
Volt rush – The global race for truck electrification

Truck Study 2026

September 2026

BETs achieve TCO leadership across use cases, while China sets the global pace of market scale-up

Executive summary

1

Current market environment

BET diffusion continues to **grow** with ~8% of global production share in **2025, almost solely driven by China** (95% of BET volume). However, **Europe** experiences **slower ramp-up**, while the **US BET diffusion stagnates**

2

Powertrain and technology

ICE efficiency improvements become increasingly **incremental**, while hybridization remains a **bridge** technology. The **future powertrain** will be **BETs** and differentiated across battery system, eDrive and powertrain integration

3

Electrification ramp-up

While BETs achieve **TCO advantage** across use cases and regions (e.g., EU 2030: Ø-25%), adoption is constrained by **infrastructure** and **fleet confidence**. Depot grid access, public charging availability, and public perception are decisive for ramp-up

4

Market development and diffusion

China's BET ramp-up **exceeds** earlier expectations by +150%, while market development in Europe and the US **remains slower** than forecast. European OEMs need to **defend** their home market from Chinese scales (x3 in BETs)

5

Recommendations

Successful electrification requires a **coordinated political and economic strategy** across the value chain. Regulations, OEM offerings, logistics operations, energy supply, charging rollout, construction, and financing must all play a role in **scaling the ecosystem**

Global truck electrification is entering full ramp-up mode with BET volumes now reaching visible scale.

Yet the momentum is mainly powered by China's domestic OEMs and local BET market.



The global BET ramp-up is accelerating

Global BET sales are up **18x** since 2021, while ICE volumes declined 17%. BETs are moving into scaled commercial use, reaching **~8% global production share** in 2025



China is the core BET growth engine

China accounts for **95%** of **global BET production**, driving today's volume ramp-up. Domestic demand, policy support, and industrial use cases create **structural advantages**, while Western OEMs risk falling behind

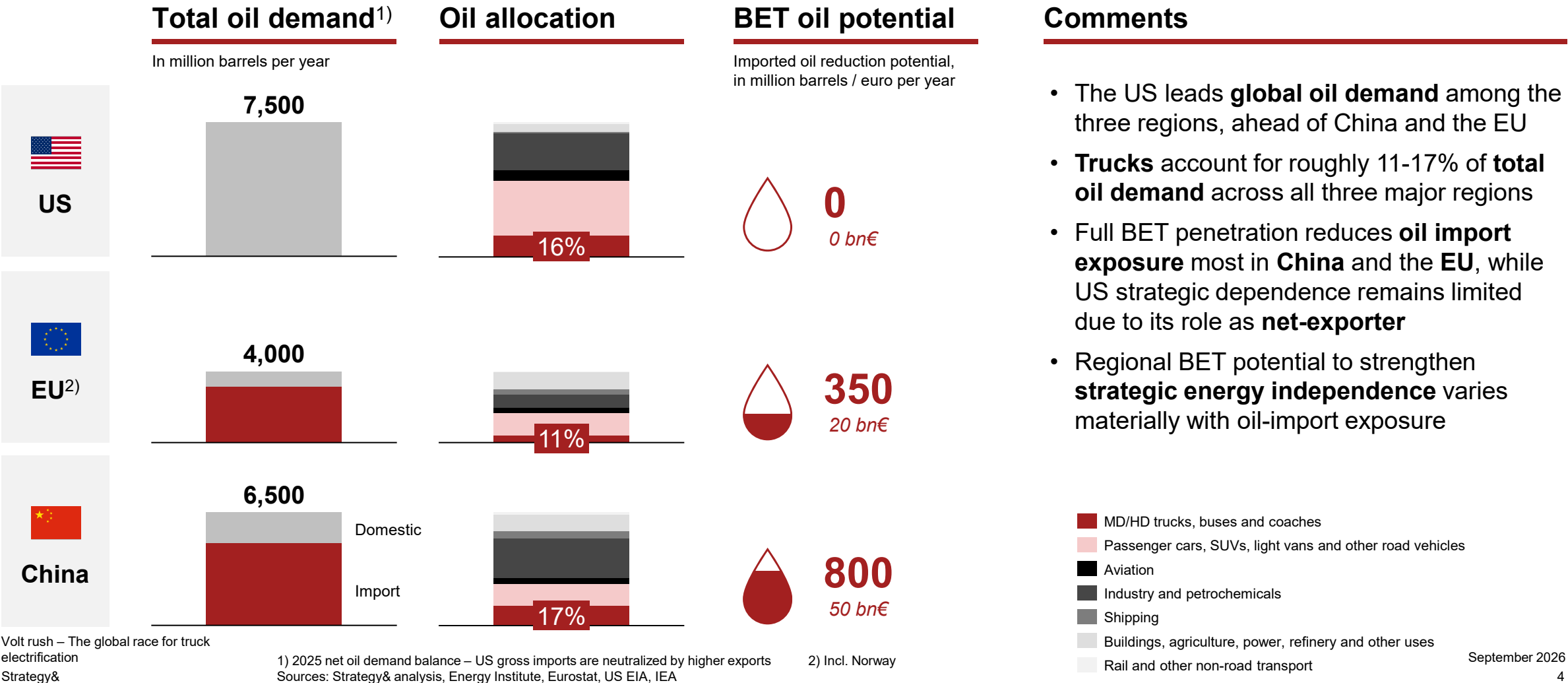


Chinese OEMs dominate BET production

Chinese OEMs account for **>96%** of Top 20 BET manufacturer output as the dominant global production base. Their scale is mainly **truck-driven**, with LFP-focused products concentrated in industrial use cases

BET potential for strategic energy independence varies by region – China and Europe benefit most from reduced net oil-import exposure

