

Summary of technical achievements

State of the industry · policy
recommendations · communication

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Agenda

Bringing the day together

01

Technical achievements

What the project delivered against its 2022 promises: innovations, evidence, demonstrators, KPIs, exploitable results.

02

State of the industry

How policy, the market and the products moved between July 2022 and September 2026, and where NextETRUCK still leads.

03

Policy recommendations

What the project's evidence says to regulators, cities, funders and standardisation bodies.

04

Communication and legacy

How we reached the community, and what stays available after the project ends.

1 · Technical achievements





Project status

Demonstrations complete, final reports being finalized

37 of 43

deliverables submitted

the remaining six are due in October 2026

Where the project stands

- **Three demonstrations:** complete, 50,000+ km
- **Eleven technology bricks:** delivered, final TRL assessment in progress
- **Validation, TCO and impact:** presented today, final with the reports
- **Tools and results:** stay available after the project
- **Project end:** 30 September 2026, after 51 months

Six deliverables pending, due in September/October 2026

- **D1.4** Innovation management report
- **D7.3** Use cases and demonstration implementation
Delayed by the late finalisation of UC3
- **D8.2** Validation results
- **D8.3** Impact assessment
- **D8.4** Exploitation and recommendations
- **D9.4** Dissemination activities report, final update



Promise versus delivered

The 2022 yardsticks, four years on

2022 yardstick	NextETRUCK result, September 2026	Status
≥300 km between recharges	UC1 estimated range above 400 km · UC2 operational range 320 km · UC3 about 250 km at observed payload	Met in UC1 and UC2
+10% energy efficiency	UC1: 25% lower energy use, 0.57 kWh/km · UC2: 0.87 kWh/km target met at comparable temperatures · UC2 and UC3 gains inconclusive, within the uncertainty range	Met in UC1
≥90% of diesel payload	UC1 90% · UC3 86% · payload sufficient for all monitored missions in UC2 and UC3	Met for use case
TCO parity with diesel	TCO per km below the diesel baseline in all three use cases (vehicle-level assessment)	Achieved
–20% TCO vs a 2020/21 e-truck	Assessed at vehicle, fleet and EU level; the largest gains come from component costs, longer lifetime and double-shift operation	Partly
1 MW depot charging	SiC megawatt charger, modules and control tested in the laboratory: 1 MVA central converter, 350 kW outputs; demos ran on 150–180 kW DC chargers	Partly
Three 6-month demos, ≥200 km/day	UC1 213 km average mission · UC2 six months and 10,000+ km, missions below 100 km · UC3 134 km a day, 28,000 km in total with two trucks	Partly



Innovations delivered

Eleven technology bricks and six supporting technologies, from lab to road

1

Electric powertrain

TB-11 SiC power electronics

Wide-bandgap e-powertrain interfaces with co-designed cooling and control

TB-12 Predictive maintenance

Remaining-useful-life tool for SiC power modules

TB-13 Smart thermal control

Predictive, cloud-connected thermal management

ALSO DEVELOPED

+ Vehicle controllers

Adaptive powertrain ECU and smart VCU (Tecnalia), BMS/BTMS (CIDETEC)

2

Digital twin and fleet tools

TB-21 Digital twin + control

Self-updating energy and reliability models of the truck

TB-22 Eco-charging web tool

KITE: free online tool for depot charging and TCO planning

ALSO DEVELOPED

+ Eco-driving controller

Supervisory controller for energy-saving driving (VUB)

3

Optimised Vehicle Design

TB-31 Cabin thermal concept

Cabin insulation and heating concept to protect winter range

TB-32 HVAC-BTMS unit

One unit cools cabin and battery: fewer parts, less weight

ALSO DEVELOPED

+ Co-design sizing tool

E/E architecture and component sizing for TCO

+ TCO calculation tool

When, where and for whom e-trucks pay off

+ TEIDE tool

Forecasts utilisation of en-route charge points (Cenex)

4

Ultra-fast charging

TB-41 Charge management

PANION, OCPP-integrated with the JEMA charger in Barcelona

TB-42 SiC megawatt charger

1 MVA central converter, 350 kW outputs; modules and control tested

TB-43 Interoperability

ISO 15118-20, OCPP 1.6/2.0, CCS and MCS

ALSO DEVELOPED

+ 180 kW DC chargers

JEMA SIGMA 180 at the Istanbul and Barcelona demos

5

Business models

TB-51 New business models

Truck-as-a-Service, Pay-per-Use and Battery-as-a-Service; sharing, V2G and second-life batteries also assessed





