



SHELL FLEET SOLUTIONS



# Fleet electrification: Finding the road to operational success

How tailored electric vehicle (EV) fleet solutions can help to minimise disruption and achieve your decarbonisation goals





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## Foreword

By **Conrad Mummert**,  
Head of Shell Business Recharge Solutions, Shell

As reported by the United Nations Economic Commission for Europe (UNECE), global transport accounts for 23% of the world's annual greenhouse gas (GHG) emissions.<sup>1</sup> Within that, road transport – encompassing passenger cars, light commercial vehicles (LCVs) and heavy-duty vehicles (HDVs) covering buses and trucks – generate 69% of those emissions.<sup>1</sup> Across the industry, there's a growing understanding that this environmental impact needs addressing – and that businesses need to act today.

For many businesses worldwide, electrification can present a clear way forward. From new incentives and legislation (such as forthcoming curbs on the sale of new internal combustion engine (ICE) vehicles across the EU) to encourage zero-carbon solutions, to the increased electric vehicle sales and the multiplication of low-emission zones, change is underway.

Yet, while businesses understand the need to transition to low- and zero-carbon operations, concerns around the feasibility of delivering the transition remain.<sup>2</sup> Our internal 2024 'Decarbonisation in Transport' survey of 377 global transport leaders and decision makers found only 10% of transport organisations believe that all of the right conditions needed are in place, in the area of infrastructure and resources, to facilitate carbon reduction.<sup>2</sup>

Cost also remains a key concern, with four in 10 transport leaders surveyed highlighting that very few of their customers would be willing to pay a premium for lower-emission products and services.<sup>2</sup> And many still require assurances that transitioning from an ICE to an EV fleet won't impact scheduling, efficiency or delivery timeframes.

According to our decarbonisation in transport survey, businesses (60% of Commercial Road Transport (CRT) and 68% of Fleet respondents<sup>2</sup>) believe that the top action needed have an impact on carbon emissions reduction efforts by 2030 is improvements in key infrastructure. This demonstrates that it is crucial to establish an effective, reliable and accessible EV infrastructure to help mitigate any impact on operations and costs.

That's why, at Shell, we're working closely with fleets to boost access to private and public charging tailored to their specific business needs. This includes the development of private eDepot charging locations within the fleet operators' existing depot. The eDepot location could be set up for their own exclusive use or with a view to opening them up to third parties or to integrating them with public facilities to enable a semi-public offering. We aim to provide an end-to-end eMobility solution, from energy generation to the charging plug, that brings everything a fleet needs to help unlock the operational efficiency and cost benefits of electrification. This includes supporting fleets to reduce the total investment needed for charging infrastructure through solutions such as our semi-public network which can help drive down their total cost of ownership (TCO).

These solutions can help fleets to meet their decarbonisation targets without having to disrupt current performance. Yet to capitalise on their potential, fleets must act now. In this report, we set out practical steps that transport leaders can take to make their fleet more sustainable today while optimising efficiency, performance and value long into tomorrow.

I hope you find it useful.

*Conrad Mummert*

# 01 Today's eMobility Landscape

Shell's decarbonisation survey found “**reducing carbon emissions**” to be the number one priority for Fleet and Commercial Road Transport (CRT) organisations.<sup>2</sup> And, the good news is that the EV infrastructure to support this priority is growing in many countries, whether it's private or public charging solutions. The International Energy Agency (IEA) predicts that by 2035, public charging could increase sixfold while 99% of heavy-duty chargers would be depot chargers by 2030.<sup>3</sup> This is one outlook that fleets need to consider, although it is likely that heavy-duty chargers will also be required across public and semi-public locations. Either way, it aligns with projections suggesting that, towards 2030, growth in fast public and fleet depot charging will be triple what is seen for home and business charging compared to today.<sup>4</sup>

Also encouraging is how such change can increasingly be seen out on the road. Electric car sales have reached almost 14 million globally (nearly one in five cars sold in 2023 was electric).<sup>5</sup> **The Shell Recharge Driver Programme 2024 report revealed that EV drivers see a range of benefits from the transition – including improved environmental impact and the potential for reduced fuel costs.**<sup>4</sup> Also, the enjoyment of driving an EV has become a key and unexpected benefit for those who have used one, highlighting an element that is often overlooked when looking at the facts and figures of a potential investment.<sup>4</sup> And electrification is driving an increase in the numbers of EVs sold across all vehicle types and segments. See: How EVs are getting up to speed.