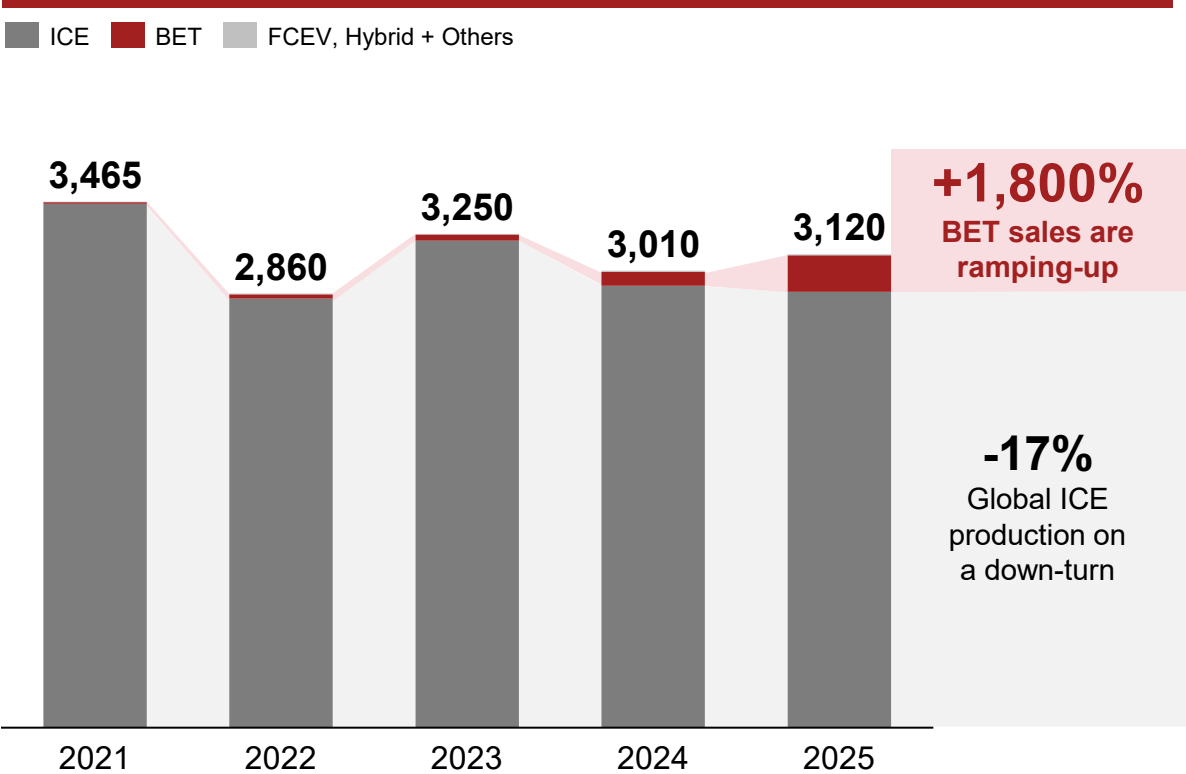
BET energy independence potential



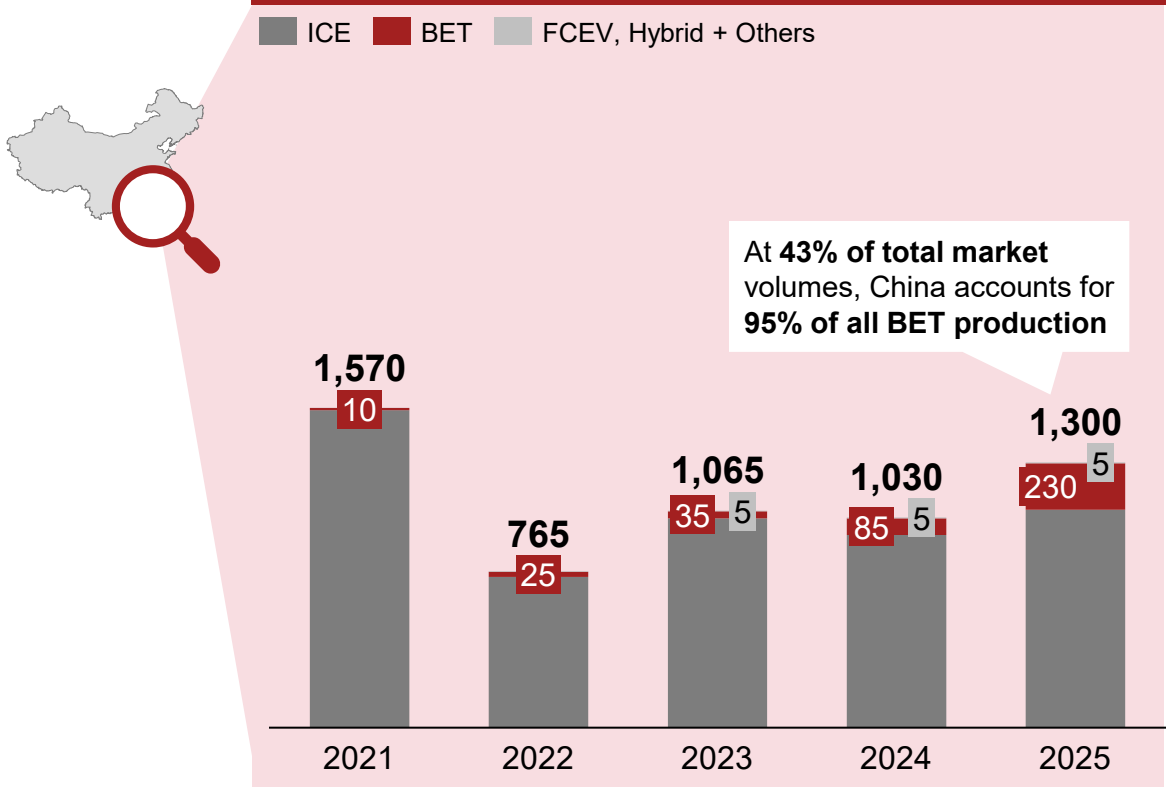
Global ICE truck volumes fell by 17% from 2021 to 2025, while BET increased by 1,800% with China emerging as the key market to watch

Current truck market situation

Global truck market development per powertrain
(k vehicles sold)



Chinese market development per powertrain
(k vehicles sold)

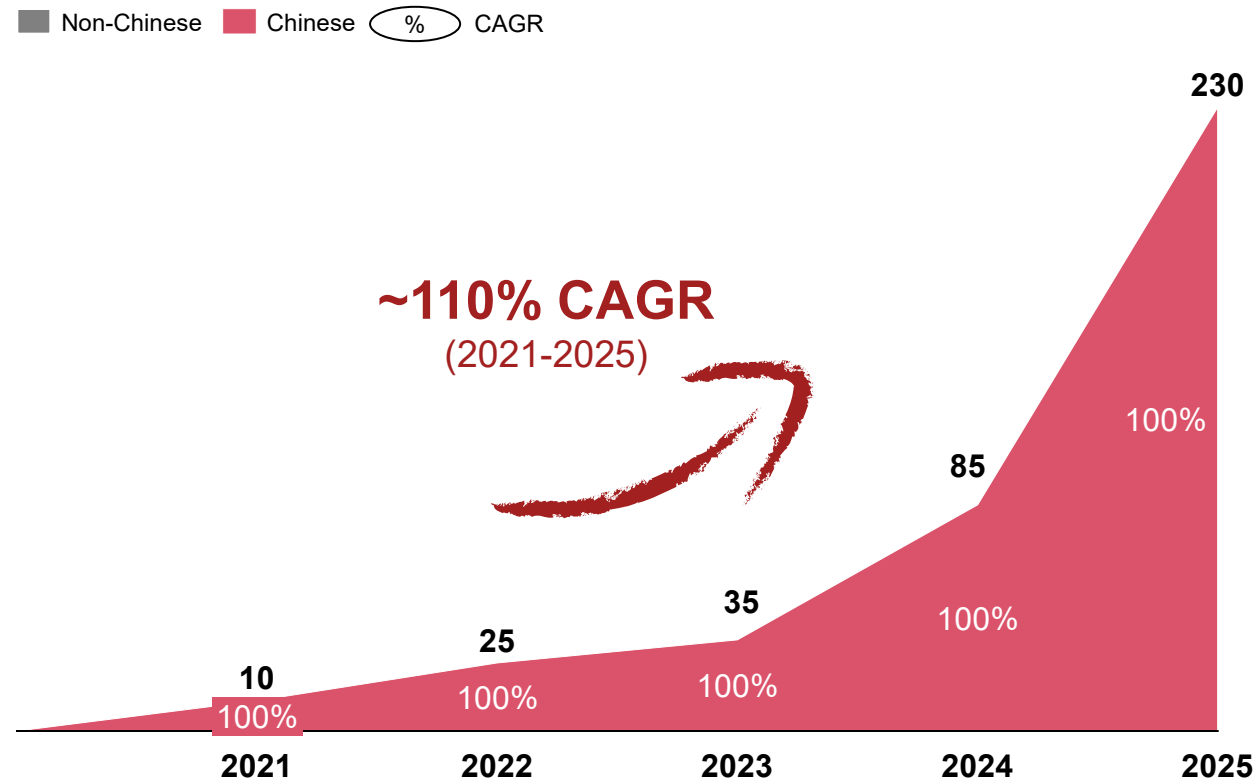


China's BET surge was engineered and entirely captured by domestic OEMs – can Europe replicate the playbook?

Chinese BET market

BET sales in China by OEM origin

(in k vehicles sold, share in %)



Drivers

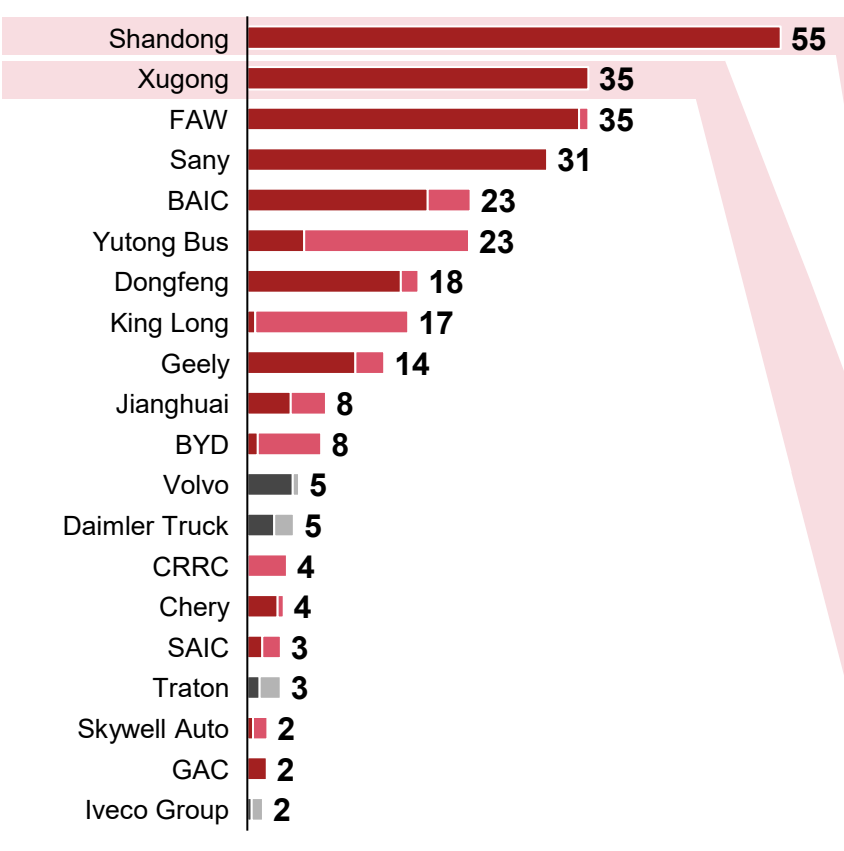
- **Massive government subsidies and tax exemptions** per vehicle in the initial phase, later replaced by tax breaks and trade-in incentives
- **Clear BET use cases in China** across construction zones with short routes and easy charging access, and in regulated urban low-emission areas such as Shenzhen, Beijing and Shanghai
- **Lower total cost of ownership (TCO)** supported by falling LFP battery costs, low electricity prices of \$0.03 – \$0.06/kWh, and BET purchase prices moving closer to ICE vehicle levels
- **Strong domestic OEM ecosystem** with players such as BYD, Dongfeng and Foton using China's battery supply chain to offer BETs at prices foreign OEMs cannot match

Is Europe likely to follow a similar trajectory?

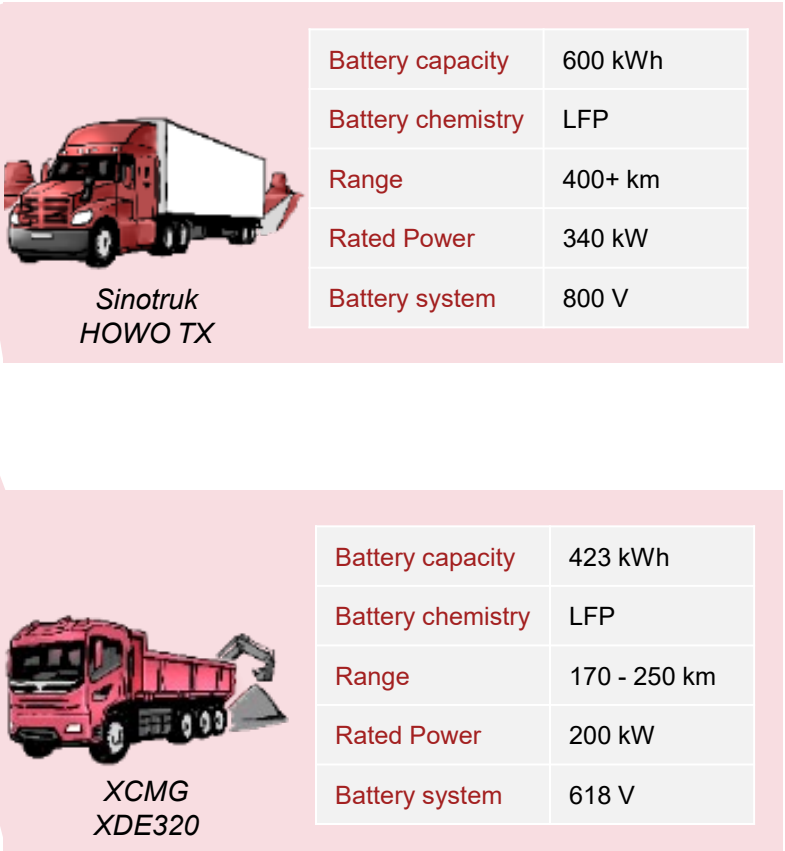
Chinese OEMs dominate the BET market, accounting for over 96% of trucks sold, primarily for construction and related operations

Global BET manufacturer overview

Top 20 BET manufacturers (in k vehicles, 2025)



Product deep-dives



Comments

- **China owns ~96% of Top 20 BET output**, making its technology and supply chains the global reference point
- Trucks represent ~68% of global top 20 BET production, and buses make up ~32%
- The **best-selling 80 models** accounted for 265k units, **>80% of the total 318k vehicle market**
- **Construction/special vehicles** need only **modest battery size, range, and charging speed** vs. long-haul trucks

Hybridization can bridge certain use cases toward BET, while ICE efficiency gains become increasingly incremental.