Quantifiable Results

Outside the OEM-published data

0.57 kWh/km

UC1 Istanbul, 16 t

25% lower energy use than the baseline truck, at 90% of diesel payload

+5.5%

SiC vs Si-IGBT

power-electronics efficiency at 350 kW, laboratory

-73%

charging time

UC2 Barcelona: 0-80% in 1 h 20 min, was 5 h

10,000+ km

digital-twin validation

on the Irizar refuse truck in Barcelona

-18% / -27%

cabin heating energy

with the insulation concept at 0 °C / -10 °C

-14%

energy from eco-driving

supervisory controller, 175 km Ford highway test



Three demonstrators, three answers

What the pilots showed this morning, in one view



UC1 · Istanbul

Ford Otosan, 16 t regional transport

0.57 kWh/km

25% lower energy use than the baseline

213 km

average mission, about 3 hours of driving

64 min

estimated charging time, 20–80%

*About 12,000 km on public roads at 90% of diesel payload;
estimated range above 400 km.*



UC2 · Barcelona

Irizar, refuse collection

0.87 kWh/km

target met at comparable temperatures

320 km

operational range

10,000+ km

in six months of daily service

*All monitored missions completed without limitations; daily
missions generally below 100 km.*



UC3 · United Kingdom

DAF Trucks, 19 t XB Electric

0.82 kWh/km

energy use in distribution service

134 km

average distance per day

28,000 km

total distance, two trucks

*Pallet distribution with Turners of Soham; payload 86% of diesel
and sufficient for every mission.*



Summary of Validation Results

Technical and user validation

Indicator	UC1 · Istanbul · Ford Otosan	UC2 · Barcelona · Irizar	UC3 · United Kingdom · DAF
Energy efficiency gain (target +10%)	Achieved: 25% lower energy use	Inconclusive, within uncertainty	Inconclusive, within uncertainty
Energy use	0.57 kWh/km	0.87 kWh/km target met at comparable temperatures	Below 0.82 kWh/km
Payload versus diesel	90%	Sufficient for all missions	86%, sufficient for all missions
Range	Above 400 km, estimated	320 km operational	About 250 km
Typical mission	213 km, about 3 hours	Below 100 km a day	134 km a day
Multi-shift operation	Feasible	Feasible	Feasible with charging
Vehicle meets user needs	Achieved	Achieved with comments	Achieved
System usability	Achieved	Achieved with comments	Achieved with comments



Beyond NextETRUCK

Exploitable results on the way to market

KITE

Cenex · TB-22 · TRL 8

Free and live since May 2025 at cenex-tools.io; built for small operators.

PANION

K2 Mobility · TB-41 · TRL 6

Sold as a commercial software service. Next step: OCPP 2.x support.

SIGMA c

JEMA Energy · TB-42 · TRL 6

Megawatt charger, modules and control tested in the laboratory. Next step: field validation.

TEIDE

Cenex · supporting tool

For charge-point operators. Enabled for the UK and the Netherlands.