## Roadblocks remain

Yet the path to fleet electrification is highly dependent on the type of vehicle fleet in operation as well as local market conditions, including regulations, incentives and infrastructure. For example, purchase subsidies and incentives for EV and battery manufacturing are playing a key role in driving growth in EV adoption within developing nations.<sup>5</sup> When it comes to vehicle types, heavy-duty vehicles (HDVs) require more powerful charge points and greater space to operate than LCVs, which are a couple of the reasons why the deployment of these charge points has been slower.

Other barriers to adoption persist. According to Shell's internal survey of transport leaders carried out in June 2024, ICE vehicle drivers still cite the high cost of vehicles along with issues like the range of EV models, and availability of public EV charging points as reasons not to shift to EVs.<sup>2</sup> This is despite the fact that evolving technology is helping to address the issue of range even with HDVs. For instance, electric trucks are emerging with the ability to travel up to 600km on a single charge.<sup>6</sup> The growth in adoption of eBuses today also demonstrates the future possibilities for fleet operators with trucks (see: How EVs are getting up to speed). Many drivers are also held back by a lack of information regarding best practices for employees. **Only 6% of European fleet employees have received comprehensive training** on how to use an EV charging point and a worrying 68% of fleet drivers in Europe currently undergo no training at all on how best to use their EVs.<sup>4</sup>

## The way ahead

These are complex challenges, and it is understandable that fleet operators may be unsure about how best to balance the pressure to decarbonise through electrification with the need of higher upfront costs and the risk of compromising on the reliability and efficiency of their operations.

These challenges are, in turn, holding them back from adopting EVs at scale.




Yet from the vehicles themselves to the infrastructure that supports them, there are solutions already available. The key to long-term success therefore lies with identifying and establishing the solutions that best meet the specific needs of each business and their customers.

In a journey that affects everyone, there is no one-size-fits-all way ahead. The next section of this paper explores how fleets can find the right road for them.

## How EVs are getting up to speed



There are encouraging signs that the electrification of road transport is accelerating in many countries and regions:

-  **Electric truck sales increased by 35% globally in 2023** compared to 2022, representing 54,000 new eTrucks on the road globally.<sup>5</sup>
-  **Electric LCV sales grew by more than 50% globally in 2023**, and the sales share grew to just under 5% of the total number of LCV sales.<sup>5</sup>
-  **Electric buses made up 43% of new city buses** sold across the EU in 2023, contributing to the goal of reaching 100% zero-emission city bus sales by 2035.<sup>5</sup>

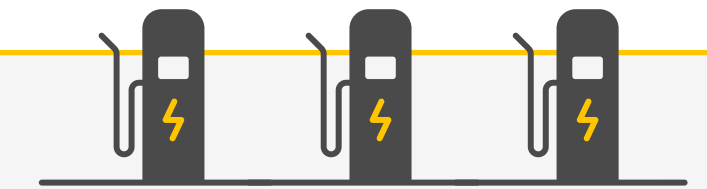
Electric buses offer an important showcase for fleets that operate ICE trucks of the journey their business can take with electrification. With both vehicle types featuring similar technical requirements and logistical schedules, there is a chance to look at the progress made with electric buses and explore how that can be applied to the world of trucking.





## Reliable charging infrastructure

is key to operating at peak efficiency and avoiding unplanned downtime.



# 02 Powering the EV transition for fleets

While every fleet's electrification journey is unique, there are some universal steps operators can take to accelerate their progress. This section looks at practical actions for setting out on the road to eMobility success.

