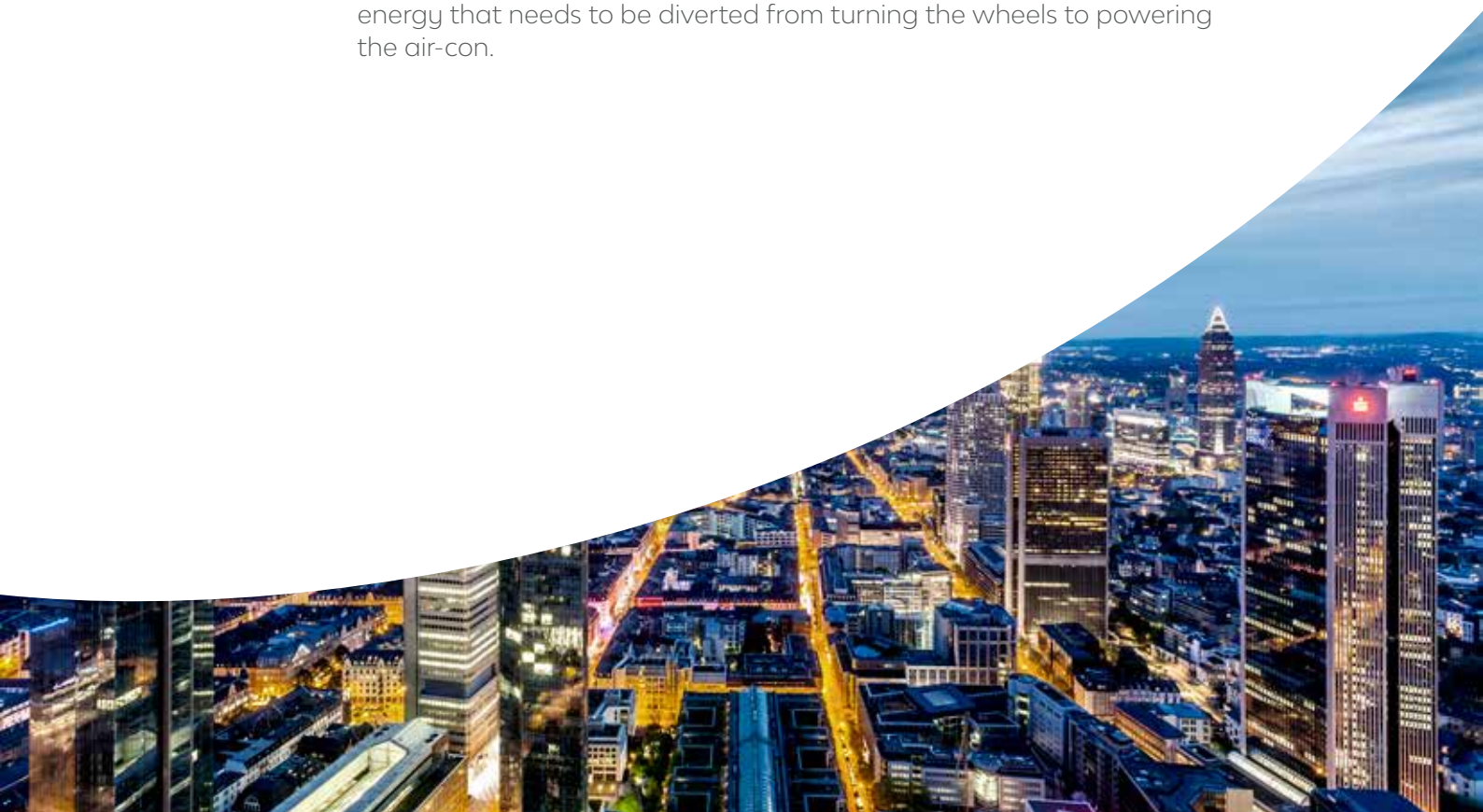
What's the range of an e-LCV?

In large and medium e-LCVs, the range generally depends on how many battery packs are fitted. This decision can be influenced by cost factors or the required range and payload capabilities. The battery technology powering e-LCVs has improved dramatically over the past five years. Most new e-LCVs have an official range of around 160 km, with some manufacturers even claiming that their latest vehicles can achieve a range of up to 270 km. However, as everyone knows, performance in test conditions can differ from reality so it should be noted that actual ranges can vary depending on driving style (e.g. speed, acceleration), payloads or even the climatic conditions. For example, the cold affects battery performance (see below), so a vehicle with an official range of 160 km could turn out to achieve just 100-120 km in everyday usage. Some car makers, such as Renault, even state different real-world ranges for summer and winter driving.

In the case of last-mile delivery services, today's average range capabilities are usually sufficient for the e-LCV to be able to do a day's work without having to be recharged. Once the van is back at the depot, it can then be recharged.

Why don't e-LCVs like the cold?

The chemical composition of the batteries means that not just e-LCVs but all electric vehicles suffer from reduced battery efficiency in cold weather. This is not helped by the extra demands placed on them by drivers in cold weather. Turning on the heater will reduce the range, for example. Having said that, technology is improving rapidly; for example, heat pump technology is used in the Renault Kangoo ZE to reduce the disruption. Although the situation is less pronounced in the summer, switching on the air-conditioning will likewise reduce the maximum range indicated by the on-board computer, simply because of the energy that needs to be diverted from turning the wheels to powering the air-con.



Are there driving-licence issues with e-LCVs?