Battery system design, eDrive, and powertrain integration will determine future technology advantage.



ICE is already highly mature

Diesel engine efficiency has **improved substantially** over recent decades, but the potential for further refinement is declining. Remaining gains increasingly depend on **system levers** and vehicle optimization



Hybridization can add selective value

HEV concepts can support **selected urban** and **highway** use cases through energy recovery and load optimization. Battery size, C-rate capability, and cycle life are **key success factors** to turn hybridization into efficiency gains



BET becomes the clear target architecture

As battery concepts increasingly cluster around prismatic LFP systems, **differentiation** moves beyond cell technology. OEMs can still compete through **battery system design**, eDrive efficiency, and **powertrain integration**

The powertrain landscape narrows to three core archetypes – ICE as baseline, HEV as bridge, and BET as target technology

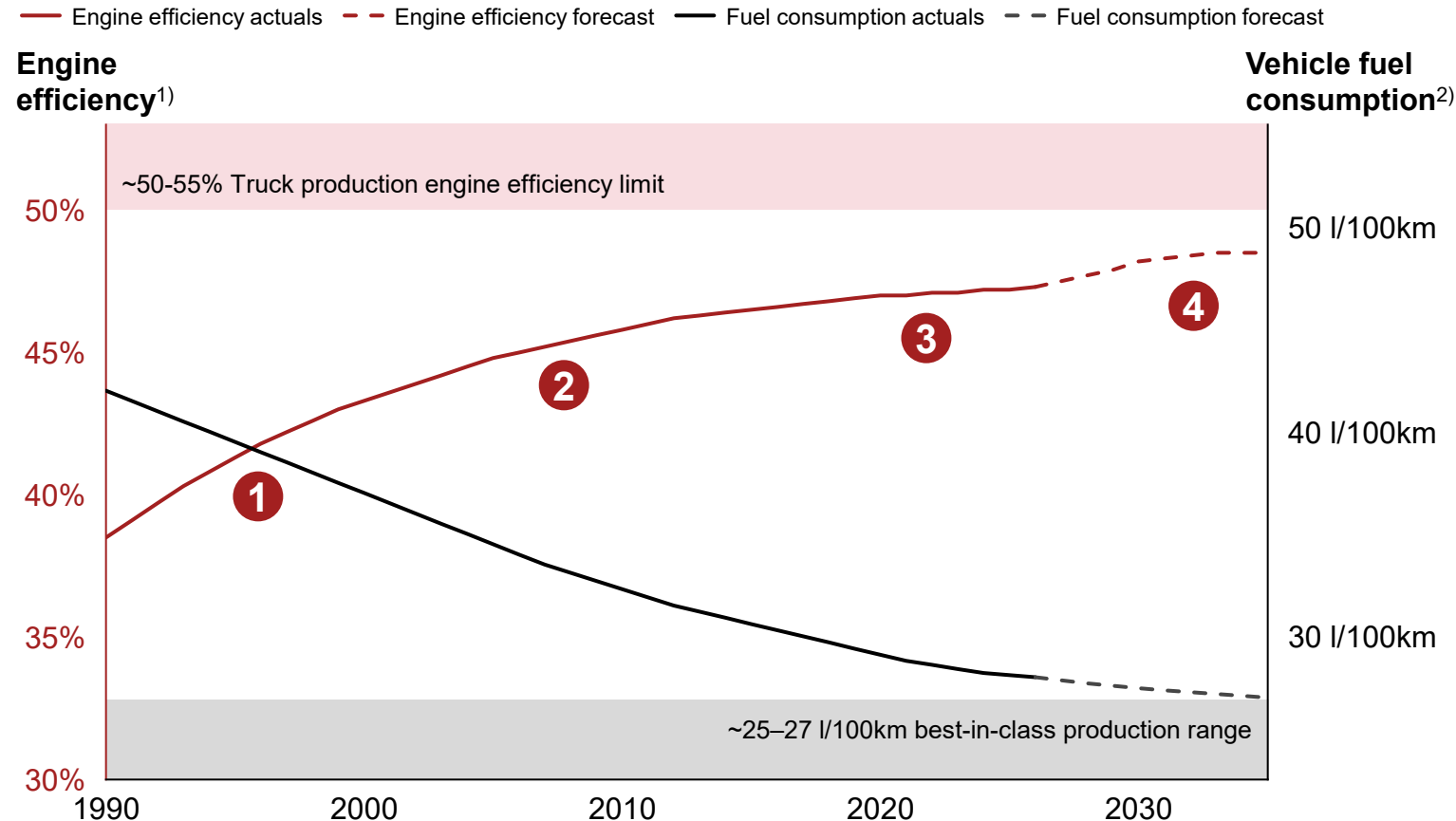
Powertrain archetype overview

	Core powertrain archetypes			Adjacent powertrain archetypes	
	ICE	HEV	BET	FCEV	PHEV
Description	Established diesel truck technology with onboard fuel storage, combustion engine and conventional mechanical driveline	ICE drivetrain complemented by eMotor and small battery for recuperation and load-point optimization	Battery-electric drivetrain using onboard traction battery, electric motors and power electronics without local emissions	Hydrogen-based electric drivetrain with zero emissions, fast refueling and long-range potential	Externally chargeable hybrid complementing diesel powertrain with electric load optimization
Energy carrier	Liquid diesel in fuel tanks	Diesel tank plus small traction battery	Electricity stored in traction battery	 Insufficient hydrogen price and infrastructure	 Plug-in charging in opposition to HDV duty cycles
Conversion efficiency	Constrained by thermal conversion losses	Improved through electrification	Electric-drive enables efficient energy conversion		
Infrastructure requirements	Existing diesel refueling network	Existing diesel refueling network – no ext. charging	Depot and/or public fast – charging required		
Investment intensity	Low due to mature and scaled technology	Moderate uplift from electric components	High due to complex battery and E/E system		
Operational flexibility	Very high with long range and fast refueling	Very high, long range and fast refueling	Strong on predictable routes; limited by range		
	 Baseline technology	 Bridge technology	 Target technology	Catenary Corridor-bound electric powertrain solution powered by overhead catenary infrastructure  Limited usability depending on highway infrastructure	eTrailer Trailer-based eDrive improving tractor efficiency through recuperation and propulsion support  Add-on with complex OEM-trailer integration

ICE efficiency is already highly mature – with remaining gains increasingly system-driven, incremental, and costly

ICE efficiency evolution

Engine efficiency and fuel consumption over time



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1) Peak brake thermal efficiency
2) Fully loaded 40t long-haul tractor-trailer with common operating conditions
Sources: Strategy& analysis, NACFE Fleet Fuel Study, Lastauto Omnibus analysis

Comments

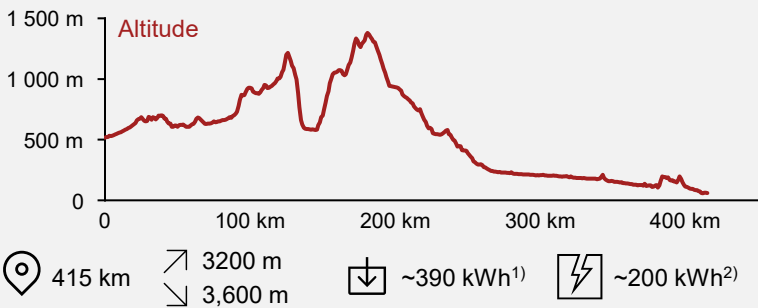
- 1 Engine efficiency push**
 - Combustion optimization drives **rapid gains**
 - Turbocharging, injection and controls unlock strong **engine-level** efficiency improvement
- 2 Maturity and system shift**
 - Engine gains **slow** – **systems** improve
 - Transmission, aerodynamics** and thermal management increasingly become focus
- 3 Electrification focus plateau**
 - ICE priority declines amid **electrification**
 - OEM **focus** shifts to **BET**, reducing combustion innovation momentum
- 4 ICE efficiency refocus**
 - ICE **efficiency** comes back in **focus**
 - Engine potential narrows, but **vehicle** and **system** levers keep fuel consumption falling

Battery capacity drives hybrid savings with up to 25% saving potential – HEV capturing most practical value and ISG remaining energy-limited

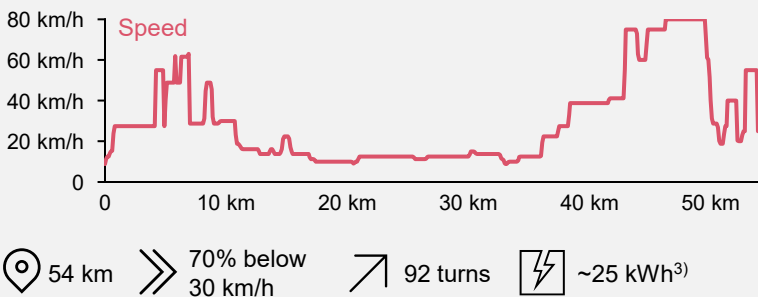
Hybrid truck powertrain analysis

Key hybrid applications

I. Mountain route (Munich – Verona)



II. City roundtrip (Orly – Paris – Orly)



PHEV

PHEV 80 kWh

Plug-in hybrid with 80 kWh HV battery, external charging, electric driving, and regenerative braking