Methods and models

Digital twin · TB-21

energy and reliability models, demonstrated in UC1 and UC2

RUL tool · TB-12

remaining useful life of power electronics

Thermal · TB-13, 31, 32

thermal control, cabin insulation, HVAC-BTMS unit

Business models · TB-51

truck-as-a-service, pay-per-use, battery-as-a-service

+ Eco-driving controller

supervisory controller for energy-saving driving

+ Co-design and TCO tools

sizing for lowest TCO; where e-trucks pay off

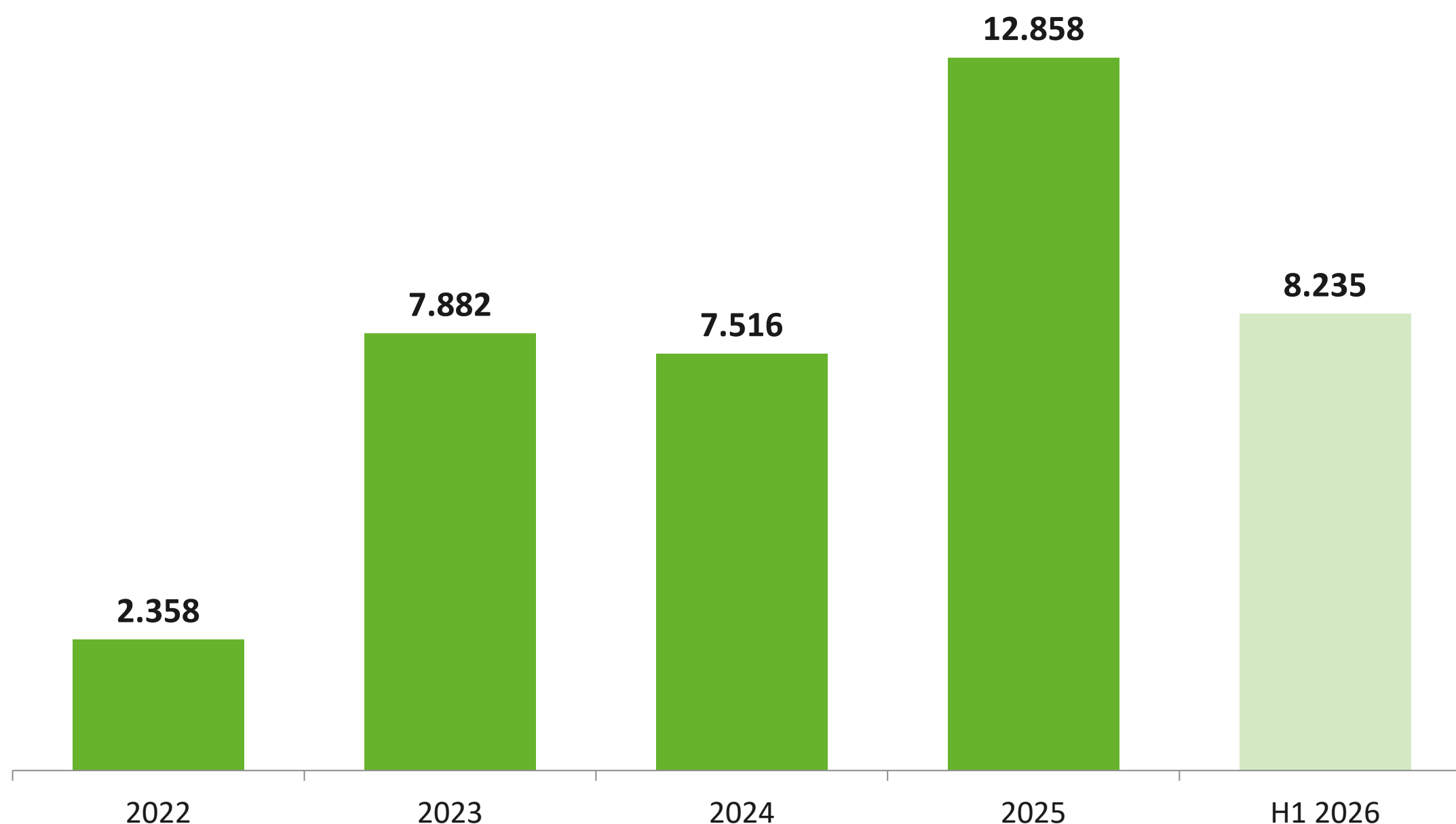
2 · State of the industry





The market grew five-fold

EU registrations of electric trucks over 3.5 t, 2022 to mid-2026



ACEA, EU-27 electrically chargeable trucks; 2023 restated. Light bar: first half-year only (+48% year on year).

