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National Electric Road Freight and Logistics

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NATIONAL ELECTRIC ROAD FREIGHT AND LOGISTICS

GreenCape

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AUTHORS

Jack Radmore,
Ulrich Terblanche,
Rita Naude

REVIEWERS

Lauren Basson,
Cilnette Pienaar
and Nicholas Fordyce

IMAGES

Magnific

Volvo

Green Riders

Sany

LAYOUT AND DESIGN

The Ethical Agency
ethical-agency.com

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2nd Floor, Aria Building, North Wharf, 42 Hans Strydom Ave, Foreshore, Cape Town, 8001

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List of abbreviations and acronyms

AMID	Association of Motorcycle Industry Distributors
BaaS	Battery-as-a-service
BESS	Battery energy storage system
BEV	Battery electric vehicle
CaaS	Charging-as-a-service
CBAM	Carbon Border Adjustment Mechanism
CSRD	Corporate sustainability reporting directive
E2W	Electric two-wheeler
E3W	Electric three-wheeler
EV	Electric vehicle
EVaaS	Electric vehicle-as-a-service
e-HLV	Electric heavy load vehicle
e-LDV	Electric light delivery vehicle
FMCG	Fast moving consumer goods
GVM	Gross vehicle mass
HCV	Heavy commercial vehicle
ICE	Internal combustion engine
LCV	Light commercial vehicle
NERSA	National Energy Regulator of South Africa
NEV	New energy vehicle
OEM	Original equipment manufacturer
PV	Photovoltaic
SANRAL	South African National Roads Agency Limited
Scope 1	Direct operational greenhouse gas emissions
TCO	Total cost of ownership
TOU	Time-of-use

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1

INTRODUCTION AND PURPOSE

South Africa's transportation and logistics sector is entering a period of transformation as commercial fleet operators, retailers, manufacturers and logistics service providers seek to improve operational efficiency, reduce operating costs and respond to growing decarbonisation requirements.

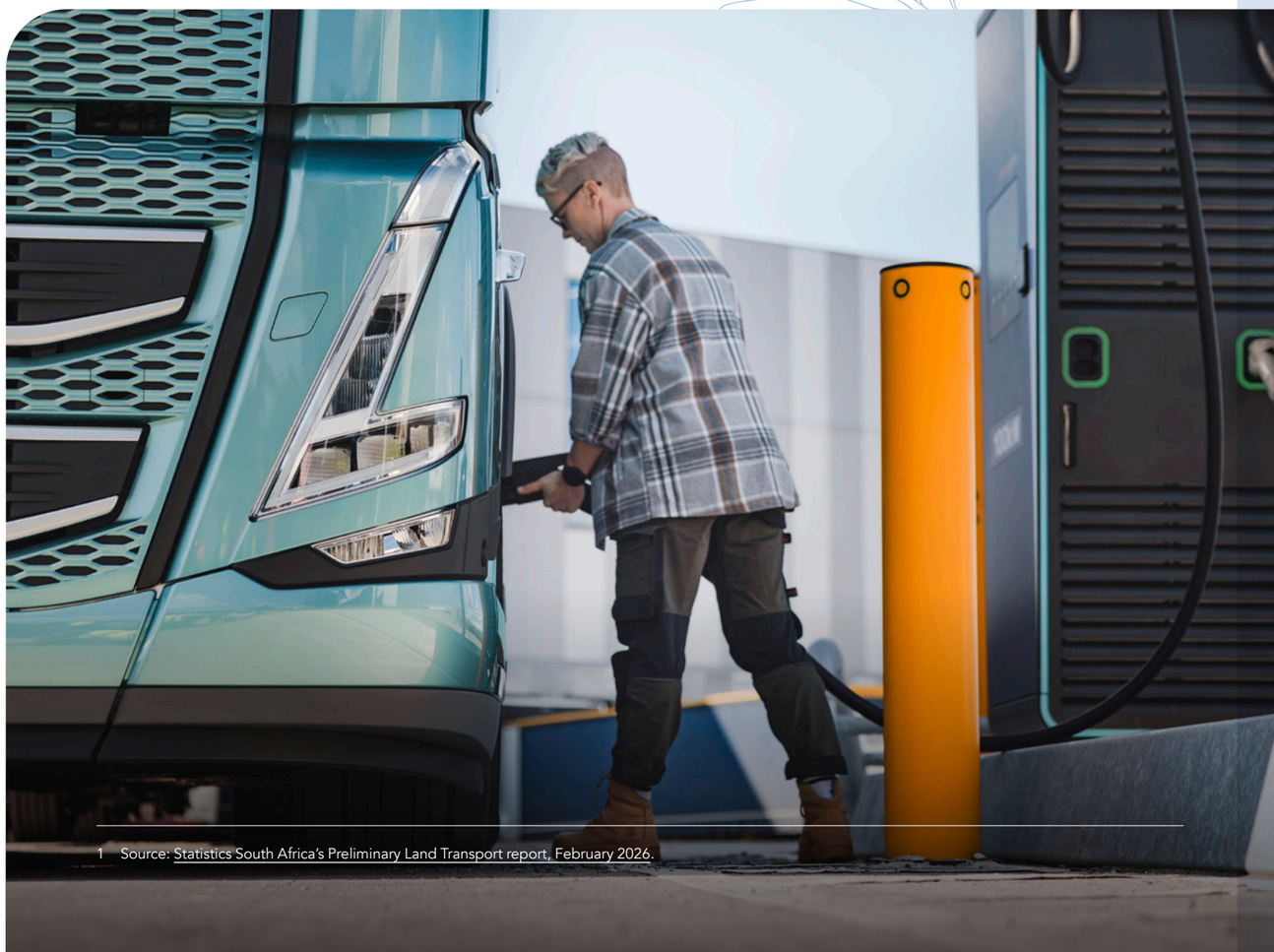
The transportation and logistics sector remains heavily dependent on road transport, which in 2025 accounted for approximately 85.3% of national freight by payload[1]. This creates a significant electrification opportunity as fleet operators seek lower operating costs, operational efficiency and lower emissions.