I. Savings⁴⁾

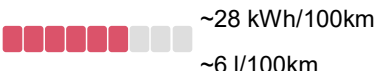
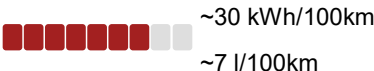


II. Savings⁴⁾

HEV

HEV 40 kWh

Parallel hybrid with 40 kWh HV battery, e-machine for traction support and regenerative braking



ISG

ISG 5 kWh

Integrated starter-generator with 5 kWh battery for start-stop, boost support, and limited recuperation

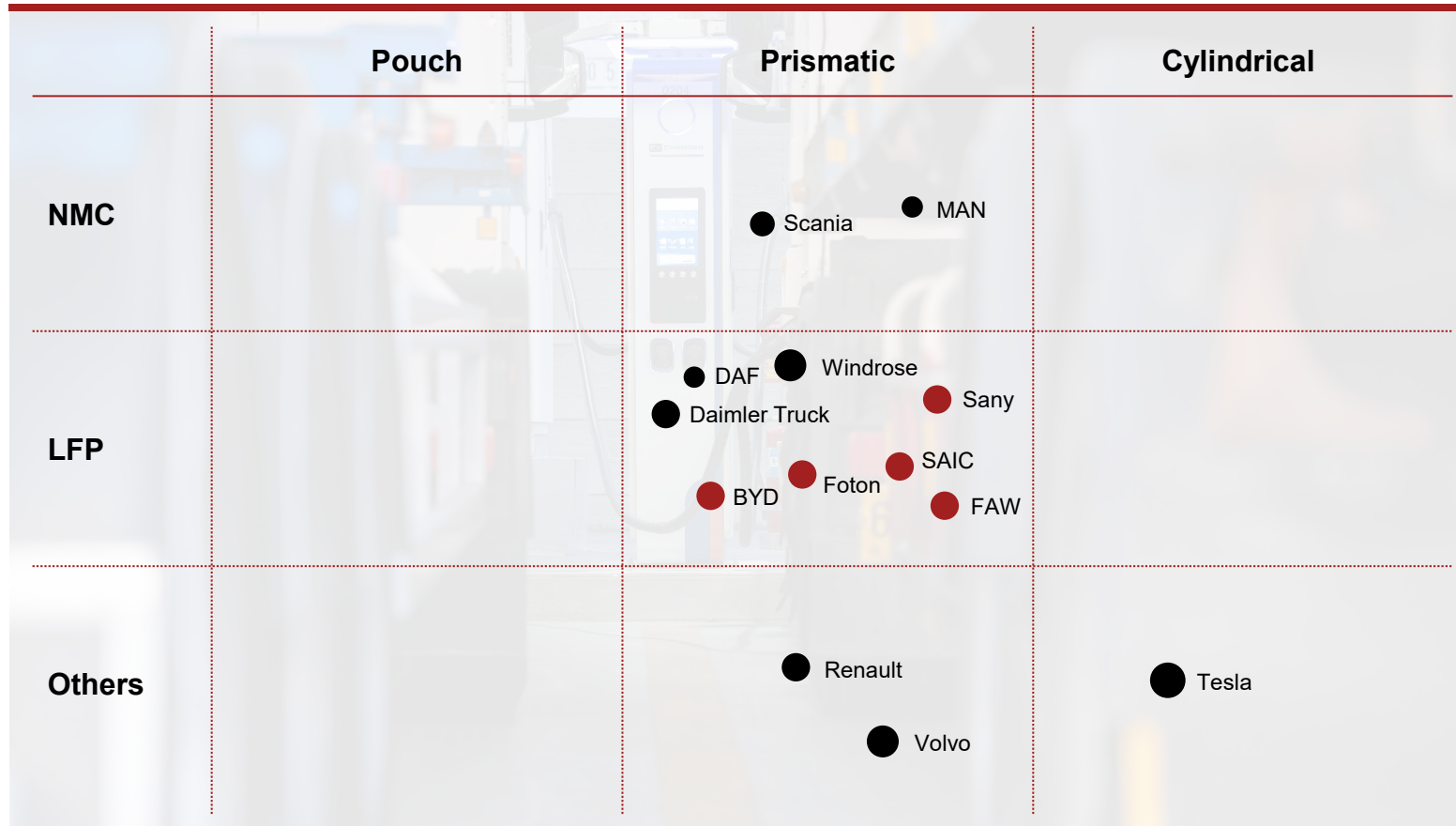


Usable **battery size** determines hybridization potential, while **plug-in capability** adds limited value and **ISG** remains inherently constrained – requiring sufficient **capacity**, high **C-rate** capability, and robust **cycle life**

Prismatic LFP batteries are increasingly observed in BETs – triggering a shift of differentiation potential toward eMotor and powertrain

BET powertrain differentiation

BET battery technology concepts¹⁾ (non-exhaustive)



Implications

- BET battery concepts increasingly **cluster** around **prismatic LFP** with similar battery system energies of ~600–700 kWh
- **Alternative** battery concepts remain possible, but practical implementation is increasingly scarce
- Growing battery technology standardization shifts OEM technology focus with key resulting **differentiation levers**:
 - **Powertrain integration**
Combine battery, eDrive, charging, thermal and control strategy
 - **eDrive**
Develop in-house, efficiency-focused eMotor, inverter, and transmission
 - **Battery system**
Optimize cooling, packaging, safety, durability, and serviceability

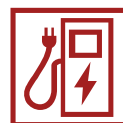
BET economics are winning across regions and use cases, but adoption is constrained by infrastructure and confidence.

China scales through aligned infrastructure and industrial use cases, while Europe and the US face roll-out gaps.



BET is TCO winner across use cases

BET will attain **TCO advantage** by 2030 due to lower energy and maintenance costs, with the advantage increasing further by 2040. Strongest benefits appear in **depot-heavy** and predictable use cases



Infrastructure as key bottleneck for scaling

Public charging **availability**, **depot grid access**, and local transformer capacity determine how quickly fleets can be electrified beyond pilots



Confidence shapes investment

Stable regulation, clear policy support and positive public perception build **investment confidence** for costly electric logistics transformation

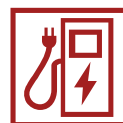
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The global truck market can be segmented across six use cases, whereby the focus in our study is set on the four key truck use cases

Use cases and archetypes overview

Heavy duty truck



Heavy and medium duty truck



Bus (not in focus of this study)



Use case

Long-haul

- Classic long-haul with semi-trailer
- Logistics and industries

Line-haul

- Repeated transports with semi-trailer
- Logistics and industries

Distribution

- Parcel and mail
- Industries
- Food
- Municipal (garbage, firefighter, utilities, etc.)

Specials

- Road construction (dump truck, cement mixer, etc.)
- Special applications

Coach

- Line traffic
- On demand

Urban

- City service bus
- Event short-range transports

Production volume share (2025)

~10%

~25%

~35%

~20%

~5%

~5%

Yearly mileage (km)

150,000

100,000

50,000

40,000

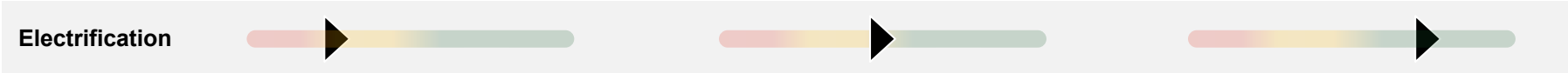
100,000

50,000

Regional electrification momentum diverges – BET wins TCO race across regions but infrastructure and perception are major obstacles

2030 key drivers pushing BET diffusion

	US 	Europe 	China 	Comments
 Economics	Low electricity price helps, cheap diesel still pushes back 30% TCO advantage for HD distribution and HD Specials	Fuel volatility turns TCO into a pull factor 30% TCO advantage for HD Specials and TCO parity for Long-Haul; fuel price spikes adds uncertainty premium on ICE	Low battery and power costs strongly favor BET 35% TCO advantage for HD distribution and HD Specials; 10% TCO advantage for Long-haul	BET exhibits lower TCO than ICE across regions – TCO advantage in China is largest
 Regulation	Federal support fades – California leads alone 45W federal credit ended after 09/2025; CA HVIP still supports up to \$420k per ZEV truck/bus	CO₂ targets and tolls strengthen adoption ZEV toll relief to 06/2031 in Germany; HDV CO ₂ targets tighten to -45% by 2030, -65% by 2035 and -90% by 2040	Policy turns pilots into scale Truck replacement support reaches up to RMB 140k/~\$20.5k per electric truck; NEV purchase-tax relief extended to 2027	Regulation boosts BET most where policy, tolls and incentives create a consistent adoption climate
 Perception	Political polarization reduces confidence Anti-EV-mandate and “Drill Baby Drill” narratives weaken confidence in stable ZEV policy	Proof required beyond green claims Fleet operators still cite use case suitability, charging times and investment uncertainty as adoption barriers	BET becomes industrial normal New-energy heavy trucks reached ~44k in Q1 sales and more than one quarter of the segment	Perception shapes adoption – China normalizes BET while US and Europe remain cautious
 Infrastructure	Corridor pilots, no national network yet Only ~1,500 plugs at 162 public/shared Class 2b-8 facilities across 17 states	Grid readiness defines BEV speed Depot charging requires at least medium-voltage access and sufficient power – approval and grid connections often take years while available capacity remains local	Swap and depot networks scale fastest CATL targets 150k km swap network covering 80% of trunk transport capacity by 2030	Infrastructure is the key scaling bottleneck, with readiness strongest in China’s closed-loop networks



