



MOTUS 

TCO FOR LOGISTICS AND PUBLIC TRANSPORT

The “Total Cost of Ownership”
for a zero-emission local public
transport and logistics sector

Study summary



Assumptions for the study and main questions we want to answer

Rationale for the study

-  The freight transport (light and heavy trucks) and the public transport (bus) sector places particular emphasis on **operational efficiency** and the provision of **low-cost solutions**. From this perspective, the introduction of vehicles powered by **alternative fuel sources** can be **challenging** due to the potential higher total cost of ownership.
-  Within Motus-E working group (logistics and bus), we have the common goal of accelerating the **decarbonisation of the Truck-Bus segment**, also with a view to the decarbonisation planned for the transport sector by 2050.

Main questions we want to answer



- 1 What is the **current starting point** today in terms of differential TCO between the different power sources in the Truck-Bus segments?



- 2 What are the main **regulatory/financial incentives available** to support electrification?



- 3 What **actions** can we take as industry players to accelerate electrification?

Focus on LCVs, HDVs and city buses

Approach to TCO

- **Purchase** of a new vehicle today, with **sale after 6 years** of use; alternative business models (e.g., leasing, rental) are excluded from the calculation
- Focusing the evaluation on the **differential cost items** between the different power sources
- Considered a market benchmark to date, **without potential upsides** related to electrification (e.g., incentives, financial leverage)

Scope of the study

	Light trucks LCV	Heavy trucks HDV	Bus 12 meters
Power sources	Diesel Electric	Diesel Electric LNG	Diesel Electric CNG
Mission	Freight transport	Freight transport	Transport of people
Type of transport	Urban	Extra-urban	Urban
Km / year	80.000	120.000	55.000
Sources	OEM Truck, Utilities Co., Logistics Co., MASE, Bocconi GREEN, IMU Intelligence, and other industry literature		



More and more companies require vehicle delivery models based on rental or leasing formulas, whose fee, however, internalizes higher financial/operating costs: for this reason, the TCO of this analysis has focused on the purchase (focus next page)

Vehicle disposal models and potential cost implications

	Purchase	Leasing	Long-term rental
Main features	- Vehicle purchase via direct payment - It provides for the transfer of ownership and assumption of the risk related to the residual value in the resale at the end of the period of use	- Financial contract with monthly fee for use of the vehicle No transfer of ownership, net of potential final redemption payment - Operating costs borne by the user	- Formula with fixed monthly fee No transfer of ownership - Main operating costs borne by the rental company (excluding fuel and extraordinary maintenance)
Impact on vehicle types	Light trucks Heavy trucks Bus	Light trucks Heavy trucks Bus	Light trucks Heavy trucks Bus
Key numbers	- Variable purchasing costs based on segments and power sources (focus on next page) ~25% terminal value after 6 years	90% of the trucks are sold in Italy on 60-month leasing formula. 80% of leasing use formulas without BuyBack* with low redemption and higher installments. - The BEV with BuyBack formula is more competitive when compared to a diesel without BuyBack.	- The rental cost varies based on duration, down payment, services, and residual value (e.g., in Italy for a 36-month contract with mileage between 45,000 and 60,000 km, the installments are approximately €400 with a down payment of €5,000). - There is no provision for redemption at the end of the contract.
Cost impact vs. purchasing model	Model used for TCO calculation	↑ The fee internalizes higher financial costs and services that user decides to add as well as the risk associated with resale	↑ The fee internalizes higher financial costs and services that user decides to add as well as the risk associated with resale

*Buyback: a formula that provides for the immediate transfer of ownership of the asset, in exchange for financing of a portion of the latter with a clause for payment of the residual value at the end of the lease.

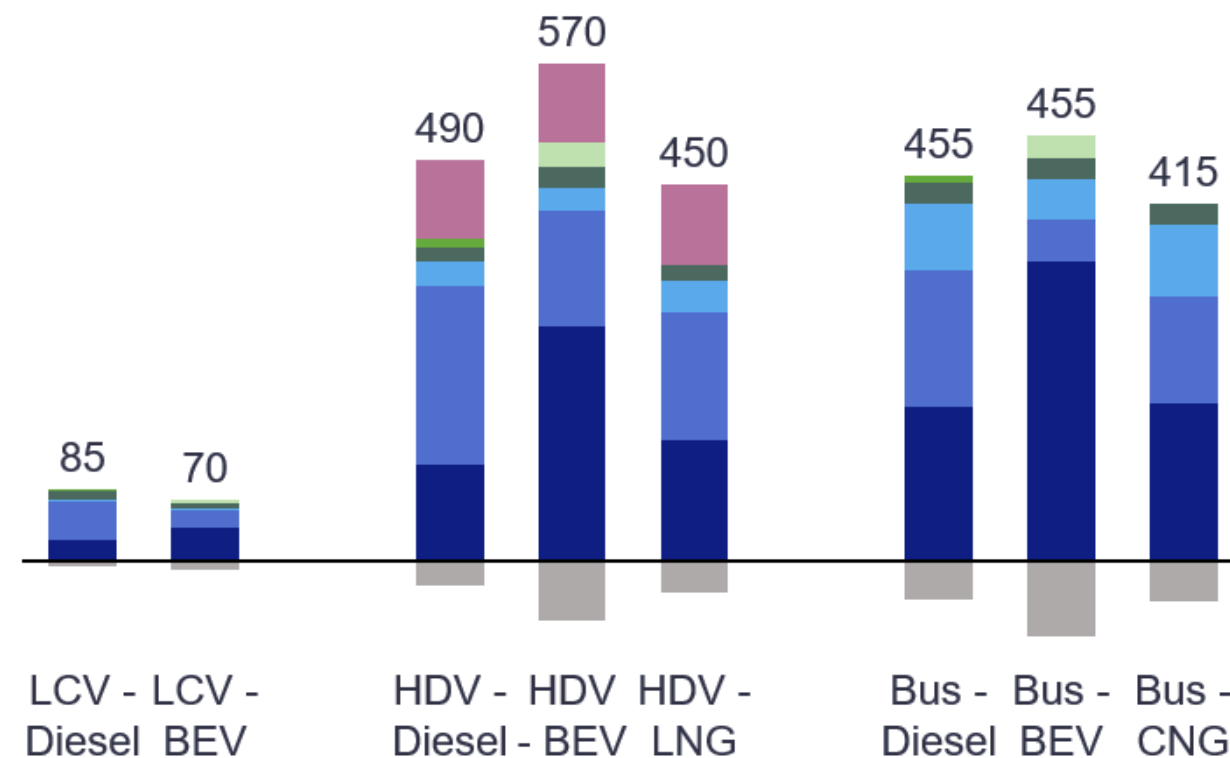
Competitive EVs in the LCV and Bus segments

Additional levers to be activated for HDV

TCO – Base case | k€ over 6 years of use

APPROACH

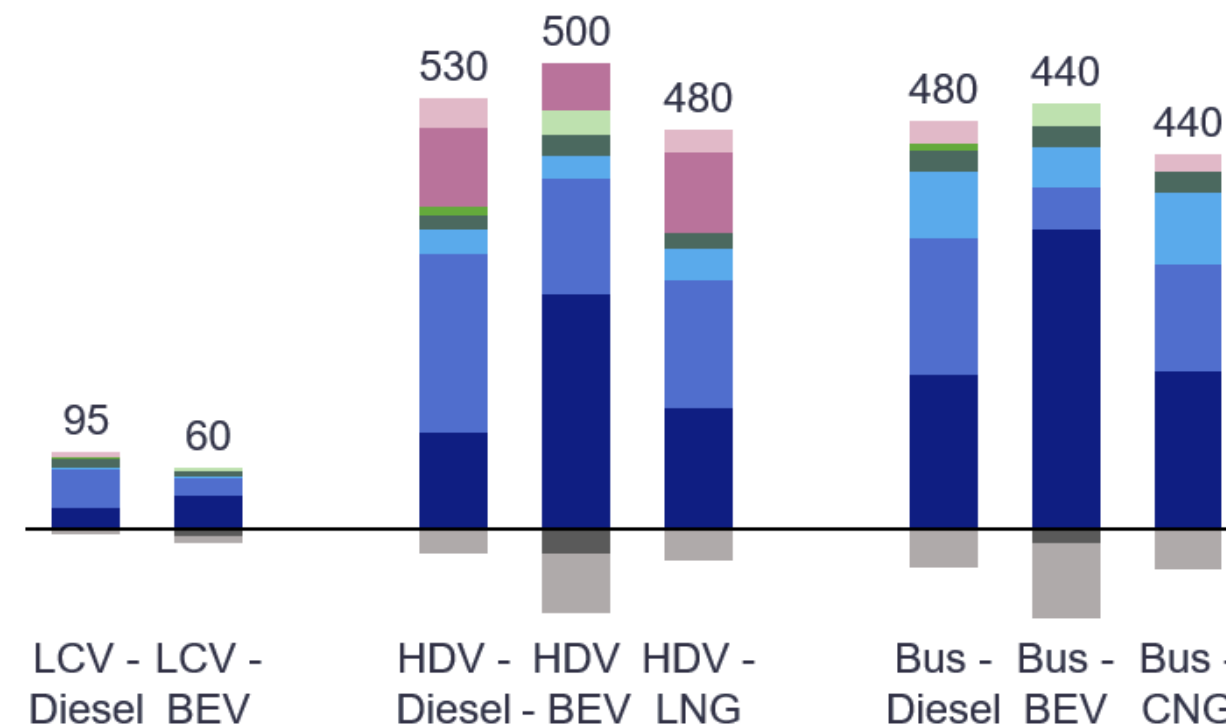
- Focus on **differential cost items** between power sources
- Purchase of a **new vehicle today (2025)**, with resale after **6 years** of use
- Based **on current market conditions**, without potential upside related to electrification (e.g., incentives, financial leverage)



TCO – Upside case | k€ over 6 years of use

UPSIDE CONSIDERATIONS

- Introduction of **electric CICs from 2026** for owners of electric trucks and buses (valued as per the Motus-e – MASE proposal)
- Application of **ETS tax on fuel consumption from 2027**
- Partial toll exemption** considered **from 2026** as per Eurovignette regulation (assumed exemption of ~50%)



Key observations

- Currently, **BEV** vehicles **are competitive vs. diesel** in the LCV truck and bus segments
- The TCO of electric vehicles has a **higher incidence of purchase cost** and **lower operating costs** compared to diesel/LNG/CNG
- In the TCO for trucks, **additional economic/financial levers** must be considered **that make BEVs more competitive than other fuels**.