This brief assesses the investment opportunity for electrification across South Africa's road freight and logistics value chain. It is written for original equipment manufacturers (OEMs) and commercial vehicle distributors evaluating opportunities in South Africa's emerging electric freight market.

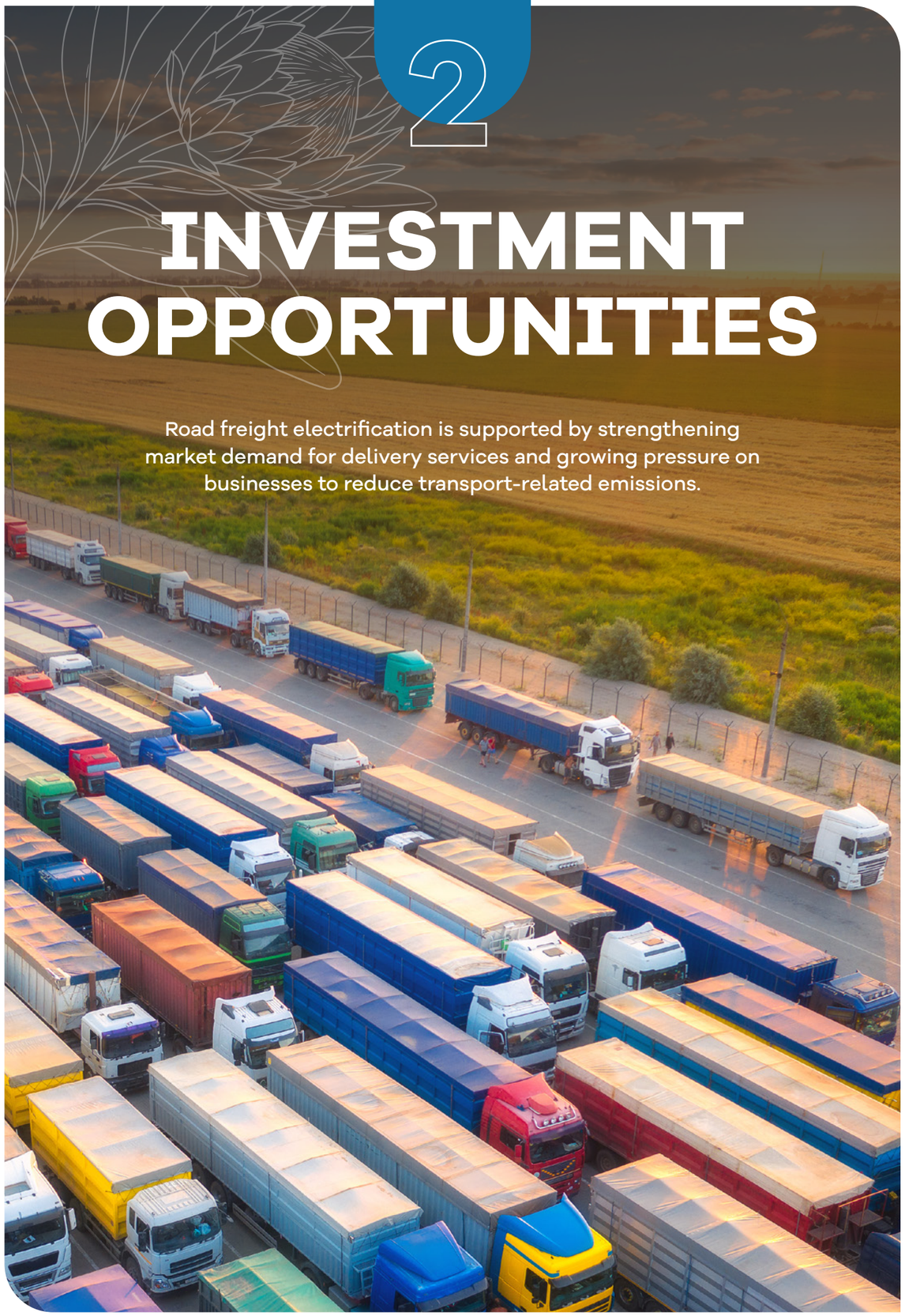
For the purposes of this brief, freight refers to the road-based movement of goods using vehicles such as electric motorcycles, cargo three-wheelers, delivery vans, bakkies, rigid trucks and articulated heavy vehicles.