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Source: Strategy& analysis

Impact on electrification ramp-up:
Negative Moderate Positive ▶ Current status

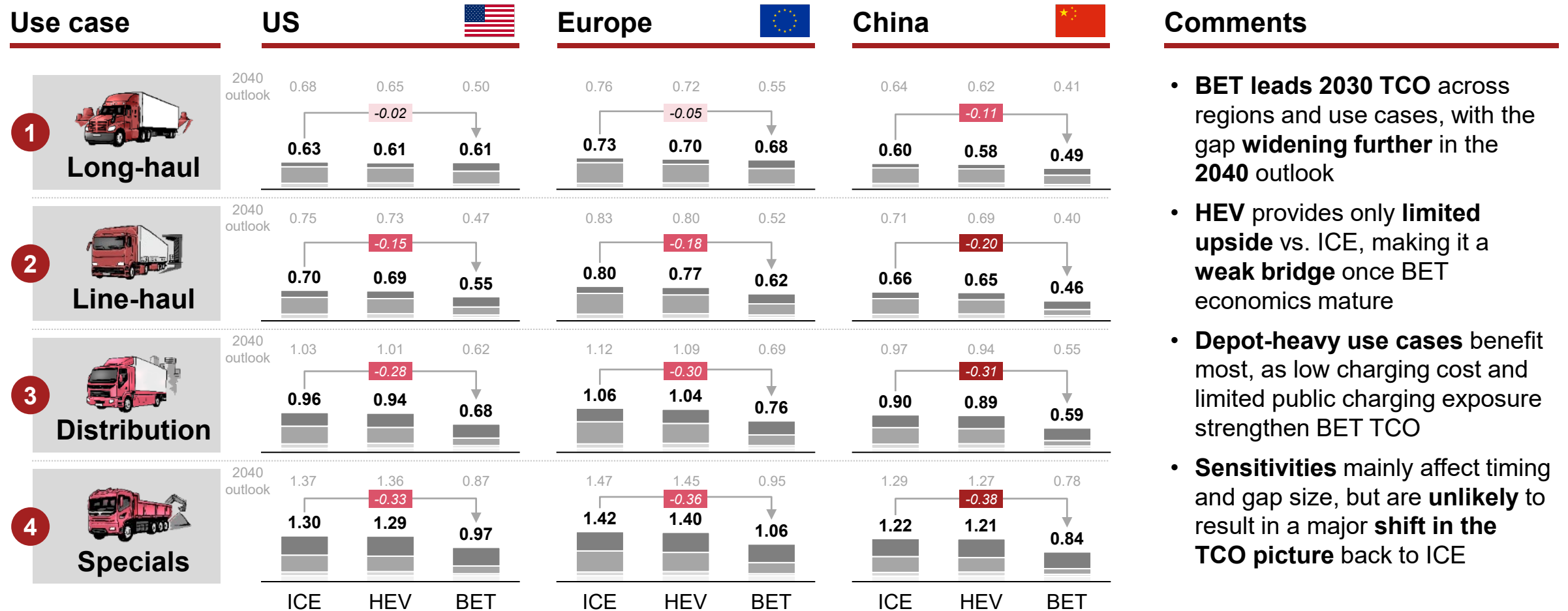
The four key TCO elements of alternative powertrains are covered in the analysis – depreciation, energy, maintenance, and financing

Economics: Breakdown of relevant TCO elements in Europe

TCO elements	Scope ¹⁾	Description	Important cost levers
Depreciation	In scope	Cost estimations and residual value calculation for truck/bus vehicle components including powertrain/energy storage, vehicle body/ manufacturing and overhead/margins	incl. illustrative 2030 Europe assumptions
Driver	(not considered)		Component costs BET battery cell: 70 €/kWh
Energy	In scope	Cost estimation of energy including non-household prices for diesel (incl. CO ₂ tax), AdBlue , electricity for depot and public charging (incl. infrastructure investments)	Component lifetime BET battery: 5,000 cycles
Insurance	(not considered)		Energy costs²⁾ Diesel: 1.50 €/l (incl. CO ₂ tax) Electricity: 21.2 €-cent/kWh for depot CCS charging, 40.7€- cent/kWh for public MCS charging (incl. charging infrastructure mark-up, assumed utilization of 30%/15% for depot/public)
Maintenance	In scope	Cost estimation for wear and tear of vehicle parts incl. labor for inspections and replacement of components	Number of moving powertrain components Maintenance costs: ICE: 0.105 €/km HEV: 0.112 €/km BET: 0.057 €/km
Tax	(not considered)		
Toll	(not considered)	Cost estimation of financing the vehicle acquisition	Interest rate Loan interest rate: 4.5%/year
Financing	In scope		

BET is the TCO winner by 2030 and will further strengthen its lead by 2040, while HEV offers only limited improvement versus ICE

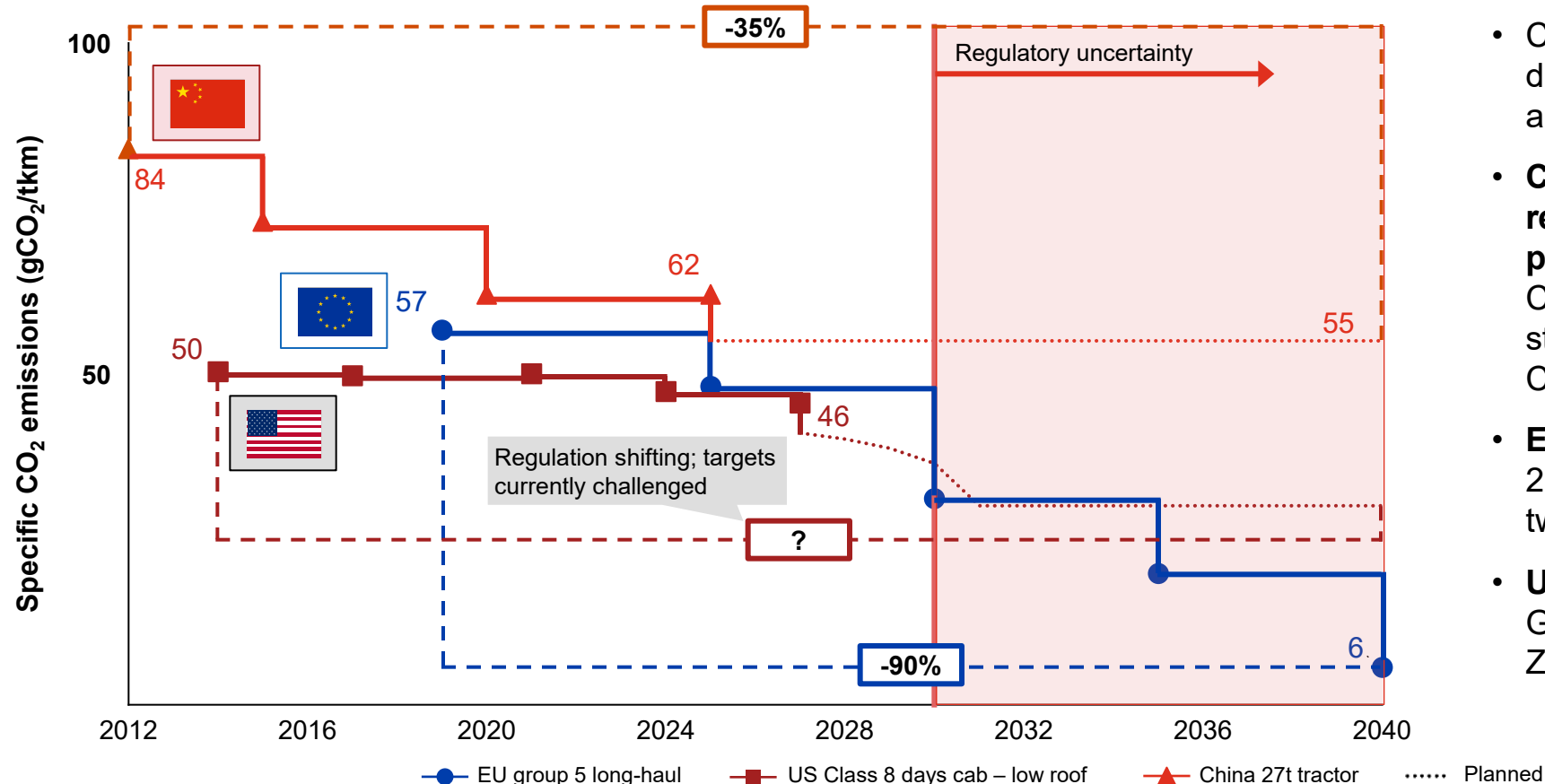
Economics: 2030 Regional TCO per use case (in €/km)



Regulatory landscape diverges – EU holding firm on strict CO₂ targets, US reversing course, and China relying on incentives

Regulation: Global CO₂ regulations and economic incentives

International CO₂ emission truck fleet targets



Comments

- CO₂ targets across markets cannot be directly compared; conversion with appropriate proxies is required
- **China** lacks direct HDT CO₂ limits today, **relying on fuel-consumption rules, pollutant standards and NEV policies**; China VII heavy-duty vehicle emissions standard may introduce direct CO₂ regulation
- **EU targets** (-45% by 2030, -90% by 2040) **remain firm**; minor 2026 credit tweak makes compliance easier
- **US policy shifting**: Phase 3 Greenhouse gas rescinded, California's ZEV mandate facing legal challenges

Beyond CO₂ targets, China applies the most integrated BET policy measures, while Europe and US face rollout bottlenecks