Main regulatory levers, non-repayable grants and financial instruments

Main types of facilitating levers

Detailed analysis on a dedicated page

Effect



Regulatory Measures

Presence of regulatory obligations or incentives that encourage the adoption of green vehicles (e.g., Eurovignette)



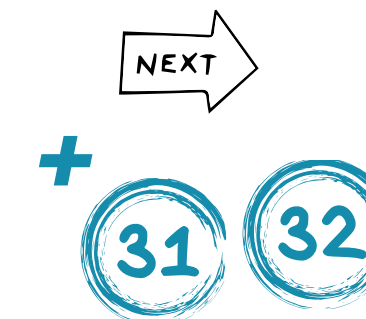
Non-repayable contributions

Funds/financing incentives made available for the purchase of green vehicles



Debt or credit financial instruments

Various debt/credit instruments (e.g. favorable lending rates) to support the transition



Green premium for electric logistics

Additional remuneration for sustainable logistics service



Reducing vehicle costs for the logistics company

Revenue increase i.e., sustainable logistics service fee

Various financial instruments from banks to support sustainability projects

DEBT INSTRUMENTS ...

Sustainability-linked

- Financing with conditions (incl . interest rates) linked to the **achievement of specific sustainability targets** (SPTs ¹)
- Goals are measured against **the company's ESG KPIs**
- **Benefit** upon reaching targets of ~ 0.1 – 0.2% on the rate

Project specific

E- mobility specific

Green financing (project finance)

- Financing with funds **exclusively earmarked for projects with a positive impact on the environment**
- Green Loans **specific for green projects** (project fin)
- ~ **0.5-1% lower** rate vs. standard financing

Project specific

E- mobility specific

E- mobility financing specific (project finance)

- Category of Green Loans intended exclusively for **electric mobility projects**
- They support the purchase of electric **vehicles** (EVs), charging **infrastructure** and other related technologies (e.g. PV)

Project specific

E- mobility specific

...AND CREDIT

Certificates of Release for Consumption (CIC) / White Certificates

Electric CICs : RED-III proposal brought to MASE by Motus-E

White certificates: white certificates for fleet electrification

TOOLS PROVIDED BY...(not exhaustive)



Customers are willing to pay a “green premium” for sustainable logistics services

Green brand value

- Especially in B2C sectors, sustainability is becoming a relevant element for brand positioning
- The effort towards decarbonisation often includes Scope 3 emissions; i.e. emissions from one's customers and suppliers (including logistics ones).

Financial benefits

- Like logistics companies, their customers can also enjoy financial benefits for the decarbonisation journey
- This may incentivize them to select suppliers that increase the banks' ESG scores towards them.

Green premium

- Companies may therefore be willing to pay a green premium to their suppliers for a more sustainable good/service (such as an electric vs. traditionally sourced logistics service)

Examples of decarbonisation targets

Goal 3 Target (@2030)

Specific targets on logistics

FERRERO 

-43% Scope 3 emissions including materials, logistics, and packaging



100% green vehicles for S. Pellegrino water logistics



-25% scope 3 emissions per ton of product sold

Examples of financial benefits

Detailed analysis on a dedicated page

30

31

Market research examples (Europe)¹


Chemicals: >95% of customers are willing to pay a green premium (of which 35%+ over 5%)

Metals: >90% of customers are willing to pay a green premium (of which 35% are willing to pay more than 5%)

Automotive: >90% of customers are willing to pay a green premium (of which 50%+ over 5%)

Source: Sustainability report; 1) Interviews conducted by the working group; European scope

The White Certificates system

ITALY

Incentives



Vehicle

Incentive



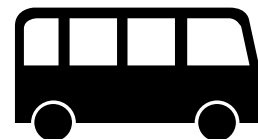
500 €



1.500 €



29.000 €



31.000 €

The obligated parties are electricity and gas suppliers with more than 50,000 customers.

Unit of measurement 1 TEP, equal to approximately 5 MWh of annual savings. Value equal to €250-400

Not combinable with other national incentives but only with regional or European funds

Centralized market managed by GSE

Extremely high bureaucracy to certify savings

FRENCH CASE

Incentives



Vehicle

Incentive



500 €



4.500 €



55.000 €



95.000 €

The obligated entities (electricity, gas and LPG suppliers) have energy reduction targets established by law: directly implementing energy efficiency projects

1. purchasing CEE from other entities on the market
2. by paying a penalty.

1. Establishment of a single fund for energy efficiency projects.

Unit of measurement cumulative kWh (no minimum required)



The fund supports ecobonuses and social leasing, without impacting public finances.

Proposals for improving the White Certificate system

Cumulation (Article 10, paragraph 1, of the Ministerial Decree of 11 January 2017)

1

- It would be appropriate to provide the opportunity to fully combine incentives with national incentives, including those deriving from European funds/NRRP, such as the upcoming MASE incentives for microenterprises and MiMIT, for supporting the renewal of the N1 and N2 fleets, or with the Social Climate Fund, to develop the mechanism's potential. Other countries, such as France and Spain, do not have this limit.

Use of renewable sources in the transport sector

2

- It is proposed to extend the use of the coefficient that rewards the use of RES (currently only applicable to cars) to other types of vehicles such as trucks and buses, thus further supporting the electrification of two key segments in terms of achieving European decarbonisation targets (e.g., all new urban buses will have to be zero-emission by 2035).

Further comparisons with European systems

3

- It is proposed to use VECTO ([link](#)), developed by the European Commission, to determine CO2 emissions and fuel consumption for trucks and buses, replacing the currently required and cumbersome certifications. Since January 1, 2019, VECTO has been mandatory for new heavy-duty vehicles, providing certified data that supports pre- and post-repair measurements, standardizes efficiency, and facilitates the verification of savings. In France, the proceeds from the exchange of certificates, special projects, and penalties for failure to achieve targets are placed in a fund that fully finances both the Ecobonus and Social Leasing for private citizens.
- It is proposed to eliminate the minimum savings threshold for accessing the White Certificate system: currently, in fact, a saving of at least 1 TOE (approximately 5 MWh per year) is expected, unlike in France, for example, where only cumulative kWh are measured, with no access limit.

Final considerations and call to action

- CAPEX incentives to bridge the cost gap between purchasing diesel and battery electric vehicles (BEVs).
- Revision of the legislation regarding white certificates, inspired by the French model.
- Insurance for electric vehicles in other countries is less expensive than that for diesel vehicles.
- Experimental application of the “Eurovignette” on the optimal routes identified in the study “Optimal areas for charging e-trucks” to promote electrification.
- Facilitate collaborations between transport operators, energy suppliers/CPOs, and local authorities to reduce the already significant CAPEX investments required for truck purchases and the infrastructure needed for charging stations.
- Extension of the energy-intensive regulations to large logistics and local public transport (LPT) companies to reduce costs.
- Leverage the positive externalities generated by the transition to electric vehicles by creating credit systems that certify the decarbonization of logistics. This would facilitate ESG reporting, access to subsidized financing, and additional tools that do not impact the state budget but support the transition and integration into the ETS2 mechanism.