The added weight of the electric engine and its relatively heavy components such as the battery can pose a potential problem when it comes to larger e-LCVs. This is because the legal maximum gross vehicle weight (GVW) permitted in the standard category of most driving licences across Europe is 3.5 tonnes, and many large vans already use every kilogram of this allowance. Since the basic weight of battery-powered electric vehicles is typically more than that of a vehicle powered by a diesel engine, this leaves less capacity for payload and therefore reduces the amount of cargo that a driver can legally carry within the 3.5-tonne limit.

In many European countries, governments have counteracted this in a process referred to as the 'alternative fuel payload derogation', allowing standard licence holders to drive e-LCVs weighing up to 4.25 tonnes. This extra allowance compensates for the additional weight of the electric technology, enabling an e-LCV to match a diesel equivalent in terms of payload. This could potentially offer future benefits in terms of ranges too, since in effect it also allows manufacturers to use some of the weight allowance to increase the number of batteries on board.

> *"The e-LCV demand from the client side continues to rise, especially from public authorities, but also from courier services, contractors and multinationals that attach great importance to corporate social responsibility."*

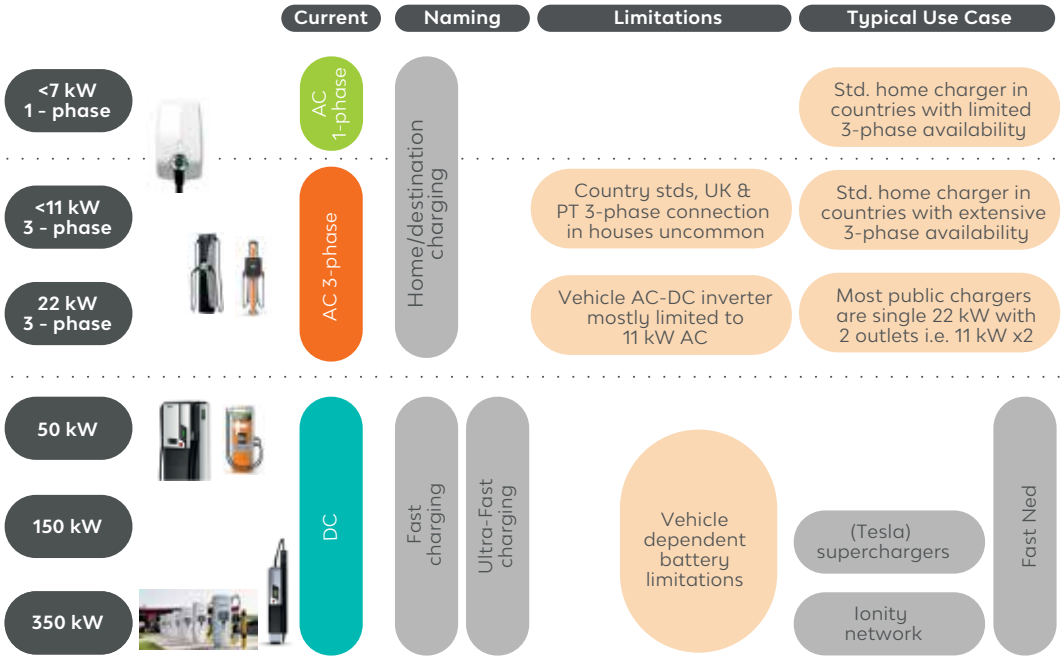
Charging

Charging e-LCVs
Different speeds for different needs

Charging is one of the most important considerations when considering a switch to any pure electric or plug-in hybrid vehicle. Since e-LCVs tend to be used throughout the working day, rather than just being driven to and from work as is the case for electric cars, depending on the intensity of their usage they may have to be charged more frequently in order to keep them running.

Charging times for electric vans vary depending on the power of the charging system, but even in the best-case scenario it will take longer to recharge an e-LCV than to refuel an ICE van. There are three main types of power outputs (in kW) for EV charging, resulting in three different charging speeds: rapid, fast and slow. Rapid chargers are predominantly based on DC charging and can deliver an 80% charge in around 40 minutes. Home charging stations (AC) can complete a full recharge overnight, and charging from the mains may take an entire day (see Figure 4).

Figure 4: EV charger types



Charging

What are the various charging options?
Home/workplace charger

Chargers located at home and at the workplace are the primary way to charge EV batteries on a day-to-day basis. Today's home/workplace chargers are equipped with smart technologies enabling them to adapt to the available charging capacity. Here are three best practices to make optimum use of home/workplace charging:

- Charge overnight at home or at the workplace to ensure you leave with a full battery the next morning.
- Make maximum use of idle times at the workplace, such as lunchtime, shift changeovers or time spent doing administration or in meetings.
- Install an energy management system for your e-LCVs. This will allow you to use real-time measuring and tracking systems to gain an understanding of energy usage patterns. As a result, you can improve your efficiency by reducing your energy consumption and also costs, such as by identifying opportunities for charging at off-peak times.

Charge card

Chargers located at home or at the workplace are operated by a charge card (or 'charge key'/'charge pebble') that usually also works with all available public charge points in Europe. The charge card is typically linked to a mobile app for Android and Apple devices which provides insights into the location of all the available chargers, provides the opportunity to start and stop a charge session and offers many more functions. The invoice is made available in digital format and can be combined with the fuel invoice.

Driver reimbursement

Home chargers normally come with a seamless reimbursement service for the driver based on split-billing, with the electricity costs for vehicle charging being listed separately from other usage.

Management information

All data generated by the charging points and users of the charging services is saved into a data lake, ensuring a single version of the truth and forming the basis for easy-to-customise reports. Both the company and the driver have access to all relevant charging information – such as status of charge point, reports about usage and financial data like reimbursement for energy costs – via a portal.