Regulation: Policy measures beyond CO₂ targets

US	Europe	China
 Purchase incentives  Federal support was short-lived, while stronger incentives remain state-specific E.g., Federal 45W offered up to \$40k for heavy vehicles; California HVIP is up to \$330k	 Only country-specific and budget-limited purchasing grant programs exist E.g., AanZET in Netherlands (N3 e-trucks up to €115k); Germany has no equivalent	 Subsidized reduction of the upfront investment gap between ICE and BET E.g., China's heavy-truck renewal program grants up to RMB 95k when replacing older diesel trucks
 Operating incentives  Operating incentives are scarce and regional, with California moving forward E.g., In LA port operations, ZEVs are exempted from \$10 diesel drayage per loaded container	 Reduced operating cost mainly through toll exemptions and road-charge differentiation E.g., Germany exempts zero-emission trucks above 4.25 t from truck tolls until mid-2031	 China pushes electric trucks through industrial deployment zones E.g., Ports, mines and steel mills use BETs in closed-loop operations with centralized charging
 Access restrictions  Access restrictions are mainly California-led, but legal disputes weaken certainty E.g., CA Advanced Clean Fleets lost momentum after waiver withdrawal and federal challenges	 Diesel access is increasingly restricted in cities, with varying levels of severity E.g., Dutch zero-emission logistics zones started in 18 municipalities, with further cities following	 China grants NEV trucks preferential access rather than relying on broad city bans E.g., Beijing restricts diesel freight inside ring roads; NEV trucks can receive easier permits
 Infrastructure regulation  Infrastructure support exists, but rollout is slow and politically unstable E.g., NEVI funding exists, but only limited charging infrastructure has materialized	 Binding infrastructure framework exists, but actual rollout must progress E.g., AFIR requires HDV charging on TEN-T corridors; ACEA calls for 50k truck chargers by 2030	 China embeds charging and swapping into strategic infrastructure policy E.g., Charging policy targets >100k high-power chargers by 2027, prioritizing highways and HDVs
 Fragmented and unstable policy environment undermines fleet planning confidence	 Robust regulatory pressure, but implementation support remains uneven	 Strengthening of industrial policy, with infrastructure and economics supporting adoption

China turns BETs into an industrial standard while Europe and US face confidence gaps due to grid and policy uncertainty

Perception: Regional differences in electrification sentiment

US



August 2025

REUTERS

US sues California to block tough emissions standards for trucks

Jan 2025

The guardian

Trump vows to 'unleash' oil and gas drilling as he rolls back climate rules

President declares energy emergency, reiterates Paris withdrawal plan and overturns emissions standards

“Policy keeps **swinging**, so I cannot plan a **fleet transition** that depends on **ten-year investment certainty**.”

– US fleet strategy executive

“Drill Baby Drill” agenda and federal emissions rollbacks reduce confidence in stable BET policy

Europe



July 2025

Automotive World

Scania boss warns Europe risks missing CV CO₂ targets

Scania's Christian Levin emphasizes that strong regulatory support will be essential for Europe to get anywhere near its CO₂ targets. By Stewart Burnett

May 2026

Electrify.com

93% of battery-electric truck users are highly satisfied

“The **economy is challenging**, and without guaranteed **grid capacity**, I cannot justify **locking capital** into electric trucks now.”

– German logistics fleet operator

Investment caution and inconsistent public support hinder confidence in BET adoption

China



April 2026

CHINADAILY.COM

Shandong making shift to green trucking

Jiahui, a local truck driver said his electric truck which is equipped with a 400 kWh battery can be fully charged in less than an hour, ensuring timely delivery

July 2025

REUTERS

Soaring electric truck sales deal new blow to diesel use in China

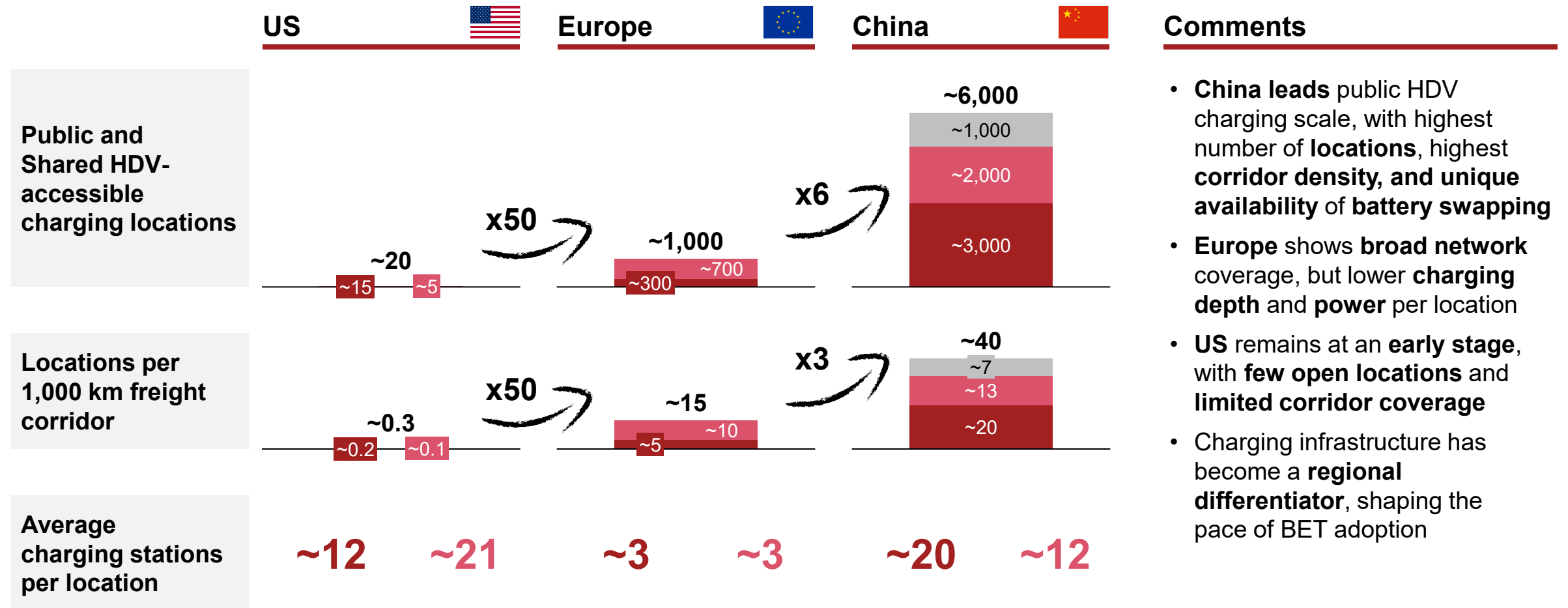
“The electric truck is **reliable**, **quiet** and **smooth** to drive. For me, this is the **future** of trucking and it produces no emissions.”

– Chinese truck driver

Strong policy backing and Chinese innovation position BETs as the current and future industrial standard

China's dense HDV charging and swapping network strengthens BET adoption, while Europe advances and the US face rollout gaps

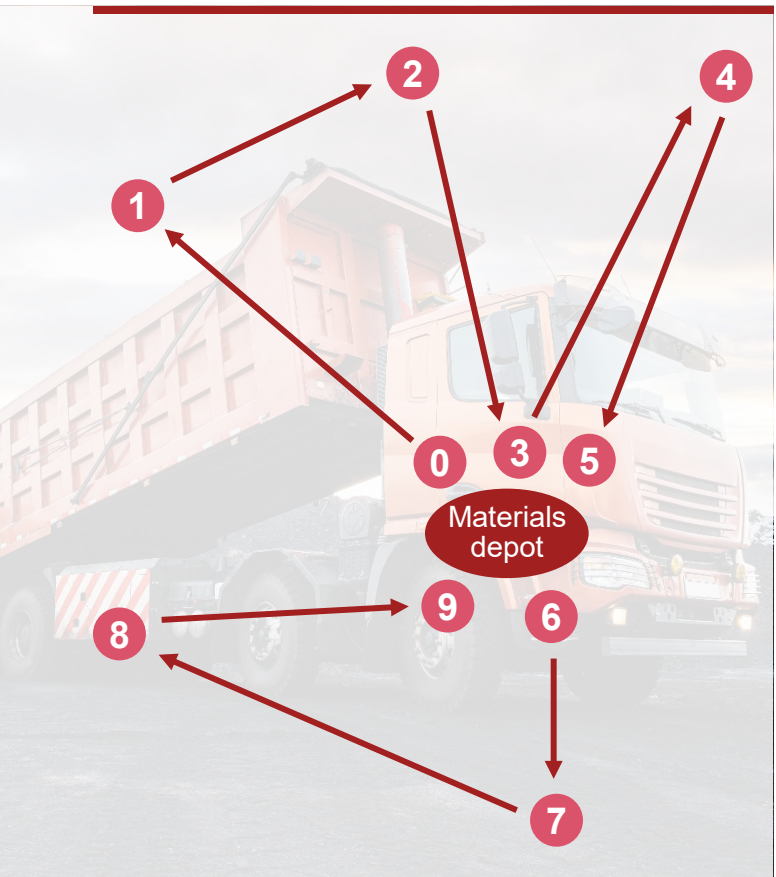
Infrastructure: Public charging infrastructure overview



Chinese BET construction tippers are already viable in daily operation due to predictable routes, TCO advantage, and depot charging

Case study: Successful Chinese BET construction tippers

Route network



Schedule

Stop	Time	SoC	Description
0	07:45	100%	Fully charged; load material and depart
1	08:45	82%	Site 1 unloading
2	09:35	70%	Site 2 unloading
3	10:45	52%	Return to depot and reload material
4	11:50	33%	Site 3 unloading
5	13:00	14%	Return to depot and recharge/reload
6	14:00	54%	Recharged and reloaded; depart
7	14:30	47%	Site 4 unloading
8	15:50	26%	Site 5 unloading
9	16:30	13%	Return to depot for overnight recharging

Diffusion driver fit



Economics

- Predictable route profile and charging window create a suitable BET use case
- Low depot charging costs create a 30% BET TCO advantage¹⁾ at similar vehicle price



Regulation

- ~15% BET purchase subsidy²⁾ when replacing old diesel construction tipper with new BET
- NEV status can improve eligibility for restricted-route permits and public construction projects



Perception

- Green, quiet truck operation supports positive customer and public perception
- Break-time charging fits operations without disrupting the schedule