Deep-dive sul Total Cost of Ownership



The alternative fuel truck market

ning Purch

Total
Cost of
Ownership

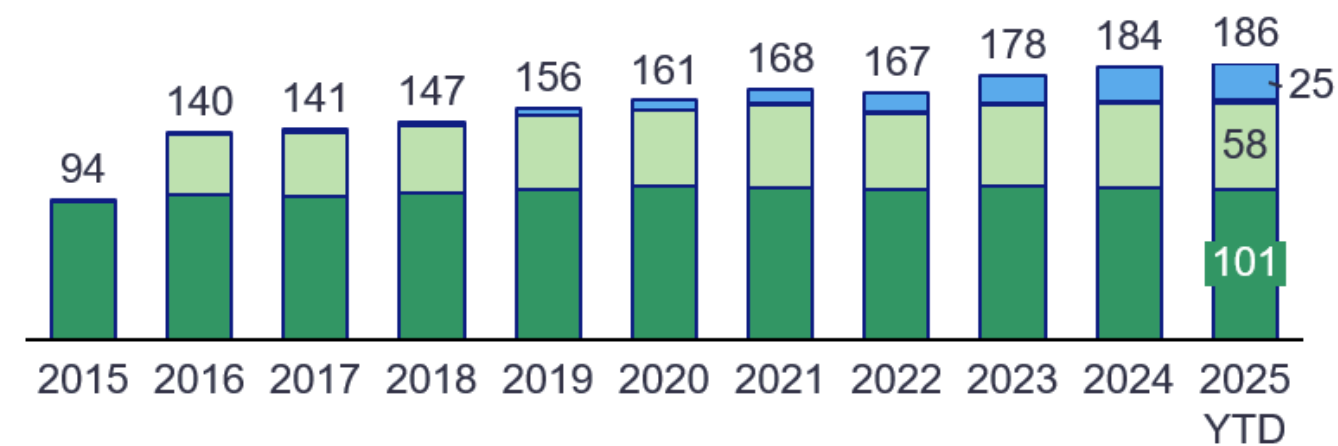
alternative
fuel vehicle
fleet
k#

registration
fuel vehicle
fleet
k#

Mainte

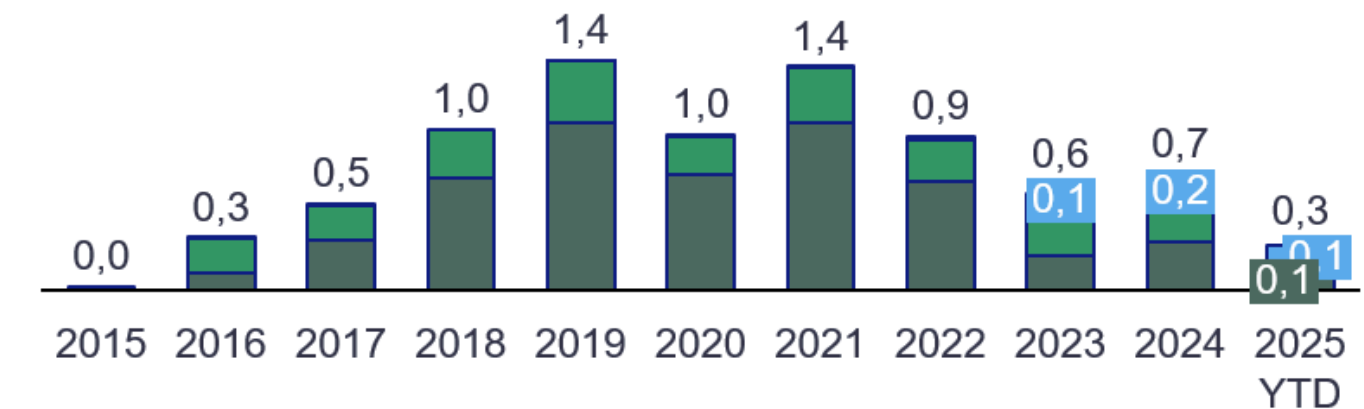
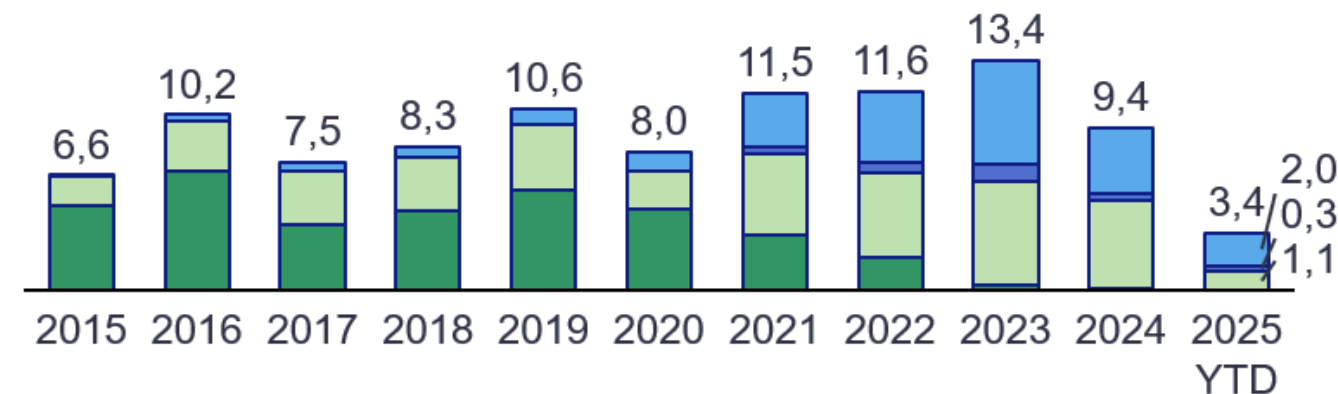
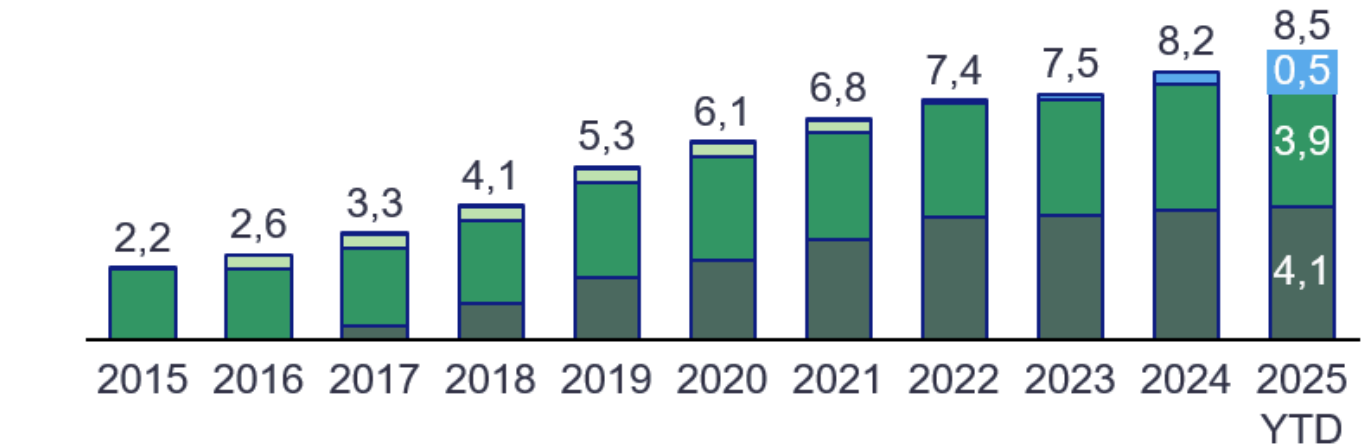
LCVs

BEV PHEV H2 LPG CNG



HDVs

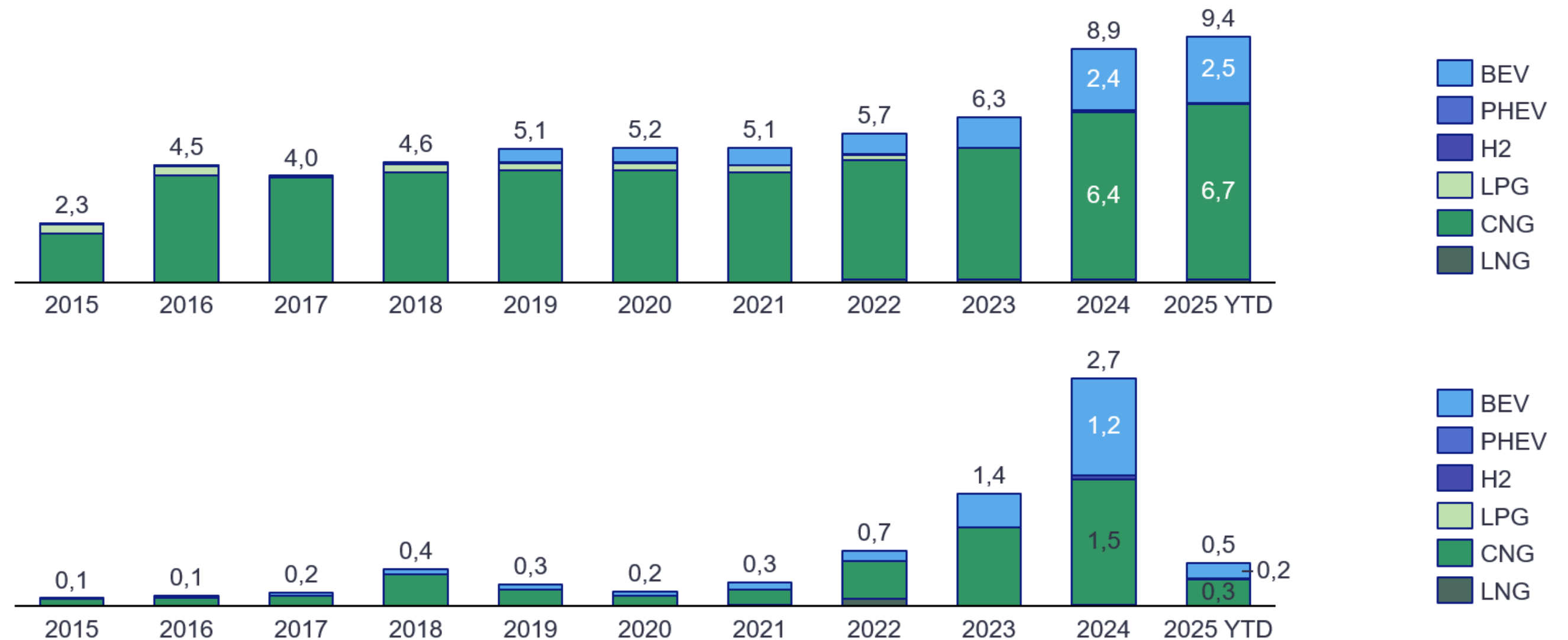
BEV PHEV H2 LPG CNG LNG



Note: 2025 data is YTD, updated until April 2025; 1) 2024 data, ACI 2) Dataforce Source: European Alternative Fuels Observatory, ACI

The alternative fuel bus market

Bus | M2 – M3



Note: 2025 data is YTD, updated until April 2025; 1) 2024 data, ACI | Fonti: European Alternative Fuels Observatory, ACI