These steps centre around three key areas:

-  **Maintaining operational efficiency**
-  **Managing costs**
-  **Working with the right partner**

## Maintaining operational efficiency

Whether operators are just starting out towards decarbonisation or already well on the way, a key concern is minimising any disruptions to operations and customers. This includes ensuring their EV fleet works as efficiently as their existing ICE one – making the transition to electrification while optimising driver hours and maximising vehicle utilisation. **The challenge is to fit EV charging cycles into already tight schedules, using existing periods of unavoidable downtime** (such as driver rest periods or loading and unloading times) **to their advantage as much as possible.**

A good place for fleets to start is by looking at the daily routines of their individual vehicles, whether ICE, hybrid or EV. This includes the **routes and available public and private charging facilities** to identify where recharging might be required and ensure EVs (and other vehicle types) are always ready to go. This will also give operators the ability and agility to scale their EV fleet according to their business needs.

For example, for fleets with less linear schedules, a public charging network offers an important solution whilst on the road. For delivery and operational fleets, where vehicles tend to be larger and are critical

to delivering goods and services, private charging infrastructure also plays a crucial role in driving cost efficiencies. With private, fit-for-purpose charging infrastructure complemented by a robust and reliable public charging network, these fleets have greater control over the charging process.

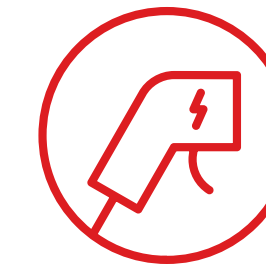
Finding the solutions that can meet a fleet's current and future business needs is key. Operators need to identify and scale the right infrastructure, including charging locations, connector types and energy supply. It also involves exploring the required power options for charge points based on the specifications of each vehicle and the schedules they are operating on. Within this, fleet managers and drivers will need to keep in mind the two charging types, alternating current (AC) and direct current (DC). DC charge points can provide a speedy and more sophisticated charging experience that is seen as the future of EV charging.<sup>7</sup> Additionally, fleet managers should explore the support they need to maintain efficient operations as they electrify their fleet and implement the right solutions for their specific needs.

A key to continuing to operate at peak efficiency as an EV fleet while avoiding unplanned downtime is reliable charging

infrastructure. Right now, 53% of businesses with HDVs say they lack access to public charging infrastructure<sup>2</sup> while 51% feel increasing the number of public EV charge points would have a significant impact on their emissions-reduction efforts.<sup>2</sup>

Thankfully, **fleet businesses and their partners are working to boost access to EV charging points for fleets of different sizes and capacities through private, semi-public and public charging locations.** This includes working with fleets to tailor EV charging infrastructure to their day-to-day operations, routes and vehicle types<sup>9</sup> while assisting them in building a robust eMobility plan.





The Shell Megawatt Charger can recharge electric trucks, electric buses and ferries with 1MWh batteries in **just two hours** \*<sup>10</sup>



## eMobility in action: Operational efficiency

Electric buses have been contributing to reduced emissions in major cities for years<sup>8</sup>, helping reduce traffic and enhance air quality. But they come with the unique challenge of needing overhauled charging capabilities.<sup>9</sup>

In Brussels, SBRS GmbH (a member of the Shell Group) developed an eDepot solution that included the installation of charge points with varying wattage along the 64 bus route and even incorporated a fast-charging point at an existing central passenger stop. All of which was customised to better suit the roof placement of the connection ports on electric buses while fitting the charge point into a small pedestrian zone without the need to take up tarmac space. Another key element was how to power the charge point at

the passenger stop, finding space for the equipment to provide an energy supply in the heart of a busy world capital. This was solved by placing the equipment underground in a unique set-up that means bus users would never know it was there. It is a great example of how a bespoke solution can help any mobility system, including truck fleets, solve hurdles to electrification. And this highlights the similarities in the

fundamental technical challenges and the expertise needed for both bus and truck electrification. Another is the **Shell Megawatt Charger**, which can recharge electric trucks, electric buses and ferries with 1MWh batteries in just two hours \*.<sup>10</sup> It is designed to showcase how road transport and marine businesses can access efficient, compatible and flexible charging solutions that support their electrification efforts.<sup>10</sup>



\* When charged via the MCS connector; charging speeds can vary depending on factors like battery condition, ambient temperature, concurrent energy use and energy losses. Maximum continuous rating of the MCS connector is 3,000 Amps.

## A practical guide to maintaining operational efficiency with EVs

Maintaining operational efficiency is a key concern for all fleets as they transition to EVs, but what does this look like in practice?