Electrification in this document refers primarily to the replacement of diesel or petrol drivetrains with battery electric vehicle (BEV) alternatives.

The brief assesses the current size and growth potential of these markets, the key drivers supporting adoption, the barriers constraining investment by businesses into acquiring electric vehicles and the enabling technologies, services and business models shaping market development.



1 Source: Statistics South Africa's Preliminary Land Transport report, February 2026.



2 INVESTMENT OPPORTUNITIES

Road freight electrification is supported by strengthening market demand for delivery services and growing pressure on businesses to reduce transport-related emissions.

There are three distinct battery electric vehicle solutions that offer electrification opportunities to road freight and logistics:

ELECTRIC TWO- AND THREE-WHEELERS (E2Ws/E3Ws),

Offer solutions for food delivery, courier services and urban logistics.

ELECTRIC LIGHT-DUTY VEHICLES (e-LDVs)

Representing vehicles below 3 500 kg gross vehicle mass (GVM), offer solutions for retail and fast-moving consumer goods (FMCG) distribution and logistics.

ELECTRIC HEAVY-LOAD VEHICLES (e-HLVs)

Representing vehicles above 3 500 kg GVM, offer solutions for high-utilisation freight applications.

Table 1: South Africa delivery vehicle parc[2] by segment with electrification share projections

VEHICLE SEGMENT[3]	VEHICLE PARC: YEAR ENDING 2025	VEHICLE PARC: YEAR ENDING 2030	VEHICLE PARC: YEAR ENDING 2035
Total motorcycles and tricycles	372 137	404 990	440 743
Expected E2W/E3W share of the total	3 000 (0.81%)	12 453 (3.08%)	45 085 (10.23%)
Total light-duty vehicles	2 776 258	3 366 156	4 081 395
Expected e-LDV share of the total	200 (0.01%)	4 542 (0.13%)	17 953 (0.44%)
Total heavy-load vehicles	404 752	492 902	600 251
Expected e-HLV share of the total	220 (0.01%)	2 680 (0.5%)	9 180 (1.5%)

Source: eNatis live vehicle parc data (2025), GreenCape analysis.

The market is evolving beyond simple vehicle sales. Leasing, managed charging, and electric vehicles-as-a-service (EVaaS) models are reducing adoption barriers, improving affordability, and lowering risk by creating integrated vehicle, charging, and operational packages.

Several major retailers, healthcare distributors and logistics operators have already piloted or evaluated electric delivery vehicles in South Africa, reflecting growing confidence in commercial viability and a gradual shift beyond proof-of-concept deployments.

Early adopters of road freight electrification in South Africa include:

DSV, DHL Supply Chain, Vector Logistics, City Logistics, Bakers, Woolworths, aramex, Unilever, Premier, UPD, Shoprite Checkers, SPAR, adcock ingram, FedEx, SkyNet Worldwide Express, Unitrans, DP World

2 Vehicle parc refers to the total number or composition of vehicles currently in operation in a specific region.

3 As per eNatis grouping.

2.1 Electric two-wheeler and electric three-wheeler micro-mobility[4]

The adoption of E2W and E3W is driven by expanding food delivery, courier services, e-commerce logistics, and township delivery operations. In these markets, low operating costs and high vehicle utilisation support strong commercial viability, particularly in dense urban environments. Furthermore, the segment is benefiting from broader growth in the motorcycle market.

The Association of Motorcycle Industry Distributors (AMID) reported that South Africa's motorcycle market reached 43 144 units in 2025, its highest annual sales volume since 2014, with the commercial segment accounting for more than 70% of total sales. Electric motorcycle sales show high annual growth, albeit from a low base, in 2024 electric motorcycle sales increased year-on-year by 170% and in 2025 it increased by 40%.[5]

E2W and E3W sales are expected to increase in market share from approximately 5.6% of annual sales in 2025 to 9.1% by 2030 and 17.8% by 2035, making this the fastest-growing electric freight segment in South Africa.

Estimated E2Ws/E3Ws vehicle demand[6]:

- **By end of 2030: 6 051 new units per year worth ~R363 million.**
- **By end of 2035: 24 327 new units per year worth ~R1 460 million.**

Table 2: E2W/E3W vehicle types and market participants

VEHICLE TYPE	TYPICAL APPLICATION	EXAMPLES OF LOCALLY OPERATING OEMS/DISTRIBUTORS[7]
Electric bike (E-bike)	Urban and township delivery.	Stroom, Green Riders.
E2W	Food, grocery and courier delivery.	Valternative, NovaMoto, EWIZZ, ScootHero.
E3W	Parcel and urban freight delivery.	MellowVans, Green Scooter.

4 Read the industry brief here: https://greencape.co.za/library/electric-two-and-three-wheelers-in-south-african-last-mile-delivery/
5 AMID 2026 Motorcycle Market Comment Year ended 31 December 2025, available from amid.co.za.
6 Based on GreenCape projections informed by industry engagements, data, and an average vehicle cost of R60 000.
7 The list is indicative and not exhaustive or complete. The list is not an endorsement of the companies listed.