Focus on the LCV and HDV freight supply chain

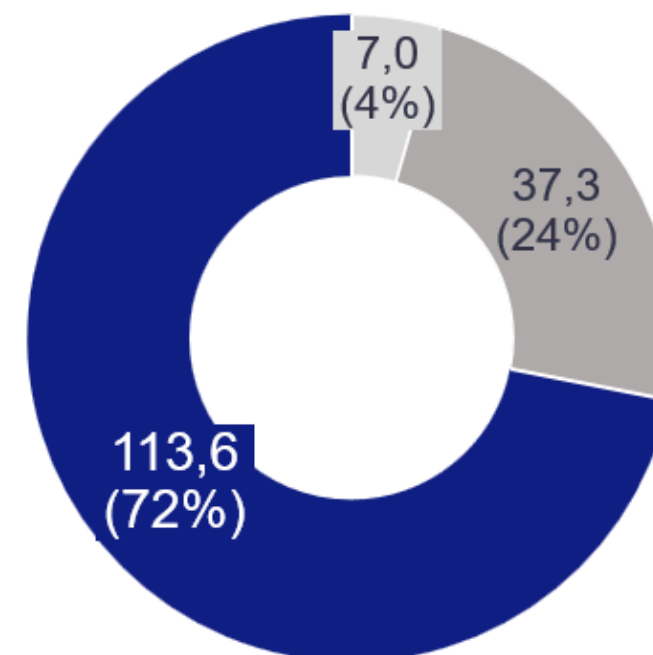


Unregister
ed
businesses
by sector
2022

k#

Light trucks | LCV

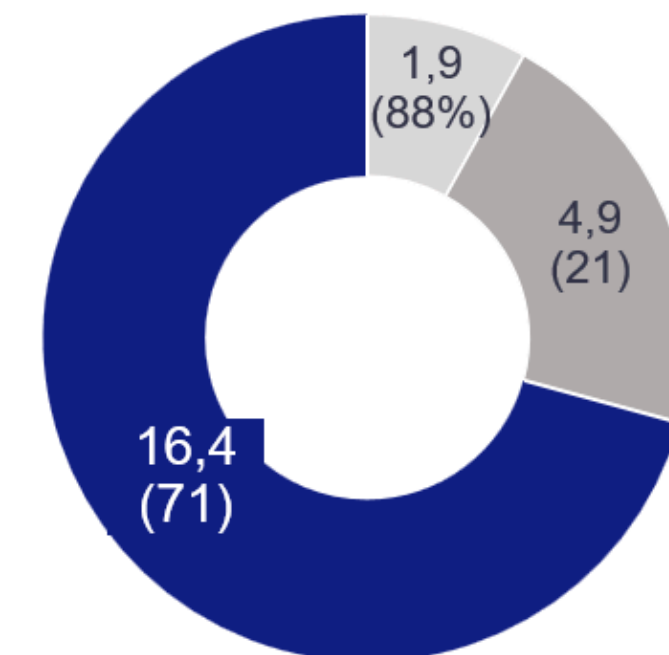
Total registrations in
2022: ~160k



■ waste chain ■ construction industry ■ supply chain

Heavy trucks | HDV¹

Total registrations in
2022: ~23k



The focus of the analysis is the **freight supply chain**, which accounts for the majority of missions of the vehicles involved (71-72% in 2022)

TCO cost items

Main hypotheses

Variable	Unit of measurement	LCV - Diesel	LCV - BEV	HDV - Diesel	HDV - BEV	HDV - LNG	Bus - Diesel	Bus - BEV	Bus - CNG
Purchase cost	k€	27	43	125	305	160	200	390	205
Fuel consumption	l/km, kWh/km, g/km	0,08	0,30	0,24	1,03	0,25	0,41	1,00	0,41
Maintenance	€/year	400-800	200-500	6.000	5.400	7.500	16.000	10.000	17.000
Insurance	€/year	1.800	1.450	3.150	5.350	4.000	5.000	5.000	5.125
AdBlue consumption	l/km	0,01 (10% diesel)		0,02 (10% diesel)			0,04 (10% diesel)		
Terminal value after 6 years	%	25%	25%	25%	25%	25%	25%	25%	25%
Toll	€/km	-	-	0,16	0,16	0,16	-	-	-
% top-ups in deposit	%	-	100%	-	80%	-	-	100%	-
Electrical infrastructure	% vs. purchase	-	8-10%	-	8-10%	-	-	8-10%	-
Average annual mileage	k*km	80		120		55			

Considerations collected from members

Maintenance

- Electric vehicles incur lower maintenance and higher repair costs vs. diesel; while LNG/CNG vehicles have higher maintenance costs vs. diesel.
- For trucks, the item includes ordinary maintenance and repairs; for buses, full-service ordinary + extraordinary packages are purchased.

Insurance

- Insurance costs include RCA + Kasko, in line with the typical choices of a BEV owner

Terminal Value

- A terminal value of 25% was applied to all vehicle types, considering for electric vehicles:
 - Less mature and more rapidly obsolete technology
 - Greater possibilities for revamping the vehicle by replacing the battery and increasing its useful life
 - Potential introduction of incentive schemes in the next 6 years

Collection of key assumptions and cost items from Motus-E members and industry literature