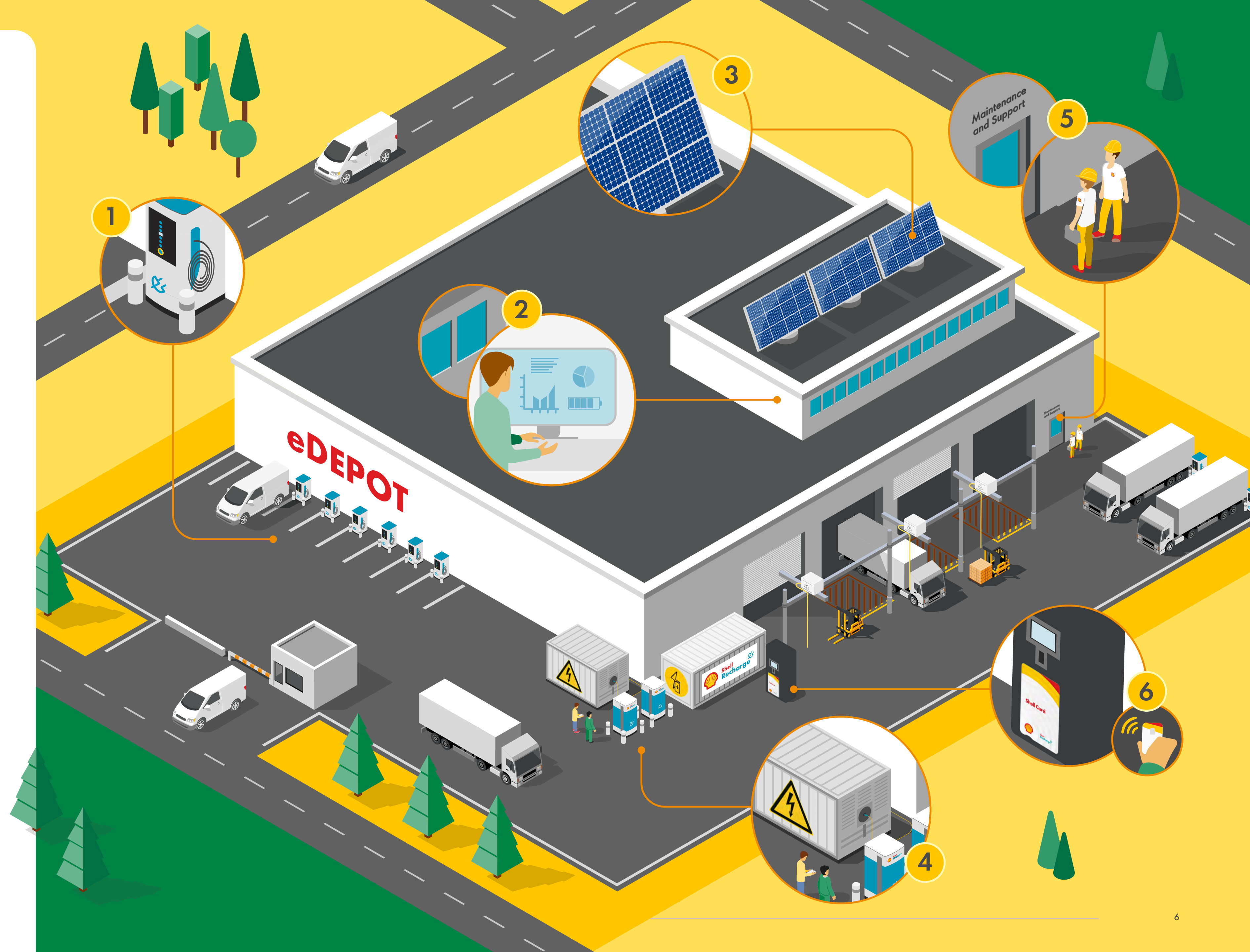
Take the example of a logistics business operating HDVs that operate short haul during the day and return to the depot at night. To keep an EV fleet of this kind running reliably and delivering for customers, the fleet manager needs to know they can rely on their private charging infrastructure (especially during overnight energy peaks when most vehicles are likely to charge) as well as the public charging network available to them on their routes.