2.2 Electric light-duty vehicles

e-LDVs represent the strongest near-term commercial freight opportunity. The segment aligns closely with the operating requirements of retailers, FMCG companies, courier operators and logistics providers, where vehicles typically operate on predictable routes and return to a depot at the end of each operating cycle.

Although electrification is at an early stage within the broader light-duty vehicle market at less than 1% penetration, the segment is expected to experience strong growth as operators increasingly opt for predictable operating costs, transition to total cost of ownership (TCO) -based procurement, adopt service-based financing, and access a wider range of fit-for-purpose models. It is estimate that 3% of all annual LDV sales will e-LDVs by 2030 and 6.5% by 2035.

Estimated e-LDV demand[8]:

- **By end of 2030: 1 797 new units per year worth R1 437 million.**
- **By end of 2035: 4 194 new units per year worth R3 355 million.**

Retailer Woolworths rolled out 41 electric vans for its online delivery fleet in partnership with logistics provider DSV and EVaaS company Everlectric, following a multi-year pilot. The deployment supports Woolworths' goal of reaching net-zero carbon emissions by 2040. The vans are charged primarily using electricity from DSV's solar-enabled Gauteng and Cape Town facilities, with Renewable Energy Certificates (RECs) used to address residual grid-related emissions.[9]

Table 3: e-LDV types available in South Africa

VEHICLE TYPE	TYPICAL APPLICATION	EXAMPLES OF VEHICLE MAKE AND MODELS[10]
Electric panel van	Courier, parcel and retail delivery, urban distribution.	Maxus (e-Deliver 3/5), Foton (eView), DFSK (EC35).
Electric cab chassis	Service fleets and goods movement.	JAC (X200 EV), DFSK (EC31), SRM (T3 EV), Maxus (e-Deliver 3 Chassis Cab), Foton (eTruckmate).
Electric light truck	FMCG and urban distribution, hub-to-hub.	JAC – N55 EV.

8 Based on GreenCape projections informed by industry engagements, data, and an average vehicle cost of R800 000.
9 Woolworths press release (2023), Woolworths' new fleet of electric online delivery vehicles are on the road.
10 List is not exhaustive and for indicative purposes only. The list is not an endorsement of the brands.

2.3 Electric heavy-load vehicles

e-HLVs vehicles remain an early-stage market opportunity but represent the largest long-term value opportunity within South Africa's electric road freight market. Although adoption is expected to occur more gradually than in smaller vehicle categories, the segment offers significant operating cost and emissions reduction potential due to high annual mileage and freight volumes.

Near-term adoption is expected to occur primarily in controlled operating environments where vehicles operate on predictable routes and can return to a charging location between shifts. These applications include depot-to-depot logistics, mining operations, industrial freight movements, agricultural logistics and port-linked transport operations.

In 2025, DHL Supply Chain, Unilever, Aeversa and Volvo South Africa launched Africa's first electric Superlink truck to demonstrate the viability of battery-electric heavy freight in controlled logistics applications. The pilot highlights how customer climate commitments drive decarbonisation in logistics, as well as the importance of collaboration, bringing together a FMCG company, a logistics operator, an OEM and charging-as-a-service (CaaS) provider, to test lower-emission freight solutions.[11]