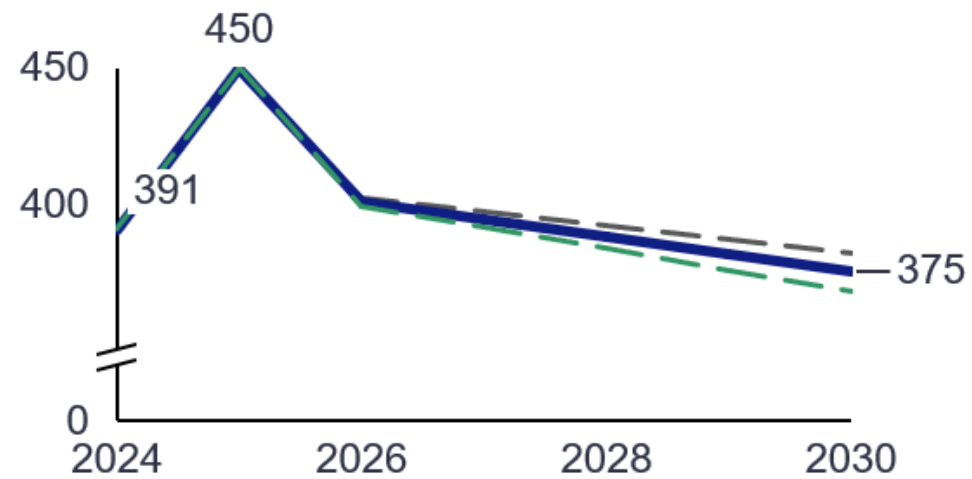
TCO Cost Items – Fuel

ning Purchase

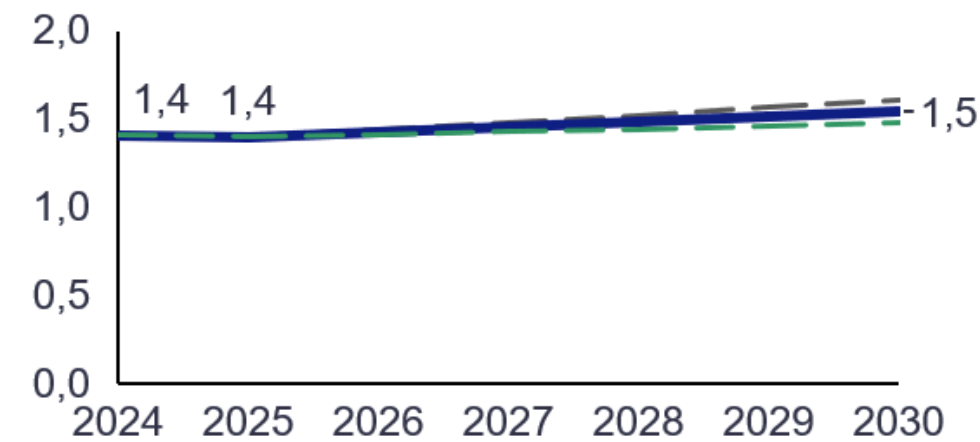
Total Cost of Ownership

Maintenance

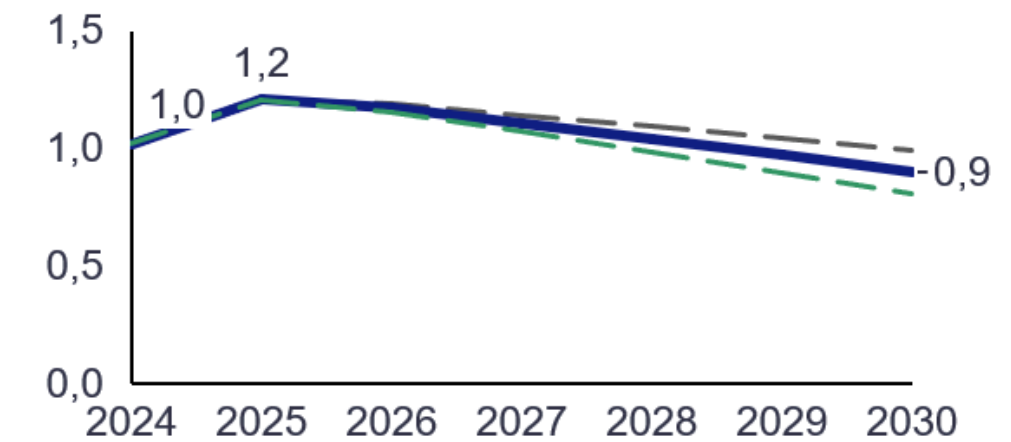
Recharging cost – road | €/MWh



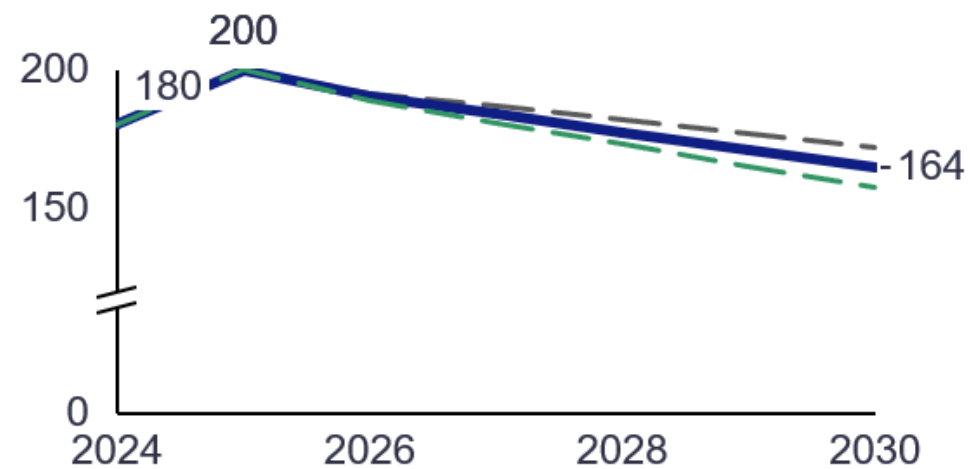
Cost of diesel | €/liter



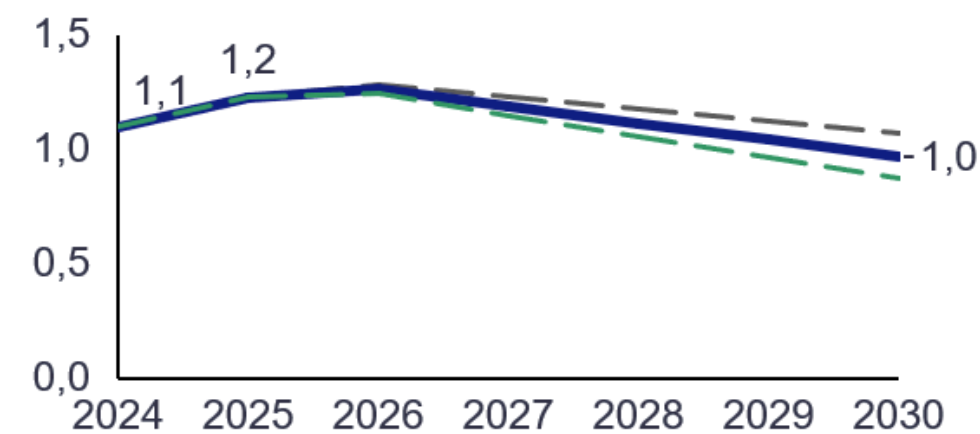
LNG cost | €/kg



Recharging cost – deposit | €/MWh



CNG cost | €/kg



Base Blue Green

- Limited efforts towards decarbonization; policies in line with current ones
- Dominance of non-renewable sources

- Greater decarbonization efforts vs. current policies
- Increasing share of renewables

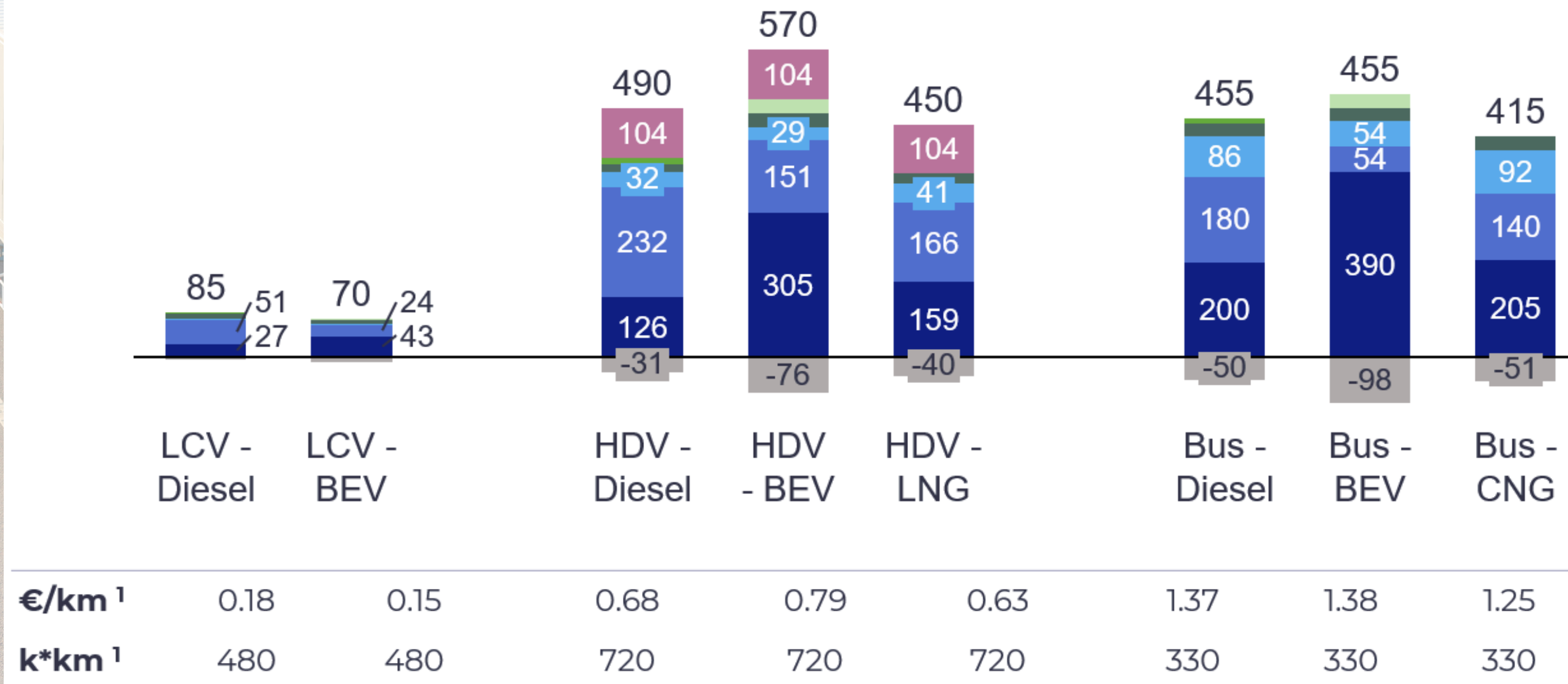
Scenario considered

- Ambitious decarbonization targets, in line with the Paris Agreement
- Significant reduction in non-renewable sources

Note: Selected average energy scenario for fuel cost projections. Values net of VAT. Sources: MASE, Motus-e members for historical values; projections prepared by the working group / expert interview

Competitive EVs in the LCV and Bus segments

Additional levers to be activated for HDV



Comments

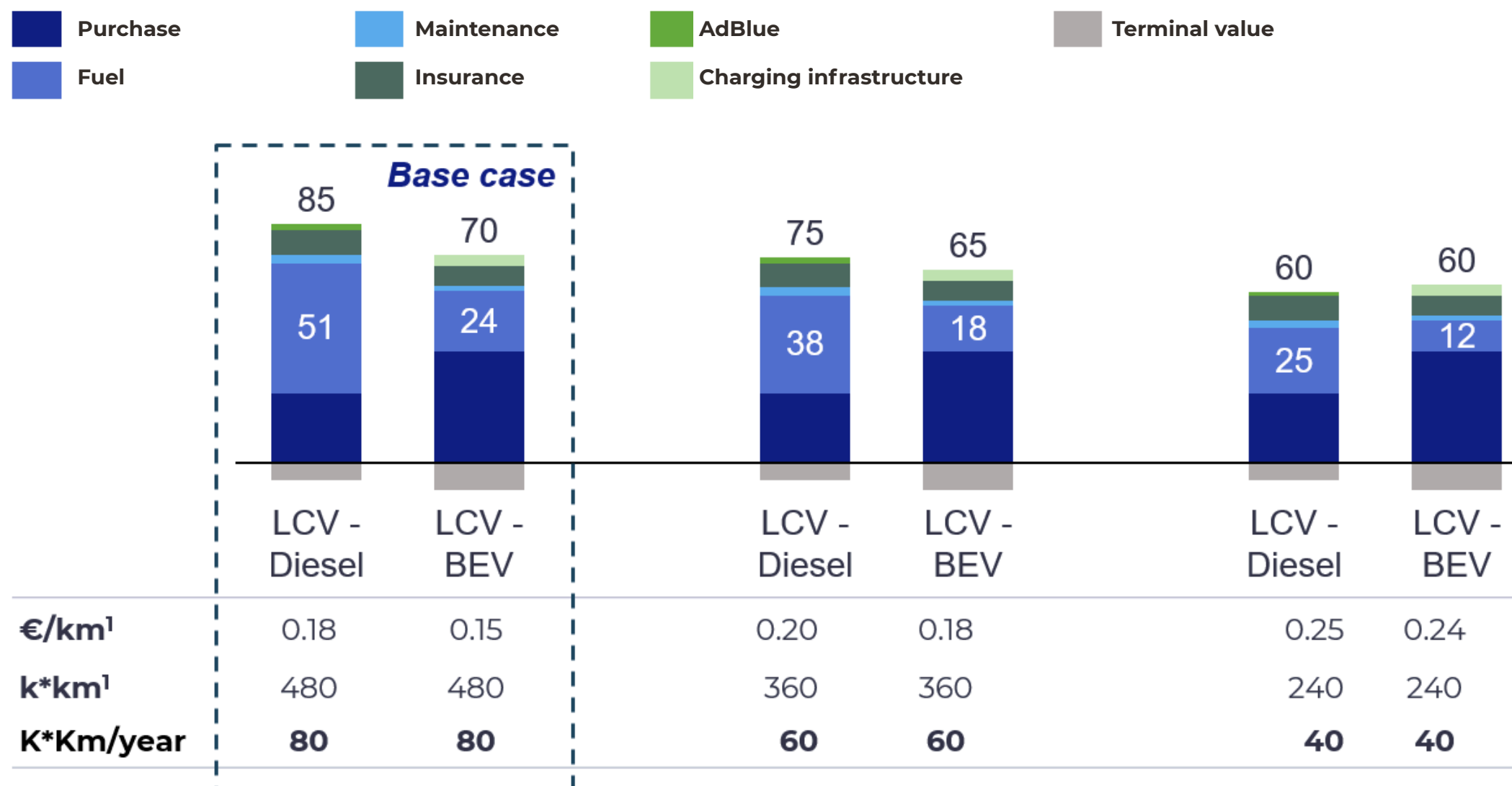
- To date, BEV vehicles **are competitive vs. Diesel** in the light truck and bus segments
- The TCO of electric vehicles has a **higher incidence of purchase cost** and **lower operating costs** vs. diesel / LNG / CNG
- The largest TCO delta in BEVs vs. traditional sources is on **heavy-duty trucks**, particularly due to the difference in vehicle purchase cost.