Achieving this means building around the specific needs of that fleet to create a bespoke eDepot designed to drive the efficiency of its EV operations. As part of this, **the fleet manager should look to explore how they can provide:**

1. High-quality DC charge point hardware
2. Charge point management software and energy management
3. Energy supply (and potentially a supply of 100% certified renewable energy depending on the overall decarbonisation goals of the business)<sup>11</sup>
4. Power supply systems
5. Support and maintenance services
6. Integrated payment systems

On top of this, the fleet manager should look to integrate these eDepot solutions with an extensive and reliable network of on-the-go public charge points. A network that makes it easy for drivers to pay for charging and for fleet managers to manage those payments.

With these solutions in place, the fleet can be sure it has the capability to use efficient routes, charge at the optimal times and manage their EV operations effectively.



## Managing costs

According to Shell's 'Decarbonisation in Transport' survey, more than half (52%) of fleet leaders see the cost of updating the necessary infrastructure at their facilities as a major barrier to emissions reduction.<sup>2</sup> Yet, while the updates to vehicles, infrastructure and operations needed for electrification is expected to incur some upfront costs, these can be seen as an investment in futureproofing a business. There are also various ways to help mitigate this initial expenditure, including leveraging the financial support and tax incentives offered by policymakers and regulators in different markets.

Likewise, effectively managing the electricity demands across a fleet's operations and facilities can help keep costs to a minimum – and there is a growing array of tools available that offer a swift overview of usage and tips to optimise it. This includes solutions like charge point management systems with advanced functionality designed to help fleet managers find the right balance between charging speed and cost – all while remaining within the limits of their grid capacity.

Maximising the way a fleet's charging infrastructure is used can also help limit total cost of ownership (TCO) and ensure assets are fully utilised. This includes exploring ways to **support third-party contractors with access to the charging infrastructure at eDepot locations** and potentially opening sites up to the public when the fleet is not using them.

## A practical guide to managing the costs of an EV fleet

The upfront costs of investing in the vehicles, infrastructure and operational changes needed to build an EV fleet are, understandably, a significant barrier to many fleets. Look at the example of a company operating a mixed operational fleet. The fleet manager needs to make sure the LCVs and passenger cars it relies on are charged and ready to go for the next day's customer appointments.

They also need to show that they are maximising the return on the initial investment in their EV fleet.

This means meeting their decarbonisation goals in a cost-effective way by:

### 1. Energy as a service and contract:

Leveraging ways to mitigate the upfront cost of electrification by turning their capital expenditure into an operational one (while delivering the same solutions)

### 2. Fleet TCO tools:

Carrying out an overarching TCO analysis of operations to see which routes can be transitioned to EVs most cost effectively – then developing a plan that can cater to the financial requirements of the business

### 3. Cost efficiency expertise:

Identifying the best times to charge to enhance operational and financial efficiency and financial efficiency

### 4. High-quality hardware:

Procuring high-quality, fit-for-purpose hardware (especially charge points that feature liquid-cooled cable technology) to maximise vehicle uptime

Once their infrastructure is in place, the fleet manager can then look to explore ways to increase the utilisation of their locations by making it accessible to third-party contractors or the public depending on which is most appropriate to their operational needs.



Fleet electrification: Finding the road to operational success



## Working with the right supplier

Transitioning to an electrified fleet is not an overnight process – nor is it one that fleet operators should seek to undertake alone. Instead, it is vital to work alongside a trusted supplier with the experience and knowledge to deliver eMobility solutions (from high-quality charging hardware to payment solutions offering access to an expanding on-the-go public charging network) that meet the unique needs of a business and its fleet.

For operators, this means working with a supplier that has the **expertise to conduct an overarching TCO analysis of their operations** – identifying which routes can be transitioned to EVs cost effectively. This should include elements such as vehicle replacement patterns, voltage requirements, the required speed of charge points and the management of grid connections.

From here, operators should look to engage with suppliers able to provide fit-for-purpose hardware – including AC charge points

designed for lighter-duty vehicles as well as robust and modular DC units that can provide charging for all vehicle types and locations.