Government incentives

The costs of EVs are moving ever closer to ICE equivalents thanks to substantial subsidies

The EV transition is well underway. By 2030, the global EV production is forecast to be almost five times higher than in 2020[v], by which time between 50% to 70% of all new passenger cars and up to 40% of all new vans sold will be ultra-low emission. By 2040, all new cars and vans will have to be effectively zero emission. EV product availability, charging infrastructure developments and government incentives are all important factors in achieving these targets.
In Europe, the sustainable and circular economy was high on the agenda prior to the Covid-19 outbreak, and the coronavirus crisis has only reinforced the need for a more sustainable world. Indeed, the national stimulus packages available in Europe today indicate that many governments are focusing on a 'green recovery', in particular by offering incentives. Financial support is expected to be complemented by a push from governments and corporates on climate and air-quality agendas, such as government bans on the sale of ICEs and corporate initiatives such as the EV100 Climate Group. Figure 5 shows the most common types of government incentives (split into one-off and recurring incentives) as well as some local examples.

Figure 5: Government incentives are diverse in type and very significant for EV adoption

	Type of government incentive	Country example
One-off	Purchase subsidies	Up to € 9,000 per EV
One-off	Registration tax exemption	No registration tax (BPM) for EV
One-off	Charging infrastructure	£350 off the cost of purchasing & installing a home charging point
Recurring	Road tax & tolls	EV pay only 50% of road toll tariff
Recurring	Benefit in kind	EV drivers will pay 0% BIK in 2020

Government incentives

Prepare for the incentives supporting the infrastructure rollout

Many governments are currently offering an array of tax credits, rebates and grants to help put drivers on the road to a more sustainable future. With the incentive programmes at peak level, now is a good time for not only private individuals, but also companies to make use of the momentum.

Since national incentives and benefits for EVs and also EV chargers vary greatly across Europe, it is wise to check the conditions that apply in the local situation. Some incentives are offered as a discount at the time of purchase of the vehicle and/or the installation of the charge point, in which case they will be coordinated by the leasing company such as LeasePlan. Other incentives may need to be requested online (via the relevant governmental body) after purchase and/or installation has been completed. Therefore, you are always recommended to read the small print and to prepare any relevant documentation prior to ordering a new e-LCV and/or charge point.

Assessing the total cost of ownership
Positive outlook

Different EV fiscal and legal frameworks are resulting in different driver and fleet owner preferences and country-by-country requirements for EVs, which means that EV maturity currently varies between the countries.

The total cost of ownership for an e-LCV differs from that of an ICE vehicle in the following key areas:

- Investment value
- Fuel
- Road taxes
- Tolls
- Cost per mile

In terms of the list price, e-LCVs tend to cost more than equivalent diesel or petrol models. Although these higher catalogue prices are often compensated for by government subsidies, there is still a large gap due to significant OEM discounts on ICE LCVs. As for fuel, the cost of electricity is much lower than diesel or petrol as electricity is not subject to fuel duty. Particularly in these two areas, for fiscal reasons, there can be substantial differences in the operating cost advantages of EVs between countries.

When it comes to maintenance costs, although potential owners and operators of e-LCVs generally understand that the daily running costs will be lower than for ICEs, many of them believe that they will cost more to service due to the perceived complexity of the electric drivetrain components. In fact, e-LCVs tend to be cheaper to maintain than diesel vehicles, as they have fewer moving parts; there are no pistons pumping up and down, no oil to change and no clutch in the gearbox. Moreover, the powerful braking effectiveness of the motor can even help brake pads and discs to last longer.

What are the real costs of an e-LCV?

Many drivers keep their engines running while they are interacting with customers, but excessive idling comes at a cost: it wastes fuel, generates harmful emissions, creates unnecessary noise and reduces engine life. Electric vehicles do not idle; there will only be a minimal drain on the batteries if e.g. phones are being used.

The outlook for the total cost of ownership for e-LCVs is positive, as new OEMs are increasingly developing EVs for market launch at a list price comparable to their ICE equivalents. This is possible because the new vehicles are being designed as EVs from the outset rather than being 'reconfigured' ICEs. In addition to improving the price point of EVs, this trend will also reduce the need for EV drivers to compromise on payloads. Moreover, the price of batteries is anticipated to fall due to new technologies, plus there are continuing economies of scale in EV production and an expected increasing number of subsidies and tax breaks.

Overcoming resistance to e-LCVs
Highlighting the benefits of electrification

Despite all of the aspects covered above, there may still be some doubts about transitioning to e-LCVs. Some common concerns include:

- Payload limits
- Driver preferences
- Charging infrastructure/range anxiety
- Technological risk
- Commitment from the executive board
- Organisational changes
- Cost

Figure 6: Resistance to e-LCVs

Tips for counteracting concerns

Evaluate actual payload needs: If payloads are an issue, evaluate your business needs and consider starting by transitioning part of your fleet – where lower payloads are required – to e-LCVs rather than the whole fleet in one go.