■ Purchase
 ■ Fuel
 ■ Maintenance
 ■ Insurance
 ■ AdBlue
 ■ Charging infrastructure
 ■ Terminal value
 ■ Toll
 ■ ETS
 ■ CIC

Note: 1) Total kilometers considered over a 6-year useful life; cost items considered non-exhaustive and focused on differential costs | Sources: literature research, Motus E associates

Focus LCV with lower mileage

LCV TCO – Mileage simulation | k€ over 6 years of use



Comments

- Given the lower fuel costs, the cost-effectiveness of electric vehicles vs. diesel is strongly **linked to the mileage** of the vehicles
- Simulating lower mileage, the Δ TCO between BEV and diesel is reduced to zero at around 160km/day

Note: Assuming parity of other cost items, in the different mileage bands 1) Considering total km over 6 years of useful life; cost items considered non-exhaustive and focused on differential costs. Sources: literature research, Motus E associates

TCO results – Upside (live normative)

ning

Purc

Total Cost of Ownership

Mainte

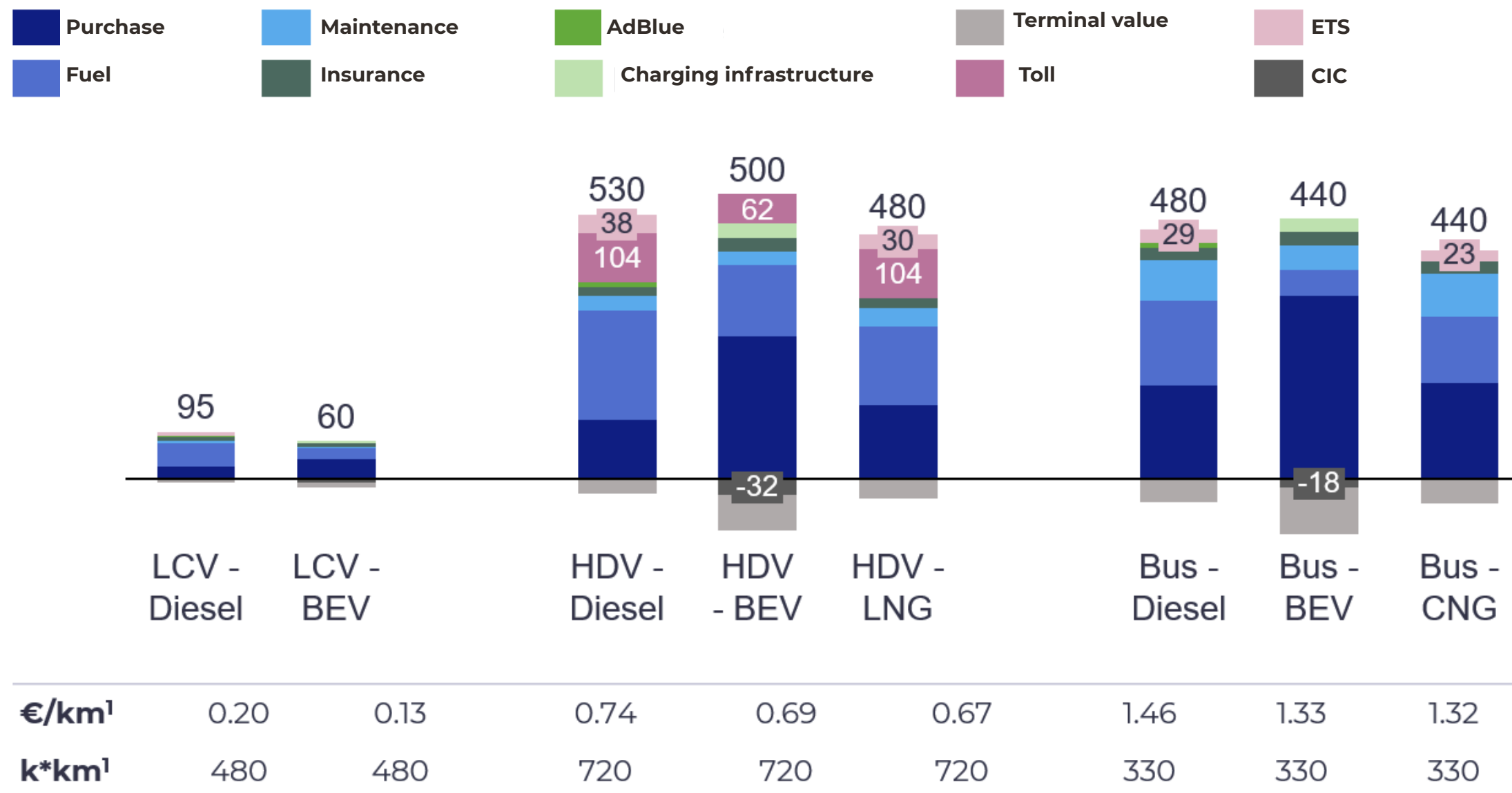
ce

Scenarios and rationales		Main hypotheses	Impact on TCO €k over 6 years of use (Δ vs. baseline)							
			LCV Diesel	LCV BEV	HDV Diesel	HDV BEV	HDV LNG	Bus Diesel	Bus BEV	Bus CNG
Base case	Considers current market rules; excludes regulatory/financial upside for BEVs	N.a.	86	70	492	572	450	453	457	414
Target incentive	It represents the target incentive to achieve competitiveness of BEVs vs. Diesel (e.g., non-repayable grants for vehicle purchase)	N.a.	N.a.	N.a.	N.a.	492 (-80)	N.a.	N.a.	453 (-4)	N.a.
Toll exemption	A Describes the scenario for the application of the Eurovignette regulation from 2026 onwards	• 50% BEV exemption (conservative hypothesis vs. potential 100% exemption) from 2026	N.a.	N.a.	N.a.	530 (-42)	N.a.	N.a.	N.a.	N.a.
ETS fuel tax	B Introduces ETS on fuels used for business activities from 2027	• ETS projections • Fuel emission factors (0 for power ¹ recharges)	95 (+8)	70 (+0)	530 (+38)	572 (+0)	481 (+30)	481 (+29)	457 (+0)	437 (+23)
Supply of electric CICs	C It hypothesizes the introduction of electric CICs, as per the Motus-E proposal to the MASE (valuation as the lowest biofuel recognized to date)	• 100€/MWh per CIC • 6€/MWh per GO	N.a.	62 (-8)	N.a.	540 (-32)	N.a.	N.a.	439 (-18)	N.a.
		Total	95	62	530	498	481	481	439	437
		A + B + C	(+8)	(-8)	(+38)	(-75)	(+30)	(+29)	(-18)	(+23)

Note: 1) In-depot recharges assumed with GO purchase valued in simulation C; on-street recharges assumed with emission factor 0 to reduce public employment costs by operators

Upside - BEV competitiveness above all

TCO – Upside | k€ over 6 years of use



Comments

- Consider **3** upside **drivers** vs. base case:

- A** Partial **toll exemption**
- B** Application of **ETS** to **fuels**
- C** Introduction of **electric CICs**

The **HDV segment**, BEVs are **competitive vs. diesel**, but continue to be less cost-effective than LNG

- In **the bus segment**, BEVs are more affordable than diesel and on par with CNG

Note: 1) Total kilometers considered over a 6-year useful life; cost items considered non-exhaustive and focused on differential costs | Sources: literature research, Motus E associates

Deep-dive on the levers facilitating electrification



Levers enabled to purchase BEVs



Regulatory Measures

Presence of regulatory obligations or incentives that encourage the adoption of green vehicles

01



Non-repayable contributions

Funds/financing incentives made available for the purchase of green vehicles

02



Debt or credit financial instruments

Various debt/credit instruments (e.g. favorable lending rates) to support the transition

03



Green premium for electric logistics

Additional remuneration for sustainable logistics service

04

● Cost levers

● Revenue levers

The normative survey

01

Applicability  Truck  Bus

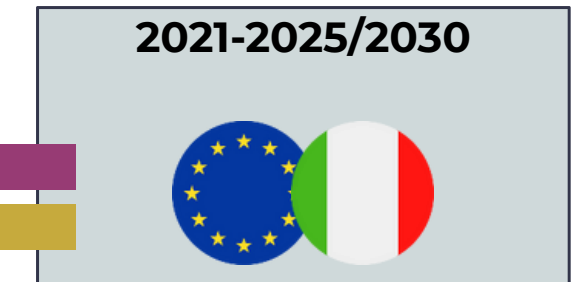
Regulatory measures

Description

Applicability

Clean Vehicles Directive (2019/1161/EU) – Legislative Decree 187/2021

- It imposes minimum quotas of “green” purchases in the PA
 - By 2025, 45% of buses and 10% of trucks purchased through public procurement must be “clean” vehicles (methane, electric, etc.), half of which must be zero-emission.
 - target rises to 65% (buses) and 15% (trucks) in 2030



National Strategic Plan for Sustainable Mobility (PSNMS) - Prime Ministerial Decree 17/4/2019

- National program for the renewal of public transport buses by 2033; ~€250 million/year allocated from 2020 to 2033 (after €200 million in 2019)
- State co-financing: 60% for the purchase of methane-fueled buses (CNG/LNG) and 80% for electric or hydrogen buses in urban services; 80% for urban services.



Eurovignette – Differentiated CO₂ tolls - Directive 1999/62/EC and subsequent amendments

- From March 2022, EU legislation allows for reductions of up to 100% in tolls for zero-emission vehicles and increases for the most polluting ones.
- The European Commission recently proposed extending the zero tolls from January 2026 to March 2031 to ensure cost parity between electric and diesel vehicles.