Table 4: Electric freight and logistics market overview by vehicle segment

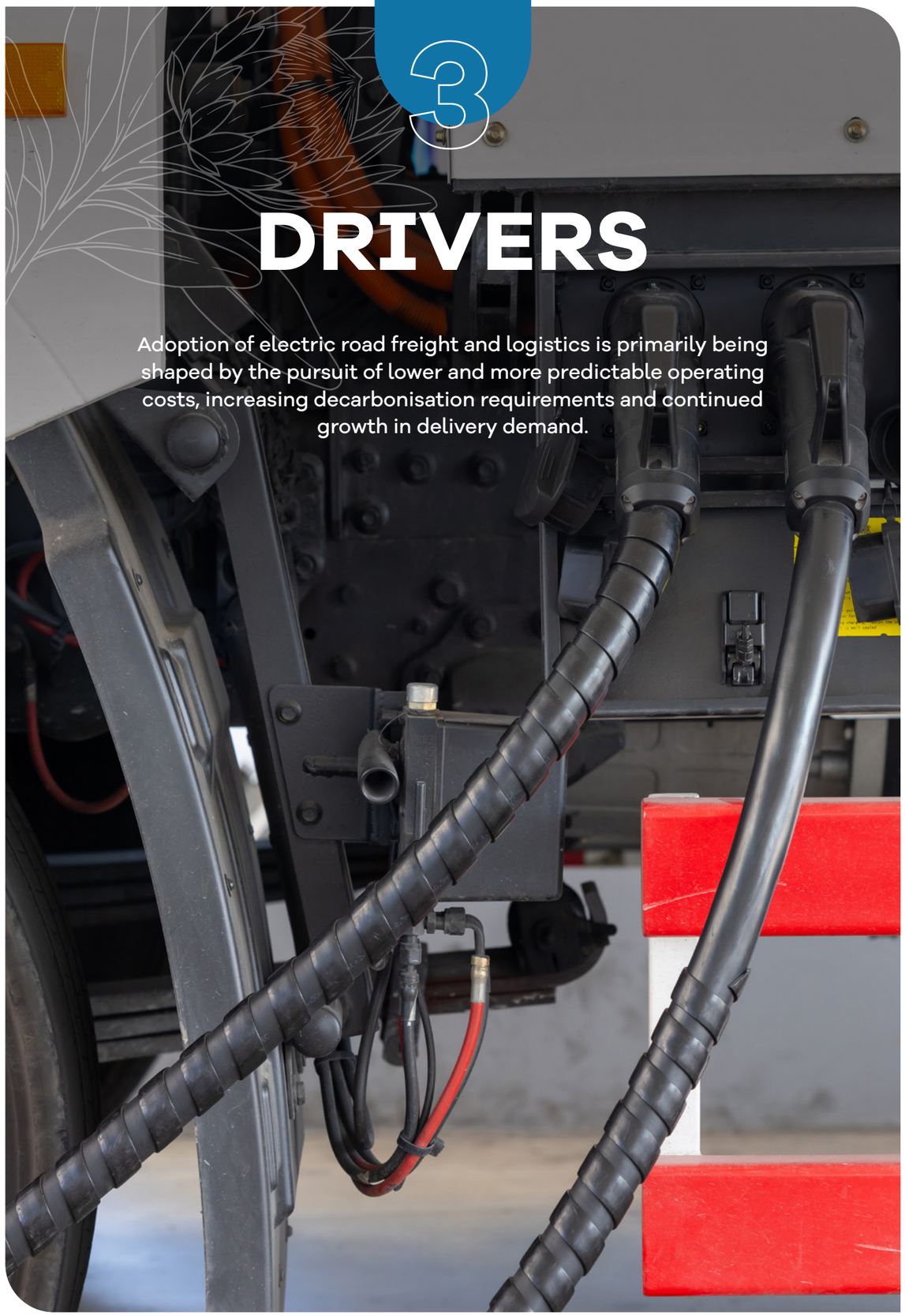
VEHICLE TYPE	TYPICAL APPLICATION	EXAMPLES OF VEHICLE MAKE AND MODEL[12]
Electric heavy load panel van	Urban freight and depot distribution.	Maxus (eDeliver 9), Mercedes (eSprinter).
Electric medium duty truck	Urban and peri-urban hub-to-hub FMCG and courier distribution.	FUSO - Daimler (eCanter), Foton (eAumark), JAC (N75 EV), Dayun (Autoplead).
Electric heavy rigid truck	Urban and regional rigid-truck freight	Mercedes-Benz (eActros 300 4x2/6x2; 400 6x2), Volvo (FM Electric 4x2), SANY (FR601).
Electric truck-tractor	Controlled-site freight operations. Heavy logistics. Corridor freight	Volvo (FM Electric 8x4; FH Electric; FMX Electric 6x4), Mercedes-Benz (eActros 300 truck-tractor), Scania (25P Electric), SANY (EV490; EV650-588).

While e-HLVs are projected to account for only around 3% of annual heavy-load vehicle sales by 2030 and 7% by 2035, the high value of each vehicle and the significant fuel displacement potential create the largest long-term market opportunity across the three freight segments.

Estimated e-HLV demand[13]:

- **By end of 2030: 954 new units per year worth R2 861 million**
- **By end of 2035: 2 316 new units per year worth R6 948 million**

11 DHL press release, 2025.
12 List is not exhaustive and for indicative purposes only. The list is not an endorsement of the brands.
13 Based on GreenCape projections informed by industry engagements, data, and an average vehicle cost of R3 000 000.



3 DRIVERS

Adoption of electric road freight and logistics is primarily being shaped by the pursuit of lower and more predictable operating costs, increasing decarbonisation requirements and continued growth in delivery demand.

3.1 Predictable operating costs and lower total cost of ownership

Price predictability is created in the short term through South Africa's regulated electricity market[14]:

- **Petroleum fuel:** The Basic Fuel Price (BFP) is the foundation of the petrol and diesel price structure. BFP is calculated as if fuel were imported from international refining hubs and shipped to South Africa, regardless of whether some fuel is produced locally. This means fuel prices are strongly influenced by international crude oil and refined fuel prices and the Rand/US Dollar exchange rate. Unlike petrol, which has a regulated retail price, diesel prices are not fully regulated at the retail level. Wholesale and retail margins can vary between suppliers, resulting in price differences across locations and over time.
- **Electricity:** Price adjustments occur annually and are linked to Eskom's cost of generation. Municipalities and Eskom apply for new electricity tariffs to the National Energy Regulator of South Africa (NERSA) once a year. Further cost certainty can be unlocked through implementing renewable energy solutions.

The structure of energy pricing in South Africa reinforces how exposed freight operators are to imported fuel price volatility.