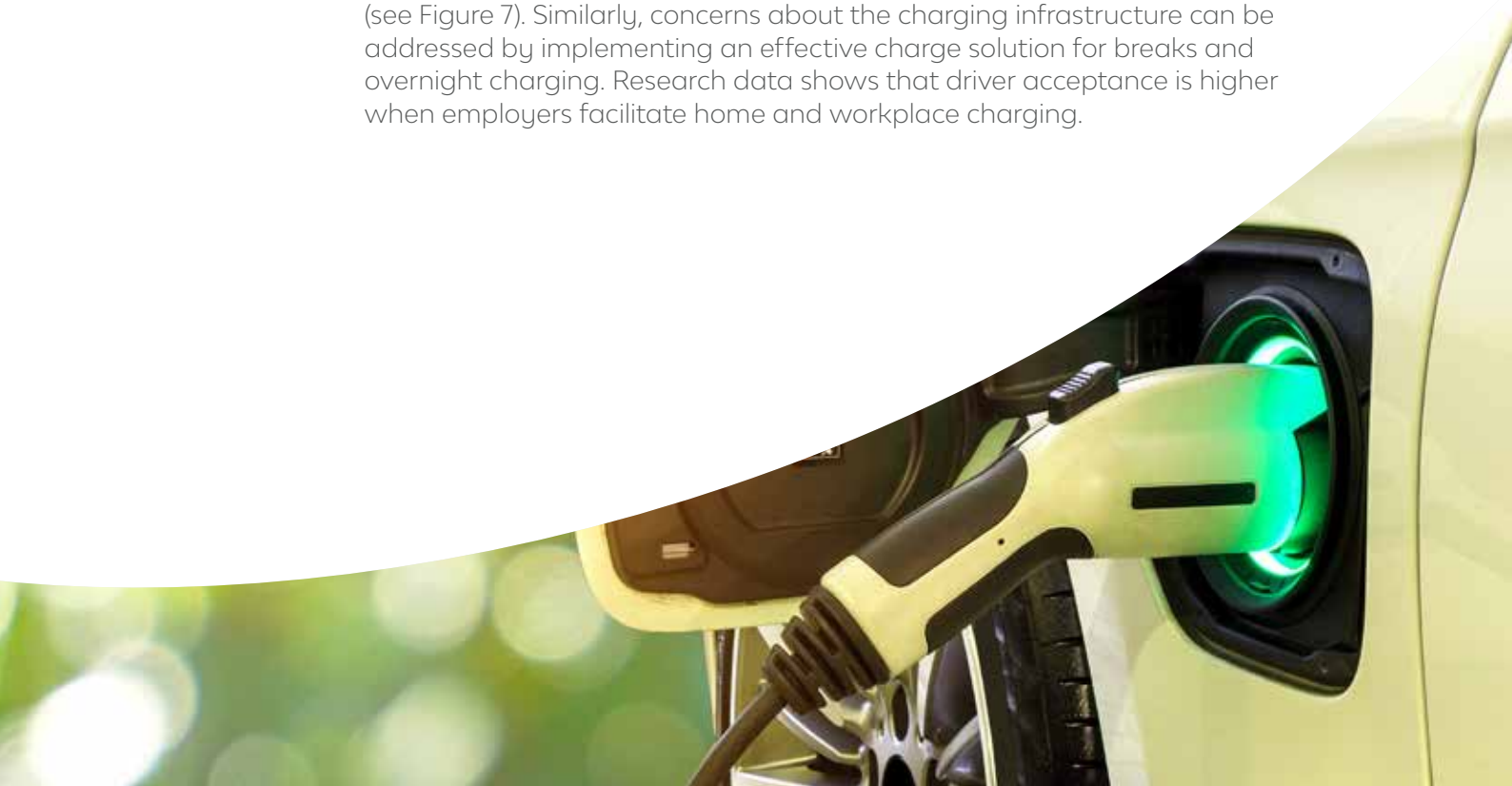
Investigate employee resistance: It is often assumed that drivers are averse to EVs, but valuable lessons can be learned from the experiences of EV passenger-vehicle drivers. Recent studies show that 68%[vi] of existing EV drivers indicated they would never switch back to an ICE. Drivers mainly prefer EVs because of:

- No tail pipe emissions
- Fast acceleration
- Silent driving mode
- 'One-pedal' driving
- Home/workplace charging means no time wasted at fuel stations

Research shows that all of the above statistically reduces driver stress by 16%[vii], so there are tangible benefits for employees, not to mention for your company and for society as a whole due to the associated improvements in road safety.

Mitigate technological risks by leasing: There is no denying that the world is advancing rapidly, and there is a risk of getting stuck with outdated technology. With the costs and contract duration clear right from the start, operational leasing is a very effective way of mitigating potential future risks associated with e-LCVs while taking immediate advantage of the benefits.

Analysis and planning: In the face of range anxiety, it is important to understand the true nature of your fleet operation. Some LCV operations can be more easily adapted to electric than others, so analysis of routing and utilisation is key to identify which part of the LCV fleet can be transitioned to electric first (see Figure 7). Similarly, concerns about the charging infrastructure can be addressed by implementing an effective charge solution for breaks and overnight charging. Research data shows that driver acceptance is higher when employers facilitate home and workplace charging.