Minimum Environmental Criteria (CAM) for vehicles - Ministerial Decree MiTE 2/7/2021

- Mandatory criteria for public administration purchases in line with the Clean Vehicles Directive
- They impose the purchase of low-impact vehicles in public tenders (e.g. prioritization of electric, hybrid or methane buses)



The normative survey

01

Applicability  Truck  Bus

Regulatory measures

Description

Applicability

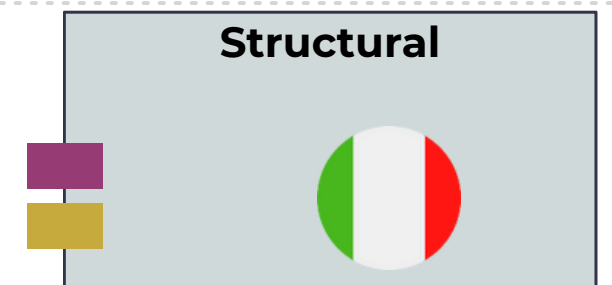
Stamp duty exemption and local tax reductions

- In all Italian regions, 100% electric vehicles enjoy a 5-year road tax exemption, after which they only pay 25% of the rate.
- In some regions the exemption is more extensive: (e.g. Piedmont, electric or 100% methane vehicles obtain permanent exemption from the road tax)
- Bi-fuel vehicles (petrol/methane) of origin enjoy partial exemptions



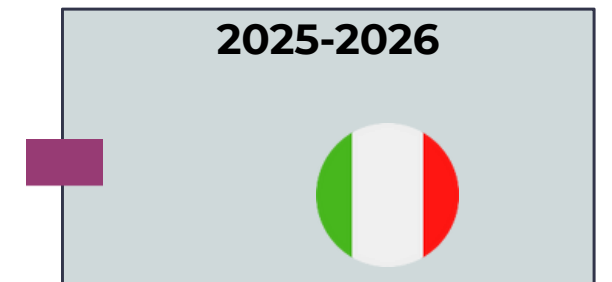
Reduced excise duties and VAT on methane/biomethane

- Methane fuel for motor vehicles has historically enjoyed a much lower excise duty than diesel (as well as a reduced VAT rate).



Incentives for micro-enterprises (electric N1 and N2 vehicles)

- Microenterprises (<10 employees, ≤€2 million turnover) in functional urban areas (cities with over 50,000 inhabitants and their commuting zones): incentives of up to €20,000 (max 30%) for N1/N2 electric vehicles, maximum 2 per company, with Euro 0–5 scrapping. Direct discount at the dealership, validation within 30 days. Budget: €597 million from PNRR funds. Valid from September 2025 to June 2026.



Thermal Account 3.0 for charging stations

- Incentives the installation of charging stations if installed with heat pumps. The subsidy is up to 65%, accessible to individuals, businesses, the third sector, and CERs (budget €900 million/year).



Non-repayable grants

02

Applicability  Truck  Bus

Regulatory measures

Description

Applicability

Road transport incentives – alternative-powered vehicles (Ministry of Transport Decrees 2021-2024)

- Government grants for the purchase of eco-friendly trucks. €50 million for 2021-2026 for hybrid (diesel/electric), electric, CNG, and LNG vehicles, with incentives ranging from €4,000 (e.g., hybrid vehicles 3.5–7 tons) up to €24,000 for electric vehicles >16 tons. An additional €1,000 bonus is awarded if a diesel vehicle is scrapped at the same time. The fund is refinanced with €25 million (Ministerial Decree 6/8/2024) for purchases from 14/9/2024.



PNRR – Rinnovo flotte bus TPL “green”

- Financing with PNRR funds for the purchase of eco-friendly buses for public transport.
- Approximately €1.8 billion has been allocated for 2,500 new zero-emission buses to be awarded in 2023 (target: ~3,000 buses by 2026).



Regional "Vehicle Renewal" Incentives

- Several Regions are offering tenders for SMEs and private individuals for the scrapping of polluting vehicles and the purchase of low-emission vehicles.
- Example: Lombardy 2024-25: contributions (up to €4,000 per vehicle) for companies that replace petrol vehicles ≤Euro2 or diesel vehicles ≤Euro5



Charging Station Bonus for Businesses and Professionals

- Non-repayable grant equal to 40% of the costs for the purchase and installation of electric charging infrastructure at companies/studios
- Maximum amounts per device (€2.5k for a single wallbox, €8k for a double AC column, €75k for a DC column >100 kW) and additional costs



Financial instruments

Banks are integrating ESG into credit ratings and expanding their ESG product portfolios

03

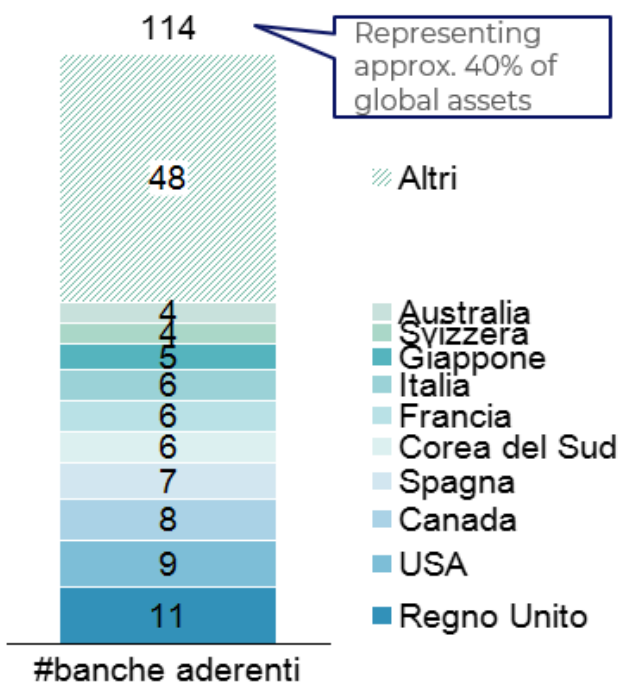
Growing ESG relevance with alliances like the NZBA...

CONTEXT

- The **Net-Zero Banking Alliance** (NZBA) is a United Nations initiative (UNEP FI) launched in April 2021 with the aim of accelerating the **sustainable transition** of the **international banking sector**.

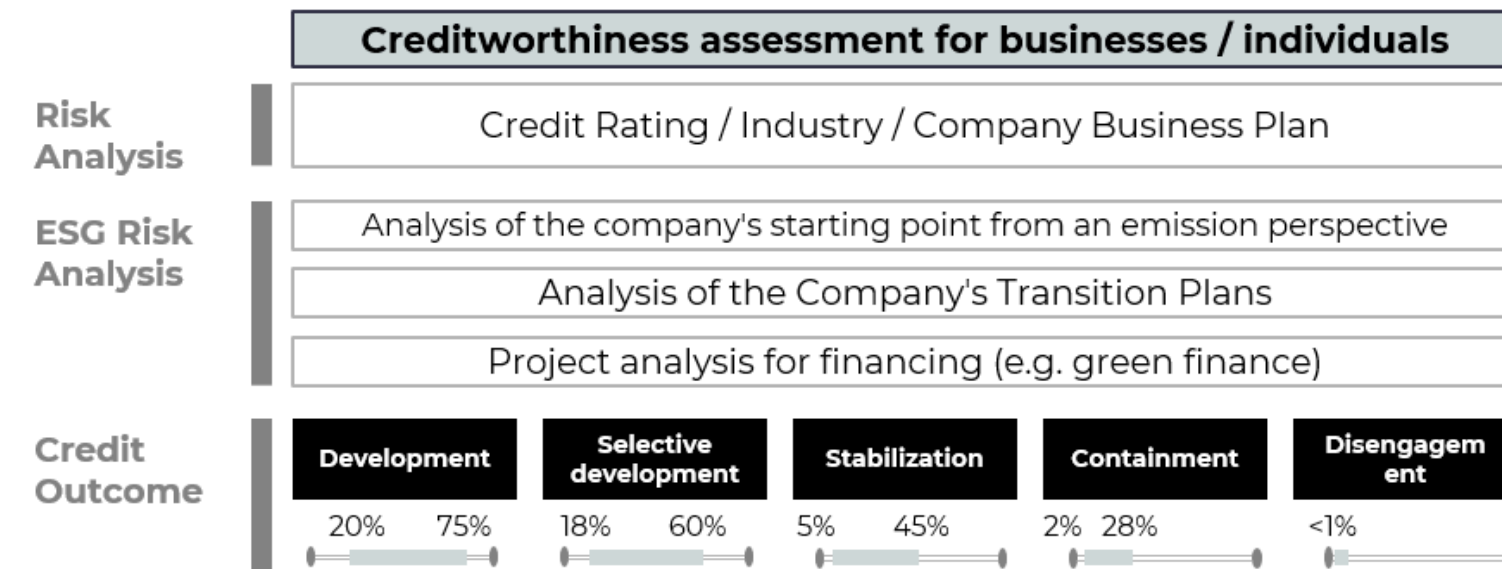
GOALS

- Aligning loan and investment portfolios**
 - With the aim of achieving **net zero emissions by 2050**
 - Applying science-based principles**, in line with the **Paris Climate Agreement** (<1.5°C vs. pre-industrial levels)
- Perimeter: **Scope 1, Scope 2, Scope 3 emissions**
 - Guidelines for **Scope 3 Emissions – Category 15: Credits and Investments**

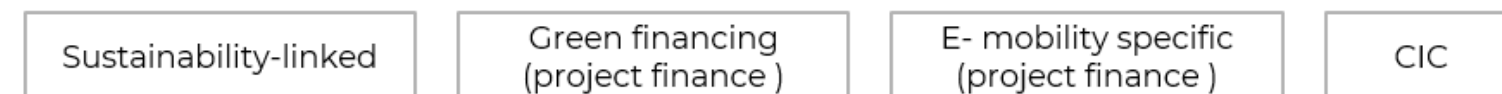


... with revision of the granting criteria and tools

TO LEVEL OF CONCESSION (if and how much?)



B FINANCING INSTRUMENTS (how?)



C COST OF FINANCING (at what price?)