Geopolitical supply disruptions in key global transit corridors during early 2026, triggered a ~50% surge in domestic retail fuel prices between February and June, highlighting fuel-price vulnerability as a primary driver for fleet electrification.

Despite higher purchase prices for BEVs when compared to internal combustion engine (ICE) vehicles, the TCO is lower due to reduced fuel and maintenance costs. Charging strategy is central to maximising these savings. Depot charging remains the lowest-cost and most controllable option for return-to-base fleets, whereas public charging offers flexibility but is more expensive and less predictable. Consequently, the industry dialogue is shifting from individual vehicle technology toward comprehensive, whole-of-operation systems to enable resilience.

Industry analysis suggests electric freight TCO savings of up to 30% compared to ICE vehicles. The greatest absolute savings occur within the e-HLV segment due to high fuel consumption and annual mileage, while E2W/E3W applications achieve the fastest energy cost breakeven point because of lower capital and intensive last-mile utilisation.

Industrial policy support for electric and hydrogen vehicle production takes effect. Under South Africa's Tax Act No. 58 of 1962, Section 12V, automotive manufacturers can claim a 150% tax deduction on the cost of specific assets used to produce electric or hydrogen-powered vehicles.

14 South Africa's electricity market is in a process of liberalisation, through tariff restructuring and the development of the South African Wholesale Electricity Market (SAWEM), which creates some uncertainty with regard to tariffs in the longer term.

3.2 Decarbonisation pressure on businesses

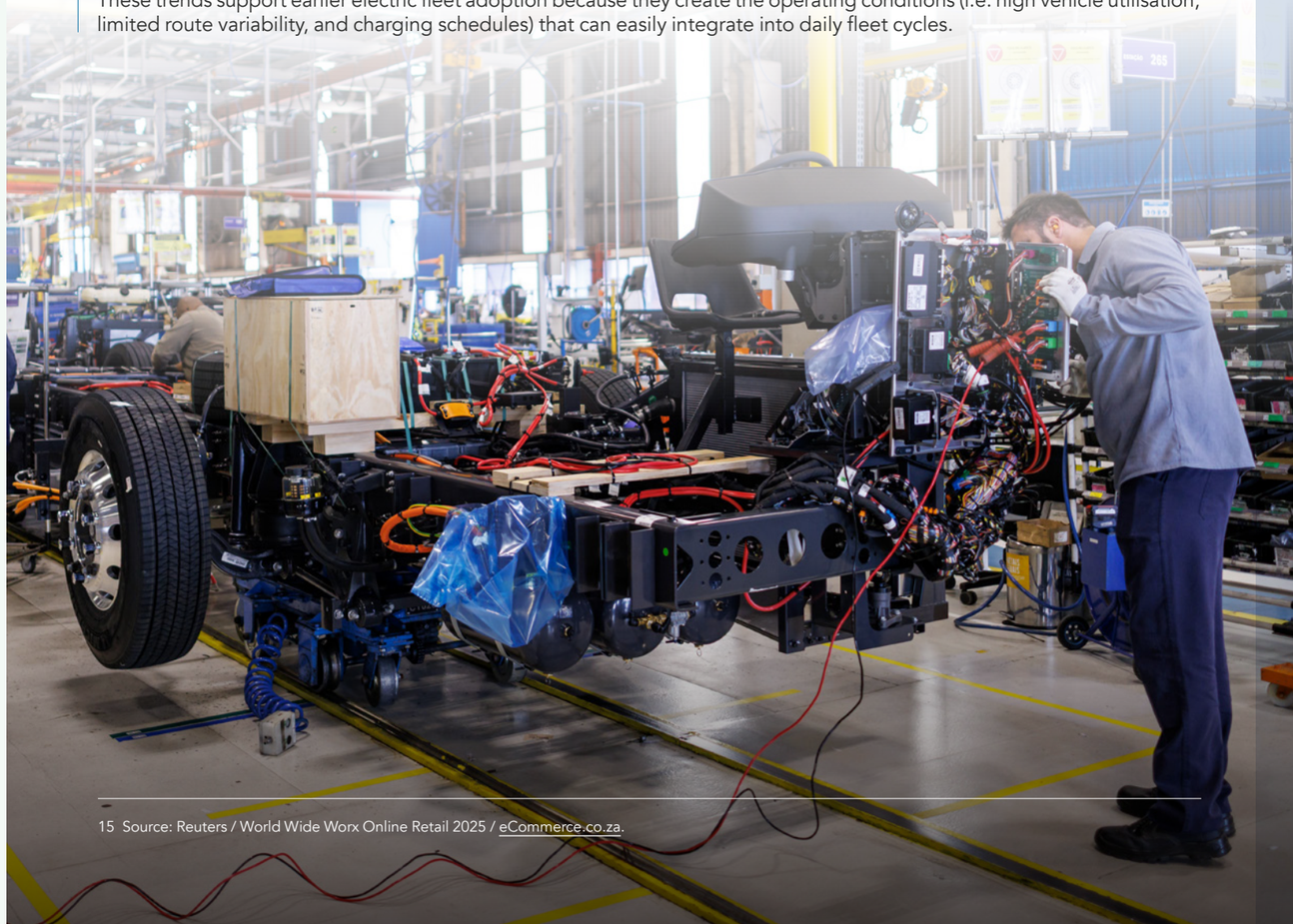
Decarbonisation pressure is becoming a procurement driver in freight and logistics. This pressure emerging through three primary channels:

- **Customer and supply-chain expectations:** Transport emissions are increasingly becoming visible within supplier reporting, procurement and sustainability frameworks. This is particularly relevant for retailers, FMCG companies, manufacturers and logistics providers serving multinational customers or export-oriented value chains.
- **International sustainability reporting and carbon disclosure requirements:** Regulatory mechanisms such as the European Union's Corporate Sustainability Reporting Directive (CSRD) and Carbon Border Adjustment Mechanism (CBAM) are increasing the visibility of emissions across value chains that include South African suppliers and placing greater emphasis on carbon emission reductions.
- **Domestic climate policy and emission reduction commitments:** South Africa's Climate Change Act (Act No. 22 of 2024) commenced in March 2025, establishing a formal legislative framework for emissions reduction, carbon budgeting and sectoral emissions targets. This will increase pressure on logistics operators, retailers, and industrial companies to reduce transport emissions and improve carbon reporting.

3.3 Growth in e-commerce and high-utilisation road freight demand

South Africa's e-commerce market continues to grow rapidly, increasing demand for delivery services, fleet utilisation and urban logistics solutions. SA's online retail market grew by 35% in 2024 to reach R96 billion and by the end of 2025 had surpassed R130 billion, representing 8% of total retail sales.[15]

These trends support earlier electric fleet adoption because they create the operating conditions (i.e. high vehicle utilisation, limited route variability, and charging schedules) that can easily integrate into daily fleet cycles.