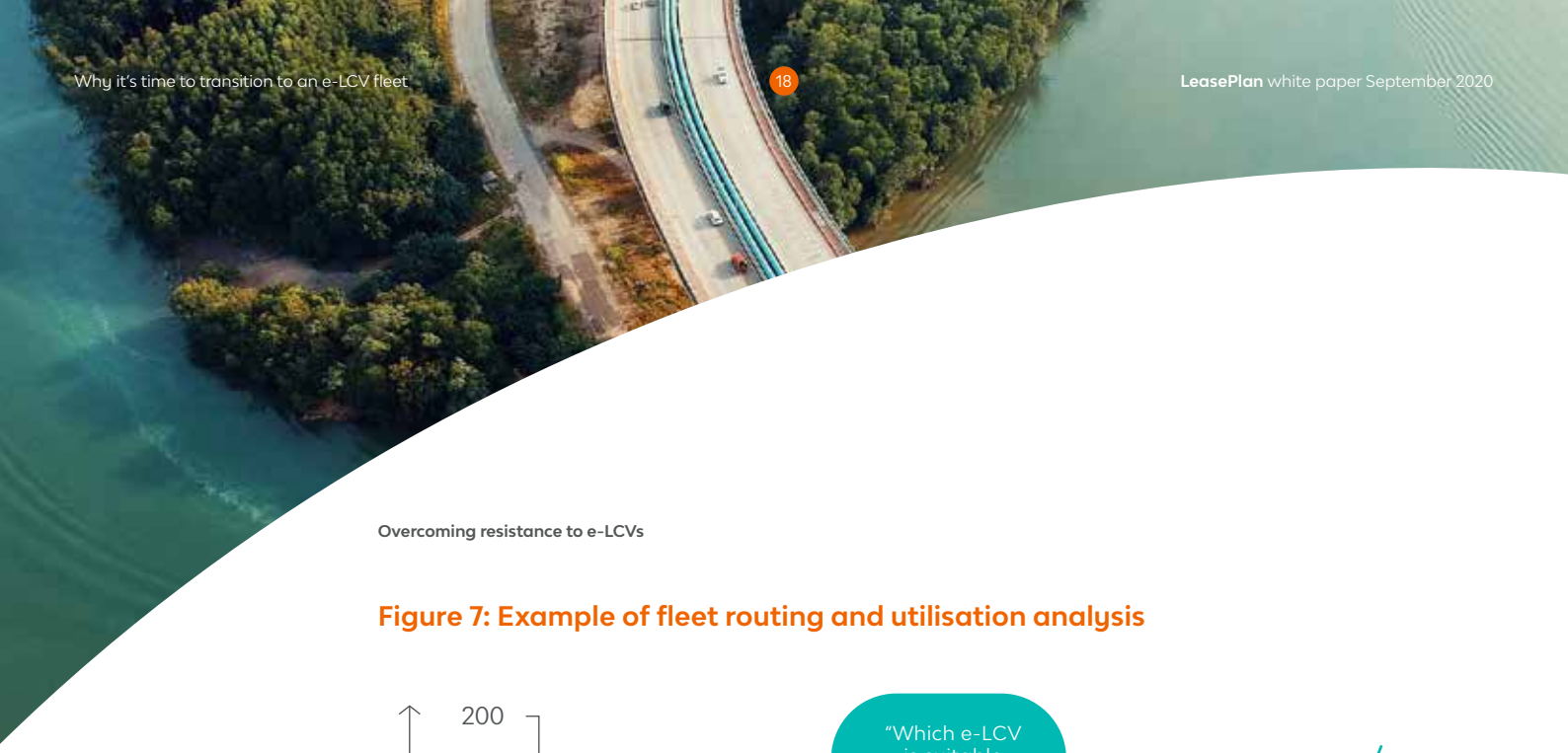
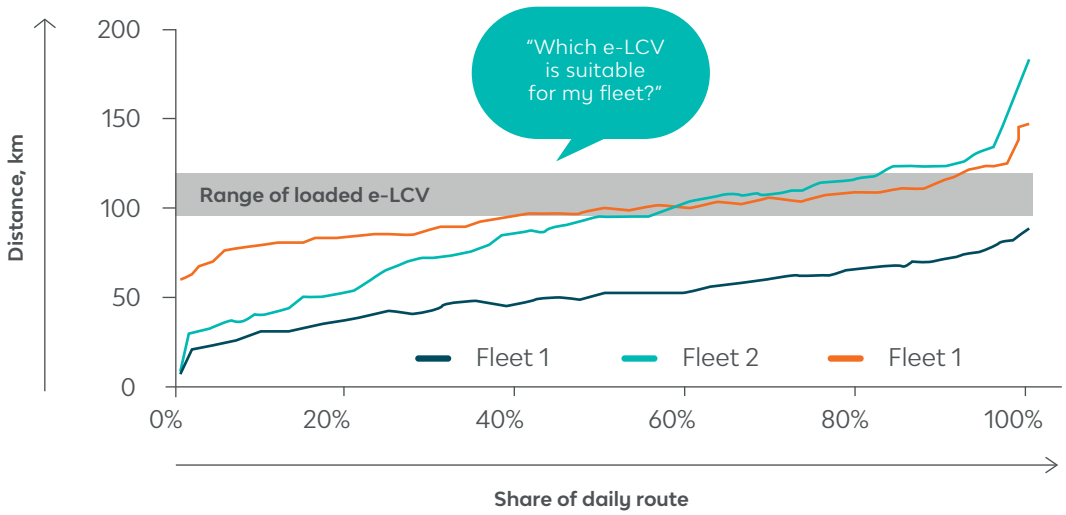


Figure 7: Example of fleet routing and utilisation analysis



Develop a convincing business case: e-LCVs are still largely unchartered territory, so it is understandable that some executive boards will be hesitant about committing to electrification. The business case for your organisation should highlight the benefits in terms of sustainability, business continuity, range, availability, costs, driver satisfaction and incentives (see Figure 8). For example, the pressure on companies to reduce emissions is here to stay, and electrification is increasingly becoming a matter of not 'if' but 'when'. Moreover, electric vehicles are more sustainable than traditional vehicles[viii] and, according to the Harvard Business School, 'sustainable' companies now outperform the market. In other words, electric vehicles positively contribute to a company's corporate image and are ultimately good for business.