And, once this foundation is laid, operators should look to their suppliers for support in mapping out the best times to charge – as well as how they can optimise the utilisation of their new eDepot locations with solutions that provide access for third parties. In short, fleets need more than a solutions provider; they also require a partner that embarks on the electrification journey with them.

With more than 60 years of experience, Shell Fleet Solutions is one of the global leaders in business mobility and is committed to driving innovation, and providing simple, smart and sustainable solutions. Through the integration of **private, public and semi-public facilities, Shell's end-to-end eDepot solutions help you to maintain the efficiency of your fleet operations as you make the important transition to**

**EVs.** The Accelerate to Zero (A2Z) programme by Shell also supports fleet managers and business decision-makers in their journey towards decarbonisation by offering an integrated, insights-based roadmap tailored to a fleet's specific business needs.

Through scale, experience and expertise, Shell can answer your questions, provide ongoing support and help you maximise your operational success into the future.

If you would like to learn more about how Shell can help you achieve your decarbonisation goals, visit:

[www.shell.com/emobility](http://www.shell.com/emobility)



Shell integrates its eDepot solutions with a growing on-the-go charging network, including more than

# 750,000

Shell-operated and third-party roaming public charge points designed for LCV and passenger car use across Europe.

For HDVs, there are 15 charging stations across the Netherlands, Germany and the UK as part of an expanding network.



**CONTARGO**<sup>®</sup>  
■ ■ ■ trimodal network

We work with Shell Business Recharge Solutions to equip fourteen of our terminals with a fully customised eDepot solution. Supporting the charging infrastructure we build an energy management to fully implement our total operations at our container terminals which includes next to the EV chargers for trucks, solar power, crane power, reefer stations, maintenance and building energy. This ensures that our energy distribution stays efficient, and the costs for electricity supply predictable."

Kristin Kahl,  
Management Sustainable Solutions, Contargo GmbH & Co. KG

"Our eDepot project arose above all from the need of one of our customers, who, as part of its CSR approach, challenged us to replace the use of fossil fuels with electric power for its regional delivery rounds. We therefore invested in electric trucks and, to offer our customers maximum responsiveness, we were able to set up this recharging station directly at our Lagny-le-Sec site, thanks to the support of Shell."

G rard Gautier,  
Branch Manager - Lagny-le-Sec, Le Roy Logistique

**LE ROY**  
logistique





## References

- <sup>1</sup> United Nations Economic Commission for Europe (UNECE). "[United Nations adopts landmark global decarbonization strategy in transport by road, rail and inland waterway.](#)" 2024.
- <sup>2</sup> Shell. Internal research: Decarbonisation in Transport. June 2024 - Based on a quantitative survey of 377 CRT, Fleet, Aviation and Marine businesses across APAC, EMEA and the Americas. A report by research provider, B2B International, for Shell Downstream and Renewables.
- <sup>3</sup> IEA. "[Global EV Outlook: Outlook for electric vehicle charging infrastructure.](#)" 2024.
- <sup>4</sup> Shell. "[Shell Recharge Driver Programme 2024: Progressing the EV charging experience.](#)" 2024. [PDF]
- <sup>5</sup> IEA. "[Global EV Outlook 2024.](#)" 2024.
- <sup>6</sup> EV Magazine. '[Volvo's FH Electric Truck Offers 600km Range on One Charge.](#)' 2024.
- <sup>7</sup> Electric vehicle batteries are charged with DC, with the charger located in the vehicle. This converts an AC charge into a DC charge where drivers have connected to an AC-powered charge point. Where an AC charge point is simply a controlled power socket, a DC charge point communicates with the vehicle via modulated high-frequency signals – allowing it to use more power and speed up the charging process.
- <sup>8</sup> Sustainable Bus. "[Electric bus, main fleets and projects around the world.](#)" 2024.
- <sup>9</sup> SMMT. "[It's electrifying: Bus depots and EV charging infrastructure.](#)" 2024.
- <sup>10</sup> Shell. "[Shell Megawatt Charger.](#)" 2024.
- <sup>11</sup> Our renewable electricity is certified by Renewable Energy Guarantees of Origin (REGOs).

Please read our full [Cautionary Note and Legal Disclaimer](#) 



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