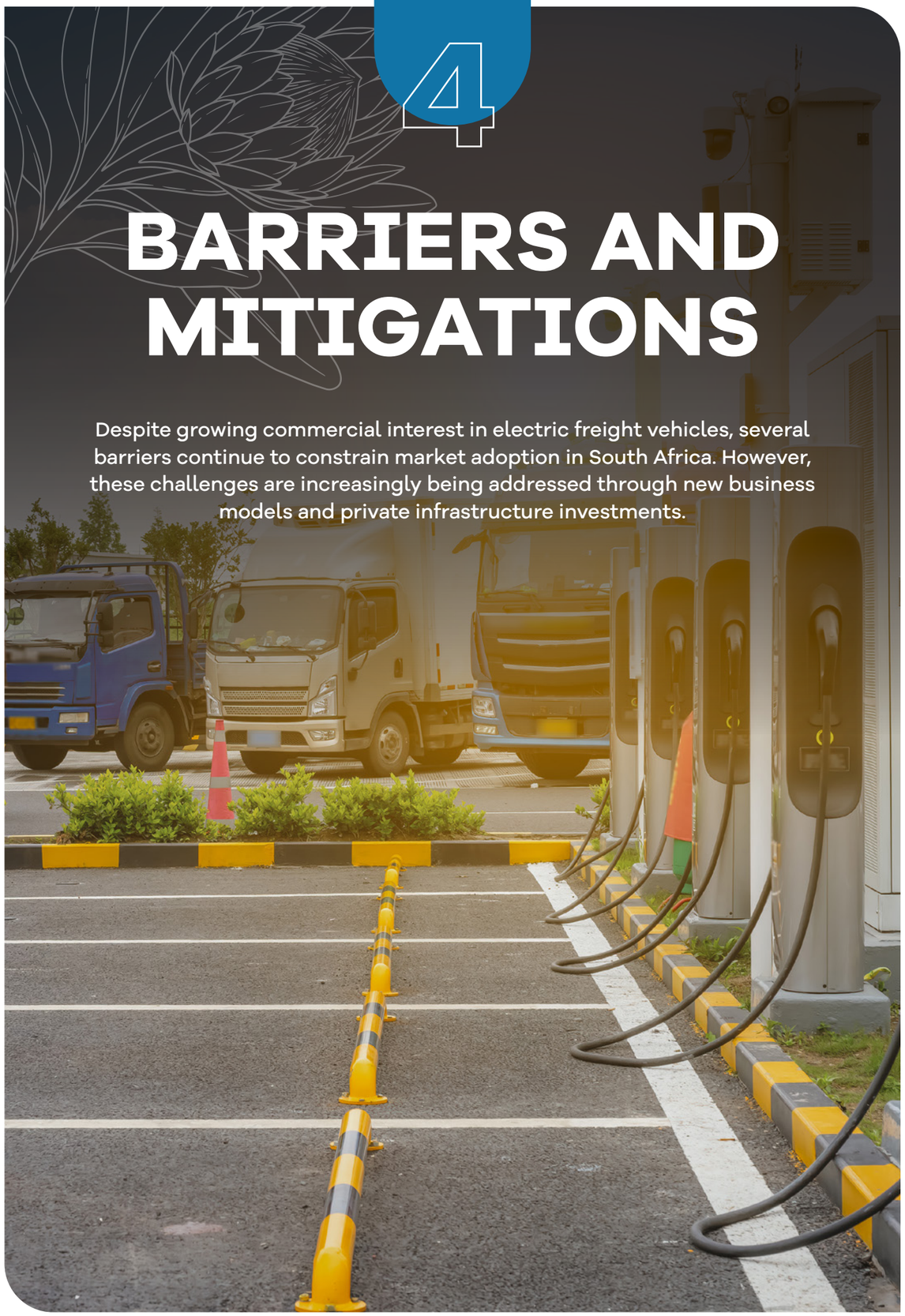


15 Source: Reuters / World Wide Worx Online Retail 2025 / eCommerce.co.za.

4

BARRIERS AND MITIGATIONS

Despite growing commercial interest in electric freight vehicles, several barriers continue to constrain market adoption in South Africa. However, these challenges are increasingly being addressed through new business models and private infrastructure investments.



4.1 High upfront costs

High upfront vehicle cost remains a significant barrier to BEV adoption. The price premium for e-LDVs and e-HLVs range between 40% - 60%, and for E2W/E3W between 80% - 170%, compared to similar ICE vehicles[16]. Many fleet operators also face capital constraints, especially in a market where margins are under pressure and access to affordable finance is uneven.

Mitigation is coming from innovative financing and service-based models which shift vehicle adoption from capital expenditure to operating expenditure. While standard financing models, leasing and instalment sales are still used, specialised models are gaining traction.

Table 5: Illustrative finance and service models supporting road freight electrification

FINANCE / SERVICE MODEL	HOW IT WORKS	MAIN BENEFIT
Equipment-as-a-service (EaaS)	Subscription model	Covers the vehicle, comprehensive maintenance contracts, and a site survey for charging infrastructure
EV-as-a-service (EVaaS)	Vehicle, charging, maintenance and fleet support bundled into a monthly service fee	Converts electrification into an OPEX model, reducing upfront implementation and technology risk
Managed charging / Charging-as-a-service (CaaS)	Charging, software and support combined with fleet contract.	Reduces charging infrastructure complexity and capex burden. Relevant for depot-based fleets.
Battery swapping / battery-as-a-service	Vehicle and battery costs partly separated	Reduces downtime, battery risk and initial capital intensity

EVaaS is becoming the most significant market enabler by reducing capital requirements, improving cost predictability, and lowering operational risk.

16 Based on GreenCape market assessments.

4.2 Charging infrastructure shortage

Range confidence in commercial road freight is linked not only to the number of chargers, but to their location, speed, compatibility, dwell times[17], and alignment with fleet operations. Depot charging is the dominant model for early freight electrification. Public (corridor) charging infrastructure suitable for heavy commercial vehicles is limited, particularly beyond return-to-base metropolitan routes. Locally, the public charging network has grown to over 600[18] stations, but these remain concentrated in major metropolitan areas, along selected national highways and are mostly focussed on the passenger vehicle market.

Mitigations:

- **Private logistics corridors:** Private freight-focused charging initiatives such as CHARGE and Zimi Charge's planned charging corridor network[19] are expanding charging availability along key logistics routes.
- **National policy integration:** The inclusion of EV charging stations and battery swapping facilities into South African Roads Agency Limited's (SANRAL) draft Rest and Service Facilities (RSF) Policy, 2026[20], strengthens long-distance infrastructure intent. The draft policy mandates that all new or upgraded national service stations include NEV infrastructure, spaced every 250 km.
- **Alternative operating models:** Battery-swapping has become a mainstream operating model within the E2W market, while heavy truck battery-swapping platforms are emerging to enable near-continuous operation.

4.3 Grid and energy constraints

Fleet electrification is closely tied to the reliability and capacity of the national grid. Often, the challenge is not just aggregate electricity supply, but whether depots and logistics facilities can support high-draw simultaneous charging through existing grid connections and transformer capacities. To manage this, fleets are integrating charging infrastructure with broader energy strategies that include:

- **Renewable energy integration:** Combining rooftop solar photovoltaic (PV) with integrated battery energy storage systems (BESS) reduces peak electricity costs and improves fleet charging resilience during power outages.
- **Smart charging platforms:** Fleet management software dynamically schedules charging to mitigate the impact of time-of-use (TOU) peak tariffs and manage local grid loads.

17 Time that a vehicle spends at a facility.
18 According to GreenCape assessment of data for GridCars, Rubicon, Chargify and Charge.
19 https://charge.co.za/press-release-zimi-and-charge-partnership/?utm_source=chatgpt.com
20 https://www.gov.za/sites/default/files/gcis_document/202602/54203gon7164.pdf

5 CONCLUSION

The transition toward electric freight and logistics in South Africa is moving from early-stage demonstration to structured commercial deployment. Over the 2026 to 2035 horizon, the speed and scale of this transition will depend heavily on addressing key systems constraints and infrastructure bottlenecks.

For OEMs and fleet operators, success in this emerging market requires moving away from viewing vehicles in isolation. Achieving commercial viability and operational resilience will rely on adopting integrated, service-based financing models and combining fleet electrification with energy strategies and aligning transport decarbonisation with local energy security.

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