Figure 8: Seven reasons to switch to EVs

1	2	3	4	5	6	7
Sustainability	**Business Continity**	**Range**	**Availability**	**Costs**	**Driver Satisfaction**	**Taxation & Grants**
Pressure on businesses to reduce emissions is increasing	WLTP &Low Emission Zones are coming	The range of Electric vehicles is increasing	Electric vehicles are becoming more available	Although investment is still more expensive than ICE, operational costs are lower	Drivers of Electric vehicles are more satisfied	Drivers pay less tax Government Grants

Making the transition

Incorporating e-LCVs into a fleet
Lessons learned from frontrunners

One way to find out whether e-LCVs are a viable option for your fleet is to conduct a real-life test in your business situation; simply start with one or two vehicles. LeasePlan can facilitate your transition to zero-emission mobility and help you to benefit from the insights and advice of companies that have gone before you.

5 lessons learned from EV frontrunners

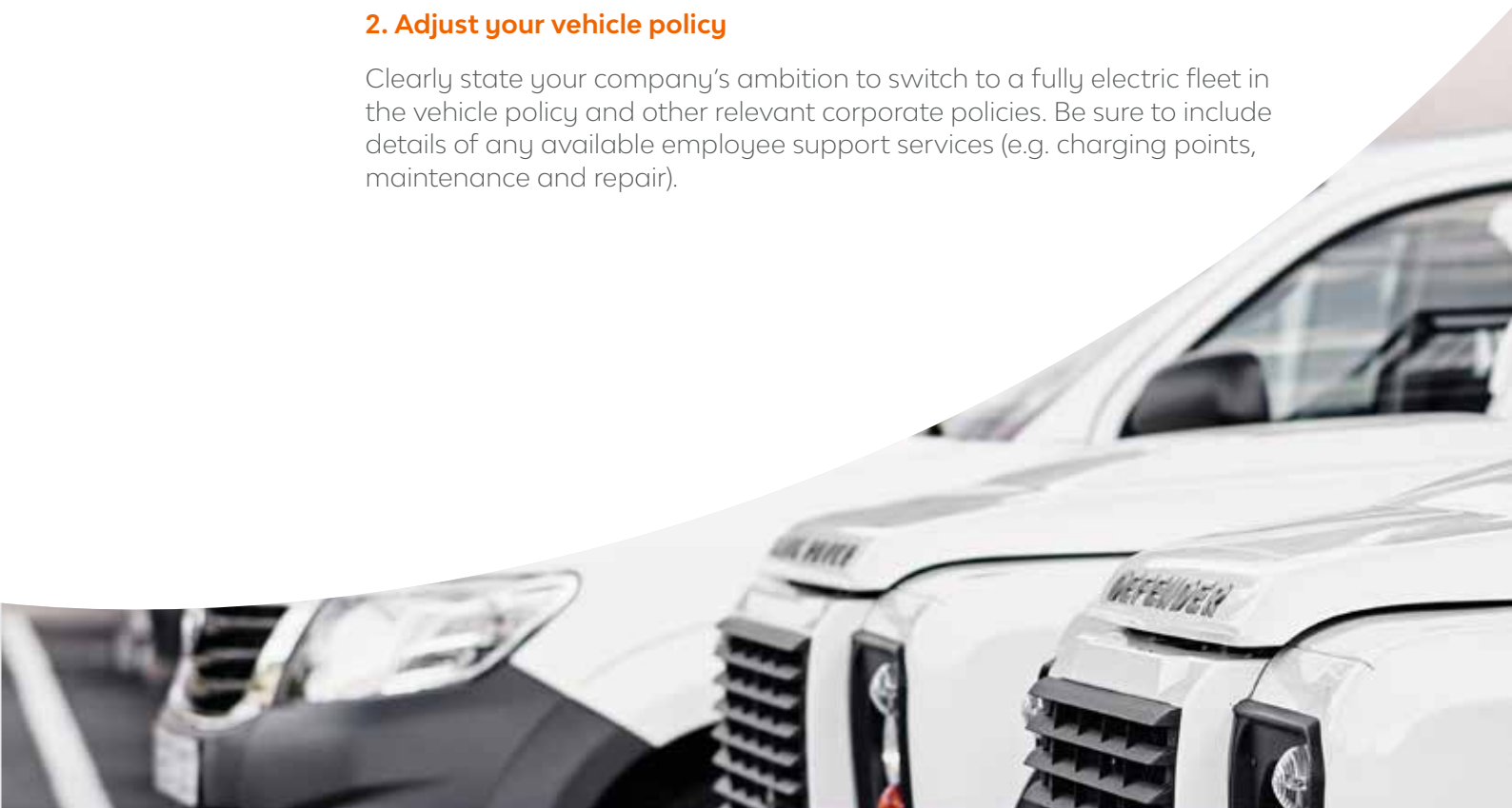
1. Prepare

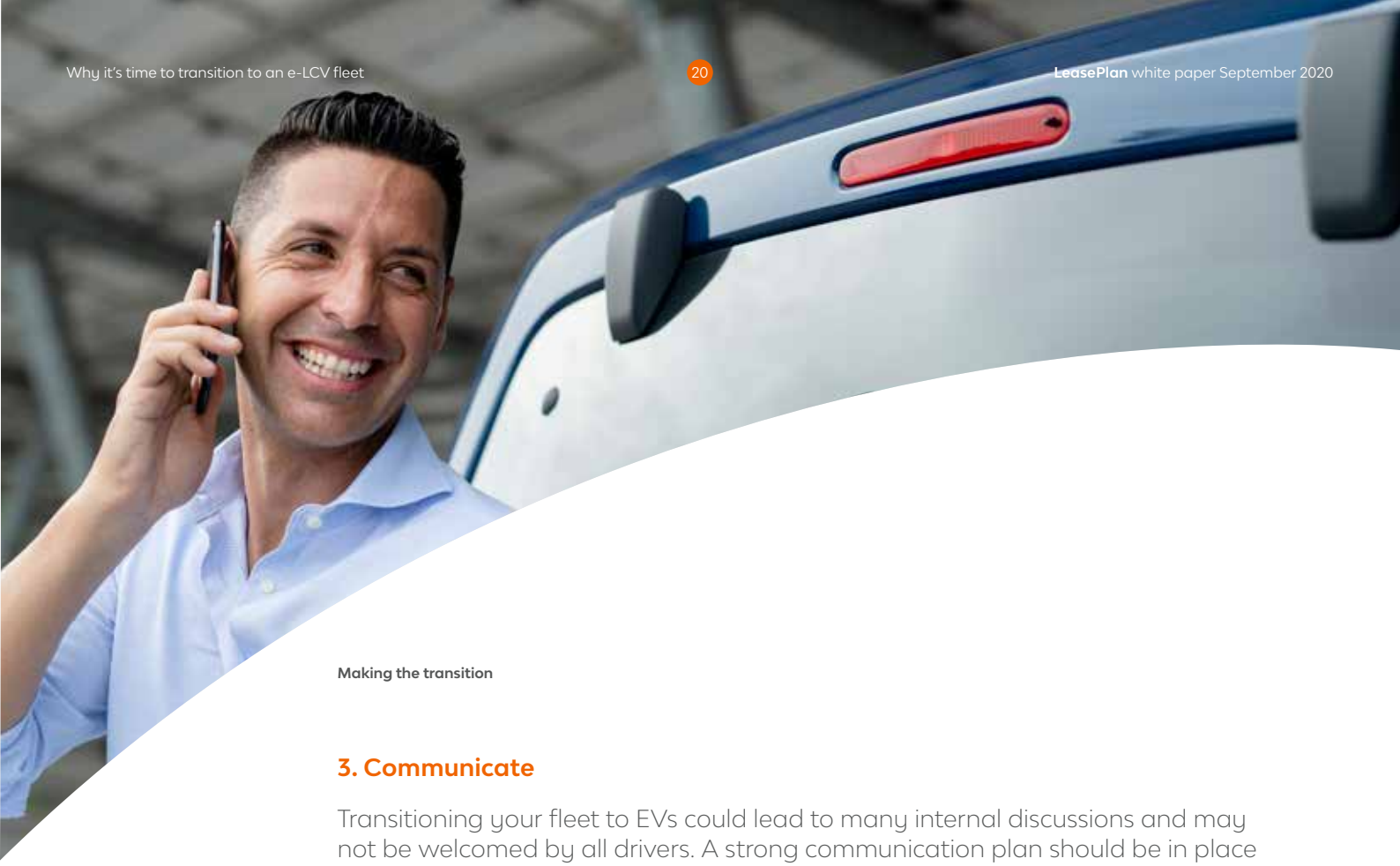
It may seem obvious, but make sure your planning covers all elements of the transition process and addresses the issues likely to arise, such as:

- **Which drivers can go first?** It's likely that not all your drivers will be able to transition to EVs straight away. Evaluate and decide who can do so by conducting a mileage/delivery routing assessment including freight-weight analysis.
- **Charging options**. Calculate the costs and benefits of the various types of workplace charging. Assess for which drivers home charging can be an option as well.
- **Investment**. Calculate the financial impact of EV adoption based on the total cost of ownership, including possible financial benefits such as tax incentives for both the company and the driver. These vary considerably per country.

2. Adjust your vehicle policy

Clearly state your company's ambition to switch to a fully electric fleet in the vehicle policy and other relevant corporate policies. Be sure to include details of any available employee support services (e.g. charging points, maintenance and repair).





3. Communicate

Transitioning your fleet to EVs could lead to many internal discussions and may not be welcomed by all drivers. A strong communication plan should be in place to address the needs of your audiences, and could include some or all of the following elements:

- **Clear messaging**. Be sure to explain the benefits of transitioning to EVs for the company and for employees (e.g. tax incentives, sustainability, etc.) while allowing scope for everyone to have their say.
- **Information resources**. Flyers and websites can help to answer frequently asked questions about EV adoption.
- **Q&As and EV test drives**. Acceptance levels increase when employees can ask the questions they want and experience electric driving for themselves.

4. Lead by example

Managers should be among the first to switch to EVs to demonstrate top-down support across the organisation. Select enthusiastic employees to take part in a pilot project and become EV ambassadors.

5. Monitor feedback

Listen carefully to what employees are saying about their e-LCV experience so you can tackle misunderstandings or misgivings early on. Also be prepared to fine-tune your fleet policy so that it's aligned with your company's and employees' needs as the transition takes place.

Why LeasePlan?

Electric fleets: no longer if, but when
Keep your business on the road

With over half of all vehicles on the road today belonging to corporates, the private sector can have a significant impact on sustainability within and outside cities. EVs and e-LCVs offer a major solution for saving millions of tons of greenhouse gas emissions per year, as well as curbing transport-related air and noise pollution.

As a leasing company with 1.9 million vehicles on the road, at LeasePlan we have a responsibility to do everything we can to support the development of a more sustainable transport system. Our aim is to help create healthier environments in our towns and cities by promoting cleaner, low-emission vehicles and the infrastructure required to make these a viable option for our customers.
As a founding partner of the EV100, LeasePlan is committed to educating and facilitating customers as they make the switch to low-emission vehicles.
In fact, our fleet of lease vehicles already includes over 5,000 e-LCVs. This white paper follows the release of Sustainable Fleet Management, which provides practical guidance for businesses on safeguarding their mobility while achieving sustainability objectives.