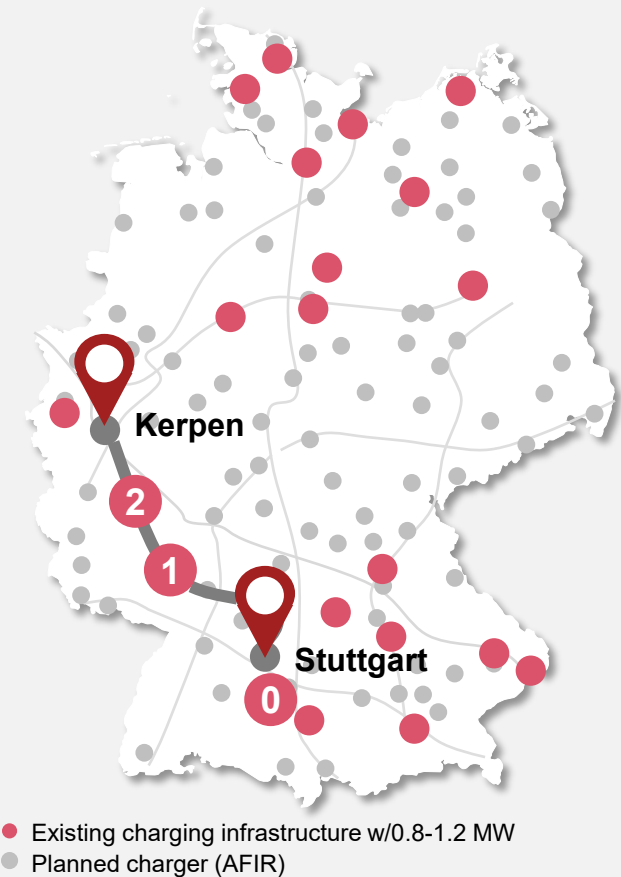
Infrastructure

- Fleet consists of 10 BETs – smart scheduling limits peak charging to 3 vehicles in parallel
- Requires ~600 kW above ~250 kW plant load, feasible due to grid capacity and installation

Inadequate charging infrastructure leaves German long-haul BET unreliable and unprofitable today, partly due to lagging build-up

Case study: German Line-haul behind expectations

Route and charging network¹⁾

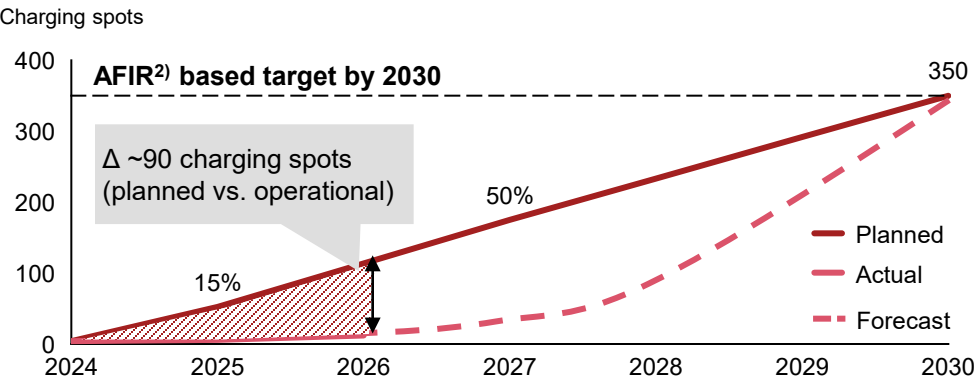


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Schedule

Stop	Time	SoC	Description
0	07:45	100%	Fully charged and loaded
1	11:00	~20%	Approaching planned charging window; no available MCS
2	11:30	0%	Fully discharged

Truck infrastructure build-up in Germany



1) Infrastructure not only dedicated to heavy-duty vehicles 2) AFIR: Alternative Fuels Infrastructure Regulation
Sources: Strategy& analysis, Bundesnetzagentur, <https://www.electrive.com/2025/02/18/845000-charging-points-in-the-eu-but-hardly-any-for-trucks/>

Diffusion driver fit

Economics

- Unplanned stops and detours raise operational costs, erasing BET's TCO advantage
- Charging downtime cuts daily range, reducing asset utilization

Regulation

- AFIR²⁾ mandates the rollout of fast charging infrastructure, but rollout lags far behind needs
- No slot-reservation framework (solutions emerging through market-driven initiatives)

Perception

- Limited charging availability exposes long-haul BET to single-point-of-failure risk
- A single charging failure disproportionately undermines trust, slowing fleet adoption

Infrastructure

- MCS networks concentrated on few routes; gaps break long-haul corridors
- Operating power capped at 1–1.2 MW per point

Impact on electrification ramp-up:

● Negative ● Moderate ● Positive

September 2026

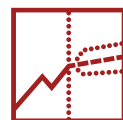
BET diffusion is expected to accelerate after 2030, but regional ramp-up speed will remain highly uneven.

China leads volume scale, while Europe must manage delayed adoption and rising foreign competition.



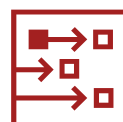
China scales ahead of forecast

China's BET ramp-up developed **faster than expected**, supported by demand scale, battery cost advantages and industrial use cases. **Domestic OEMs** are expected to maintain market shares, limiting access for foreign players



Europe lags behind forecast

BET forecasts were **too optimistic** for Europe and North America, where infrastructure, fleet confidence, and investment barriers hinder deployment. Western players will face **rising Chinese BET competition** in their local market



European OEMs must defend differentiation

To **compete**, European OEMs need to **leverage** quality, service density, charging ecosystem ownership, software, and use-case expertise. **Differentiation** must move beyond trucks toward integrated fleet enablement

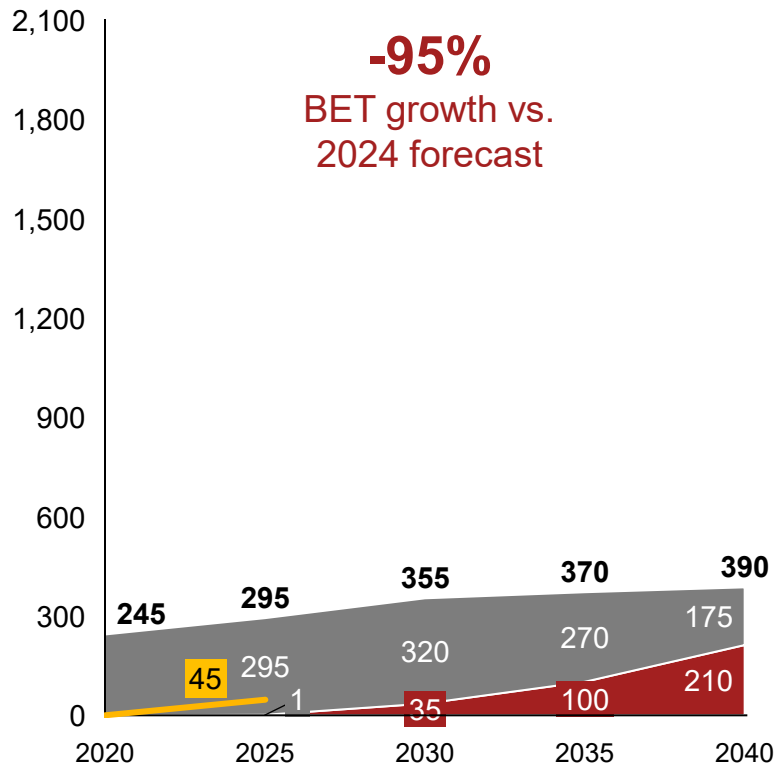
The actual BET sales volumes in Europe and US lag expectations, while China BET ramp-up is advancing at full speed

Truck electrification ramp-up forecast (03/2024) vs. actuals (03/2026)

US (k vehicles sold)



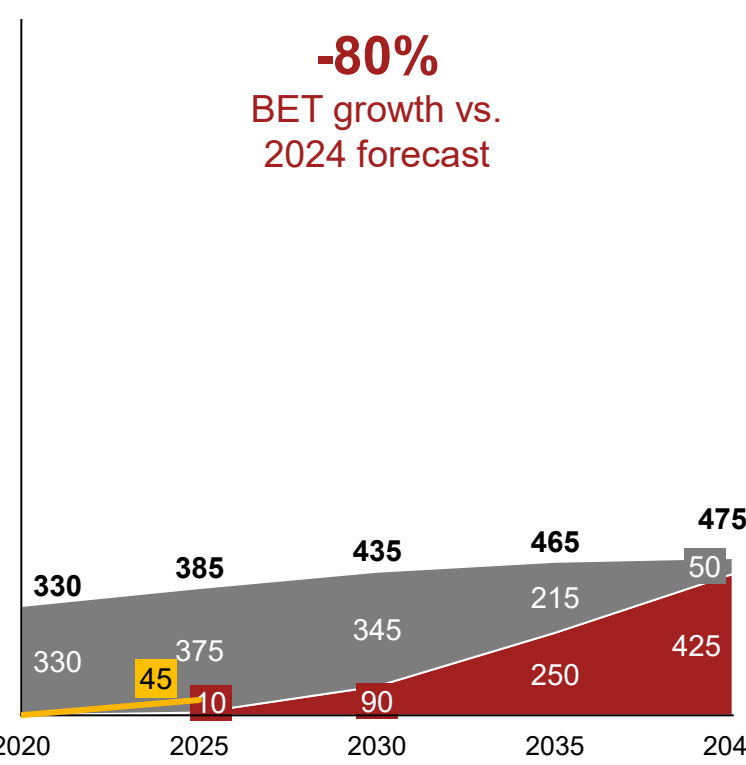
Transformation speed slowdown



Europe (k vehicles sold)