Financial instruments

Various tools between Italian and European banks to support sustainability projects

03

DEBT INSTRUMENTS ...

Sustainability-linked

- Financing with conditions (incl . interest rates) linked to the **achievement of specific sustainability targets** (SPTs ¹)
- Goals are measured against **the company's ESG KPIs**
- **Benefit** upon reaching targets of ~ 0.1 – 0.2% on the rate

Project specific

E- mobility specific

Green financing (project finance)

- Financing with funds **exclusively earmarked for projects with a positive impact on the environment**
- Green Loans **specific for green projects** (project fin)
- ~ **0.5-1% lower** rate vs. standard financing

Project specific

E- mobility specific

E- mobility financing specific (project finance)

- Category of Green Loans intended exclusively for **electric mobility projects**
- They support the purchase of electric **vehicles** (EVs), charging **infrastructure** and other related technologies (e.g. PV)

Project specific

E- mobility specific

...AND CREDIT

Certificates of Release for Consumption (CIC) / White Certificates

Electric CICs : RED-III proposal brought to MASE by Motus-E

White certificates: white certificates for fleet electrification

TOOLS PROVIDED BY...(not exhaustive)



Financial instruments

More use cases for financing dedicated to the transition vs. electric mobility

03



Autobus



Medium/ Heavy duty

LOCAL PUBLIC TRANSPORT

FREIGHT VEHICLES

Credit institutions

BPER:



INTESA  SANPAOLO

Company financed

AMTGenova

Public transport operator (Genoa)



Public Service Company (Asti)



Public transport operator by road and rail (Abruzzo)



Transport and logistics systems company (Bergamo)

Vehicles



Description

- **Assisted revolving**
- **Electrification of the bus fleet** for urban and extra-urban lines

- Partially **guaranteed financing** by SACE / waiting for PNRR funds
- **Electrification of the bus fleet**

- Unsecured loan
- **Decarbonization of TUA's bus fleet** (conversion to electric and LNG vehicles)

- Financing supported by Sace's **80% Green Guarantee**
- **Fleet renewal**

Amount

70 million euros

17 M€ ¹

10 million euros

5 million euros

Note: 1) Two credit lines for €12 million awaiting PNRR funding, one credit line for €5 million with a SACE guarantee | Source: desk research

Financial instruments

According to MSCI, ~0.3% Δ cost of debt between top and bottom performers in ESG ratings



CONTEXT

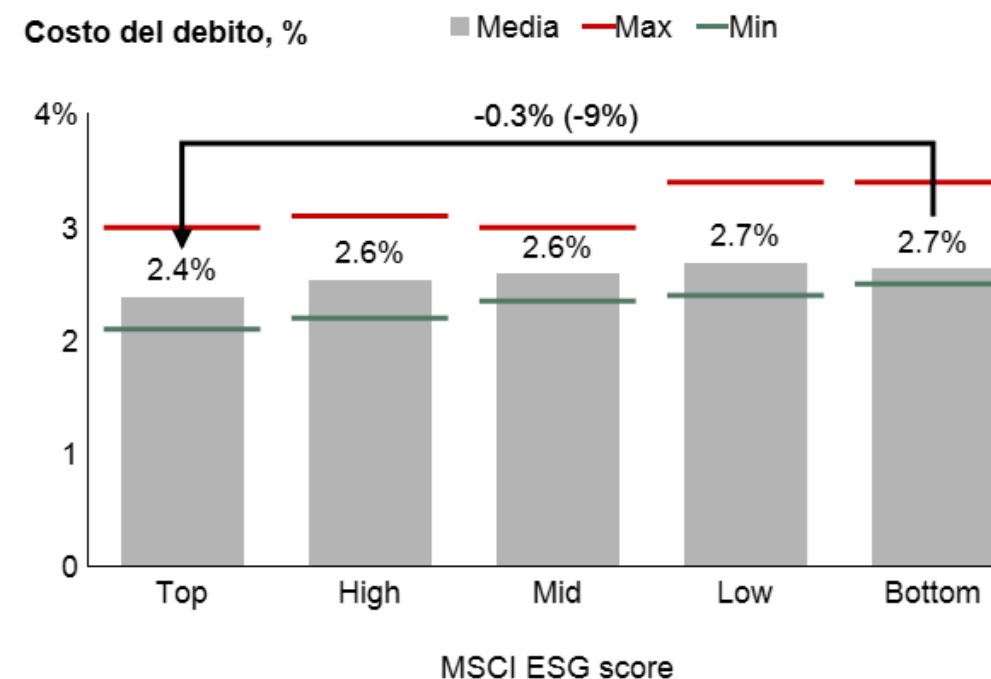


- MSCI published a report in 2024 that analyses the **relationship between ESG ratings** (of which it is a provider) and the **cost of capital**
- The ratio is assumed to be negative because **exposure and ability to manage ESG risks** influence **a company's risk profile** and consequently the **ease with which it raises capital** (equity and debt).

MAIN RESULTS

Cost of debt vs. MSCI scoring

- Strong historical correlation** between a company's **MSCI ESG** rating and its **financing costs**
- companies **have higher debt costs** (>2.5%) vs. higher-rated companies financed at lower rates (<2.5% on average)



Cost of capital vs. ESG pillar and IAS score

- Negative correlations** between E, S and G pillar scores and the cost of capital in different sectors (i.e. better score correlates with lower financing costs)
- The **overall assessment** (IAS score) shows a **stronger correlation** with the cost of capital than the individual pillars

Correlation matrix with cost of capital (MSCI)

	IAS	AND	S	G
Communic . services	-0.24	-0.25	-0.21	-0.17
Consumer discretionary	0.02	-0.04	0.01	0.05
Consumer staples	-0.31	-0.15	-0.22	-0.16
Energy	-0.06	-0.14	-0.10	0.10
Financials	-0.08	0.04	-0.09	0.06
Healthcare	-0.25	-0.19	-0.07	-0.23
Industrials	-0.15	-0.13	-0.05	-0.03
Information technology	-0.25	-0.17	-0.05	-0.09
Materials	-0.21	-0.28	-0.17	-0.06
Real estate	-0.05	-0.05	0.02	-0.13
Utilities	-0.07	0.06	0.04	-0.15

Correlation coefficient: -0.3  0.3

Financial instruments

Customers are willing to pay a premium for sustainable logistics services

04

Value in a "green" brand

- Especially in B2C sectors, **sustainability is becoming a relevant element** for brand positioning
- The effort towards decarbonisation often includes **Scope 3 emissions**; i.e. **emissions from one's customers and suppliers** (including logistics ones)

Examples of targets on Goal 3 @2030

Goal 3 Target (@2030)

Specific targets on logistics

FERRERO 

-43% Scope 3 emissions including materials, logistics, and packaging



100% green vehicles for S. Pellegrino water logistics



-25% scope 3 emissions per ton of product sold

Financial benefits

- Like logistics companies, their **customers can also enjoy financial benefits** for the decarbonisation journey
- This may incentivize them to **select suppliers** that increase the banks' ESG scores towards them.

Examples of benefits financial



Green premium

- Companies may therefore be willing to pay a **green premium** to their suppliers for a **more sustainable good/service** (such as an electric logistics service vs. from a traditional source)

Market Research Examples (Europe)



Chemicals : >95% of customers willing to pay **green premium** (of which **35%+ over 5%**)



Metals: >90% of customers are willing to pay a **green premium** (of which **35% are willing to pay more than 5%**)



Automotive: >90% of customers are willing to pay a green premium (of which **50%+ over 5%**)

Best practices in electrification that can serve as examples for future projects



The electrification of freight transport

[link to the
press release](#)

A sustainable future in the transport of dangerous goods

MAN and Essec Industrial have developed a new sustainable business model through a partnership aimed at the energy transition in the hazardous goods transport sector.

- Essec Industrial, a family-owned company with over 100 years of history, supplies products to the chemical industry and strives for sustainability, despite operating in a sector considered "hard to abate."
- The MAN eTGX vehicles, the first electric ADR vehicles sold in Italy, were purchased by operators Germani and Burchianti and are equipped with advanced technologies for safety and efficiency.
- The company meets nearly two-thirds of the overall energy needs using zero-emission sources.
- The initiative demonstrates how the transition is possible even in energy-intensive sectors, thanks to MAN's technical-economic models and electrocompatibility analysis.



Sustainable Logistics Partnership

Volvo and Four Sustainable Logistics team up for zero-emission logistics



Thanks to the new Volvo Trucks (FHE 4x2 and FEE 6x2), Four Sustainable Logistics increases its zero-emission fleet to 40 vehicles, becoming a pioneer of sustainable logistics in Italy and Europe.

- In partnership with Volvo Trucks Italia, the company is testing new charging packages and digital services to optimize mileage and costs, with the goal of reaching 50 electric trucks by 2025.
- Born from a strategic alliance between historic logistics entrepreneurs, Four integrates the concept of Corporate Social Responsibility (CSR) into its strategies, anticipating the needs of a market increasingly sensitive to environmental and social issues.



With a network of 115 green vehicles and participation in SOS LOGistica (an association for sustainable logistics of which Volvo Trucks is a partner), the company confirms its role as a pioneer in decarbonization, supporting customers and partners towards zero-emission solutions.

The transition of public transport

The Fleet-as-a-Service model



With the Fleet-as-a-Service (FaaS) model, E-GAP has brought over 250 electric buses to the streets of Rome, completing one of the largest public transport electrification projects in Europe.

FaaS is a modular, turnkey solution that integrates electric vehicles, charging infrastructure, maintenance, energy performance monitoring, and other ancillary services within a single platform.

Industrial expertise and financial strength make E-GAP the right strategic partner for industry operators, who interact with a single entity throughout every phase of the process.

Benefits of FaaS

No initial investment by the operators, the cost is covered by E-GAP and then converted into a periodic and personalized fee.

Long-term optimizations and partnerships reduce the TCO of e-buses by a further 10-15%.





Report published by Motus-E in October 2025