Figure 9: How LeasePlan can help

Car-as-a-Service

Provide the right e-vehicles anytime, any where

- Vehicle financing
- Fleet management
- Maintenance
- Insurance

Charging solutions

Packaged e-solution via one point of contact

- Charge card
- Home charger
- Workplace charger

Implementation Service

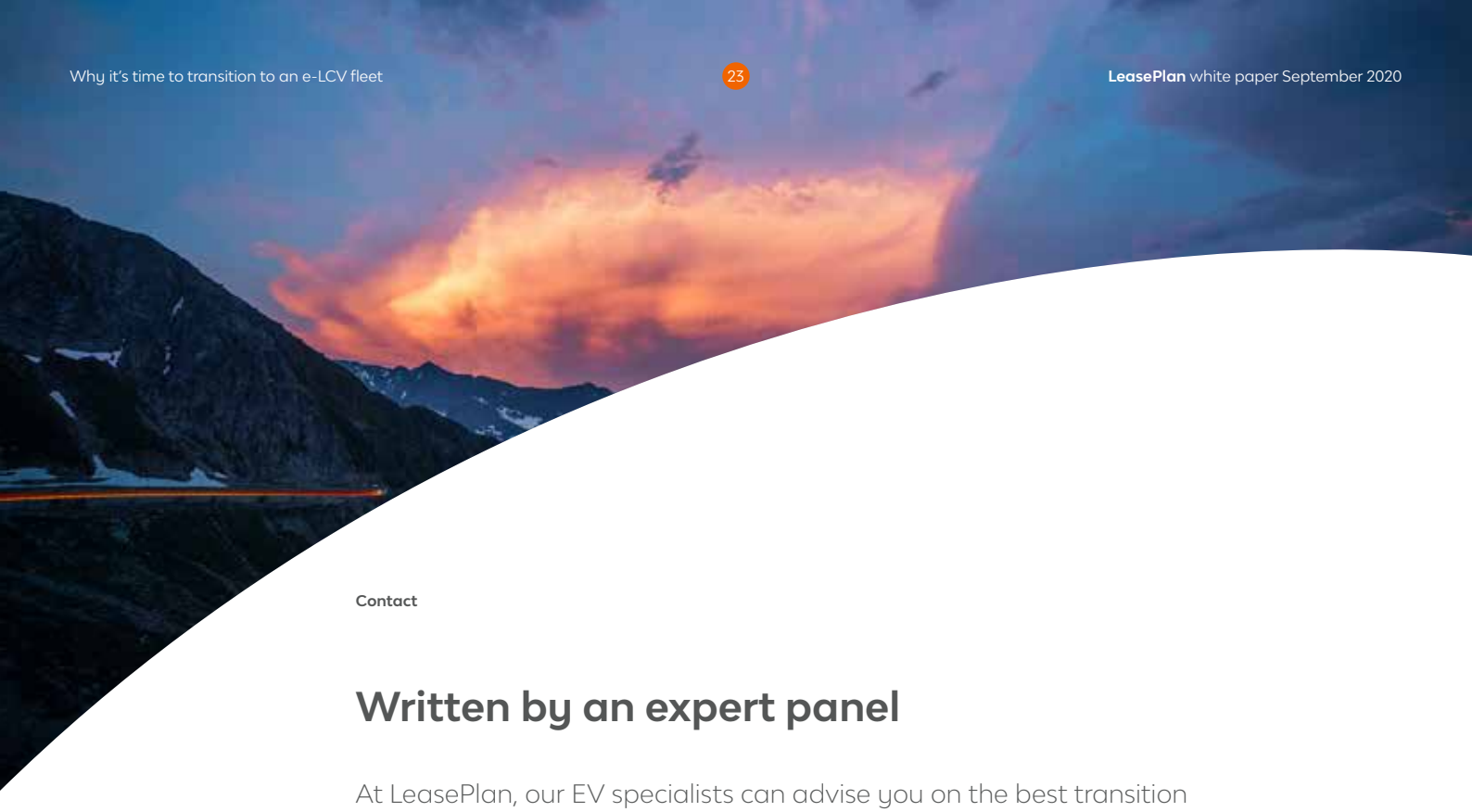
Provide the right e-vehicles anytime, any where

- Driver support
- Charging support
- EV Consultancy

Why LeasePlan?

For LeasePlan it's clear that EVs are the future and we are committed to facilitate a smooth transition towards electric driving for our clients and drivers. However, there are still a few barriers and various misconceptions that must be overcome, as outlined in this paper. While e-LCVs may not be ideal for every situation in which ICE vans are currently used, we believe that – thanks to technological advances, cost considerations and government policies – e-LCVs are becoming more and more attractive for many companies, from start-ups and self-employed contractors to multinationals. They are currently particularly suitable for short-range work (e.g. last-mile delivery activities and local businesses) which allows them to be recharged overnight.

When it comes to business mobility, vehicle reliability is the number one priority. However, an LCV is not only your workplace, but also your calling card. It needs to support your professional image, often displaying your company logo and contact information. LeasePlan can arrange all that for you when you lease an e-LCV, plus we take care of replacement transport in the event of breakdown or damage. Leasing a van with LeasePlan means carefree leasing.



Contact

Written by an expert panel

At LeasePlan, our EV specialists can advise you on the best transition strategy in every market. They will also support you throughout the whole process, including with vehicle choices, charging solutions and implementation services.

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