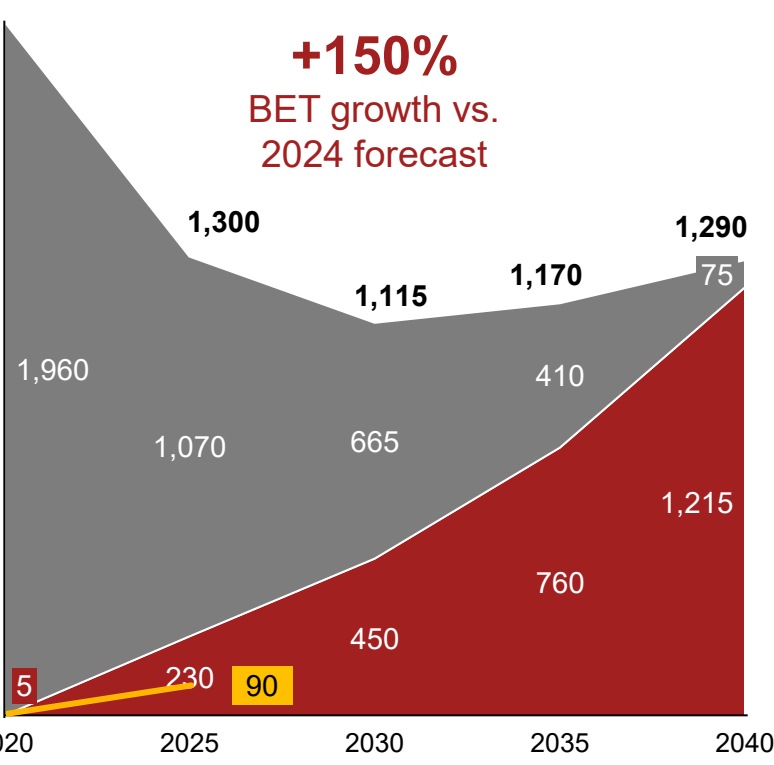
Potential transformation speed slowdown



China (k vehicles sold)



Potential transformation speed increase

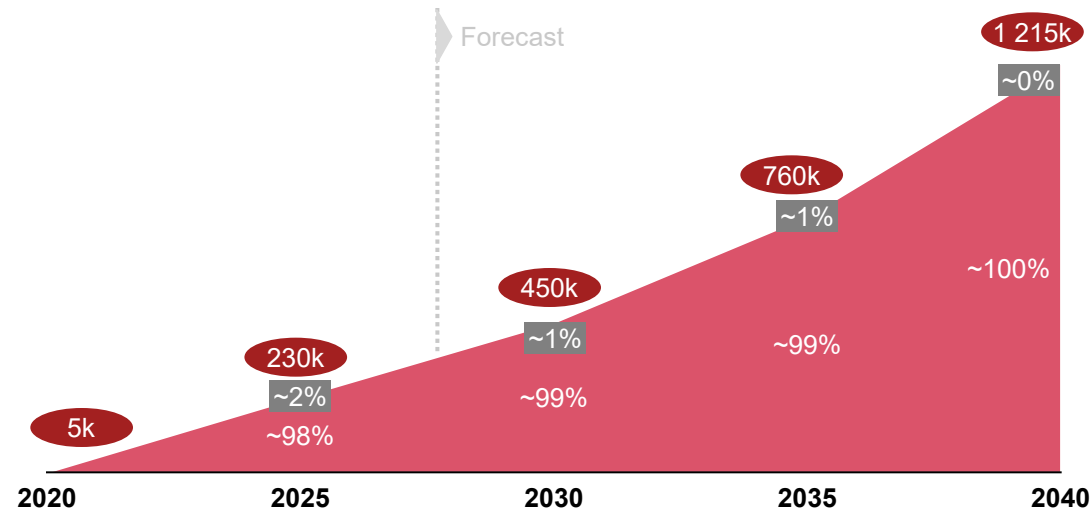


Limited access to China, as well as rising US and Chinese competition, puts pressure on European BET OEMs in their domestic market

Market share in home markets: China vs. Europe

BET sales in China by OEM origin

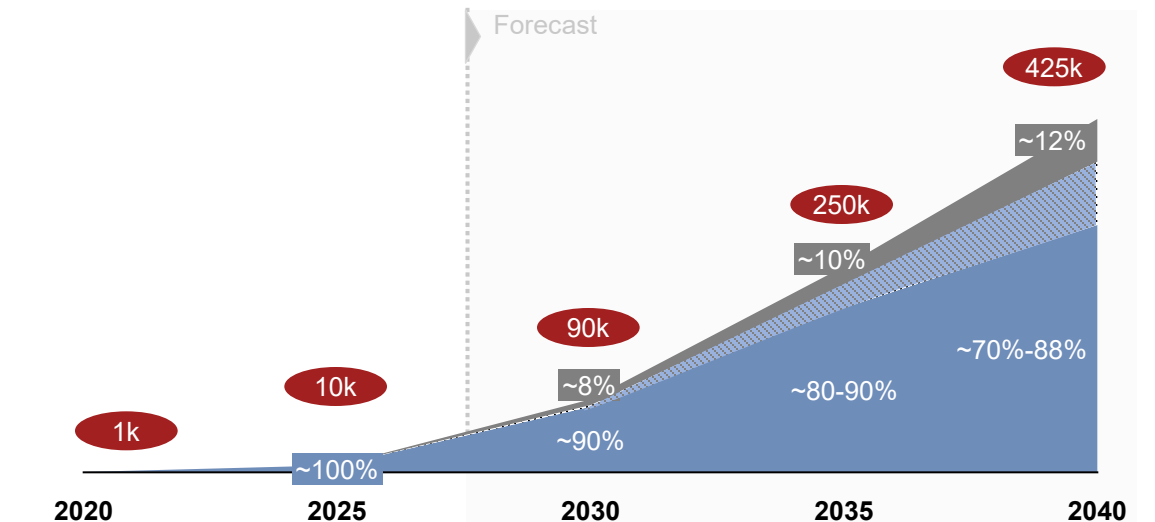
(in k vehicles sold, share in %)



- The Chinese truck market is expected to remain almost entirely supplied by domestic OEMs for the foreseeable future
- Existing foreign production/joint-venture footprints have not translated into significant market share and are unlikely to do so in the near term

BET sales in Europe by OEM origin

(in k vehicles sold, share in %)



- Market share of EU OEMs is projected to decrease by more than five percentage points in the next three years
- Key Chinese (e.g. BYD, SANY) and US (e.g. Ford) OEMs establish production in Hungary, Turkey, and other locations to enter Europe's BET market, putting domestic market share at risk

To defend their home market, European OEMs must leverage historic strengths and align with infrastructure and regulators

European OEM differentiation levers

1. Premium Quality, Brand Heritage + Efficiency

Superior build quality, cab ergonomics, driver comfort, and efficient eDrive integration, supported by strong brand heritage and residual value. A key buying criterion, especially for driver retention and energy-efficient fleet operation

2. Charging + Energy Ecosystem Ownership

Scale high-power MCS charging, depot solutions, and energy. Provide PPA offerings or joint depot offerings, since owning the energy interface creates stickiness that Chinese entrants can't easily replicate

3. Software-Defined Vehicle + Data Services

Proprietary software, OTA updates, fleet platforms, and AI-based optimization drive recurring revenue and lock-in. Utilize new tools to catch up when behind

4. Service Network Density + Uptime Guarantees

Dense European service and parts network with uptime SLAs, a structural advantage that takes 10+ years to build. Remote diagnostics and battery competence reinforce this advantage

5. Regulatory, Safety + Sustainability Edge

EU regulation creates protective entry barriers through CO₂ standards, CBAM, Battery Regulation, cybersecurity, GDPR, and circularity. Transparent supply chains and low-carbon production act as differentiators

6. Customer Intimacy + Use-case Expertise

Deep understanding of European use cases enables tailored configurations and consultative fleet advisory. This is difficult to replicate from standardized Chinese portfolios

To turn BET economics into adoption, cross-industry efforts are required – from regulation and OEMs to energy, charging, construction, and logistics execution.



Ecosystem alignment enables scale

BET adoption requires **coordinated action** across public sector, energy, charging providers, and construction. Grid access, depot readiness, and public HDV charging must be developed in **parallel**



Logistics operations must become BET-ready

Logistics players need to identify **suitable use cases**, align schedules with charging windows and build depot charging capability. Their BET scale-up will depend on **daily operational fit**



OEMs must leverage fleet enablement

European OEMs need to move **beyond the vehicle** and **differentiate** through use-case tailored BETs, uptime, service density, and integrated ecosystem offerings

Truck electrification is a cross-industry effort, requiring activities from multiple stakeholders along the value chain

Cross-industry impact and recommendations



Public sector

De-risk the transformation

- ... ensure policy certainty
- ... accelerate grid approvals
- ... support early investments



Financial services

Lay the foundations

- ... offer attractive leasing models
- ... provide low-interest loans
- ... fund infrastructure



Energy and infrastructure

Power the transformation

- ... supply required power
- ... build required infrastructure
- ... balance and manage grid



Construction

Industrialize electrification

- ... deploy modular charging layouts
- ... reduce grid-upgrade needs
- ... simplify permits and buildout



OEMs

Enable electric fleet operations

- ... deliver use-case tailored BETs
- ... focus on vehicle differentiation
- ... build-up combined ecosystem



Logistics

Get BETs into daily operations

- ... electrify hubs and infrastructure
- ... prioritize predictable BET-routes
- ... match operations with charging



Charging providers

Provide reliable charging access

- ... scale public HDV charging
- ... offer truck-ready site layouts
- ... ensure availability and secure pricing

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Authors



Dr. Jörn Neuhausen
Senior Director E-Mobility
PwC Strategy&
joern.neuhausen@pwc.com



Dr. Philipp Rose
Director E-Mobility
PwC Strategy&
philipp.rose@pwc.com



Jan-Hendrik Bomke
Senior Manager
PwC Strategy&
jan-hendrik.bomke@pwc.com



Steven van Arsdale
Senior Manager
PwC Autofacts
steven.van.arsdale@pwc.com



Thorsten Bußmann
Manager
PwC Strategy&
thorsten.bussmann@pwc.com



Dr. Luca Tendra
Senior Associate
PwC Strategy&
luca.tendra@pwc.com



Dr. Sarah Lingohr
Senior Associate
PwC Strategy&
sarah.lingohr@pwc.com

Co-Author