4.8%

zero-emission share of new EU trucks, H1 2026
diesel still 92%

~40,000

e-trucks on EU roads by mid-2026
derived from ACEA stock and registrations

74%

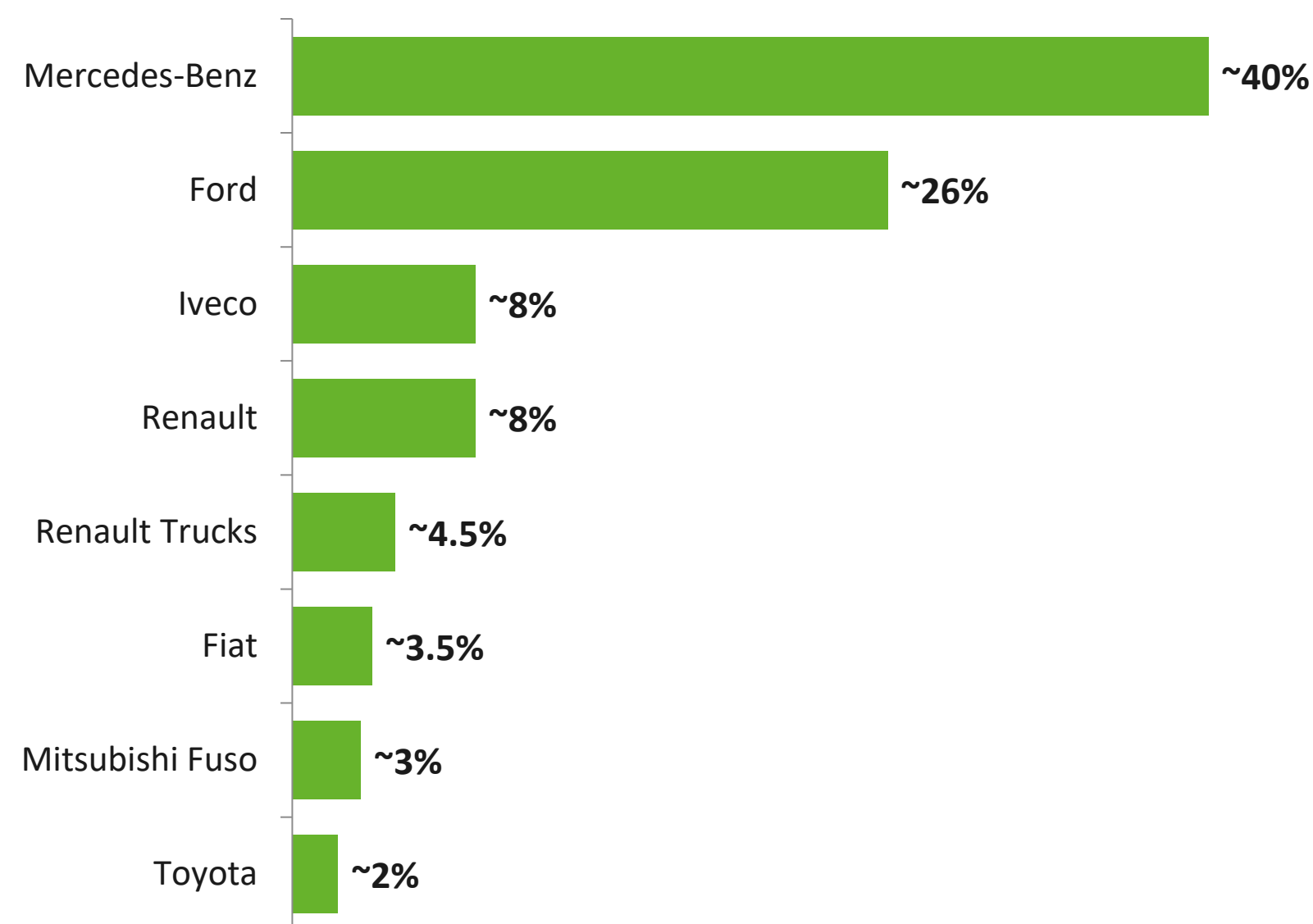
of H1 2026 sales in Germany, the Netherlands and France
the markets with tolls, zones and credits



Manufacturers and competition

Medium duty: van makers lead, start-ups failed, Chinese makers are arriving

Share of EU zero-emission medium truck and van sales (3.5–12 t), H1 2026



Vans dominate this class. No manufacturer split is published for medium trucks alone.

Failed during the project

- **Tevva (UK)**: our first UC3 partner, administration 2024
- **Volta Trucks (SE)**: 16 t truck, bankrupt 2023 and again 2025
- **Arrival (UK)**: administration, February 2024
- **Quantron (DE)**: insolvent October 2024, relaunch attempt
- **Lion Electric (CA)**: creditor protection 2024, trucks discontinued
- **Nikola (US)**: Chapter 11, February 2025

Arriving in Europe

- **BYD**: 7.5 t and 19 t rigids, first deliveries in Spain, February 2026
- **Sinotruk / SuperPanther**: built at Steyr, Austria, from 2026
- **Windrose**: assembly in Antwerp, heavy tractor
- **Sany**: tractor and 28 t rigid, no 7.5–19 t model
- **Foton, JAC, Farizon, Maxus, Dongfeng, GAC**: shown at IAA 2026
- **Tesla**: Semi shown for Europe at IAA 2026

Only BYD offers a 7.5–19 t rigid today

1.6–2.2×

used electric versus diesel rigid trucks, 16–19 t, dealer asking prices

€240k

asking price for a new 19 t BYD ETH8; no European OEM publishes a list price

ICCT H1 2026 market spotlight, chart readings; company reports; trade press on insolvencies and IAA Transportation 2026; dealer asking prices, September 2026.



Products caught up with our 2022 specs

Every major OEM now sells a 12–19 t electric rigid

200–565 kWh

battery
LFP increasingly

up to 560 km

published range
OEM-declared

150–400 kW

CCS2 charging
DC fast charging

0

with MCS at or below 19 t
Medium-duty tops out at 400 kW CCS

What became standard

- LFP is increasingly the battery chemistry of medium-duty trucks
- Central motor with 2–3-speed gearbox; e-axles stay heavy-duty
- Refuse collection alone now offers eight series electric chassis

Reference points

- DAF XB Electric 19 t: 282 kWh, published range up to 350 km (our UC3 truck)
- Volvo FL Electric: up to 565 kWh, up to 450 km
- Ford F-Line E 19 t: 294 kWh, identical to our UC1 baseline
- Renault Trucks E-Tech D 16 t: up to 565 kWh, published range up to 560 km

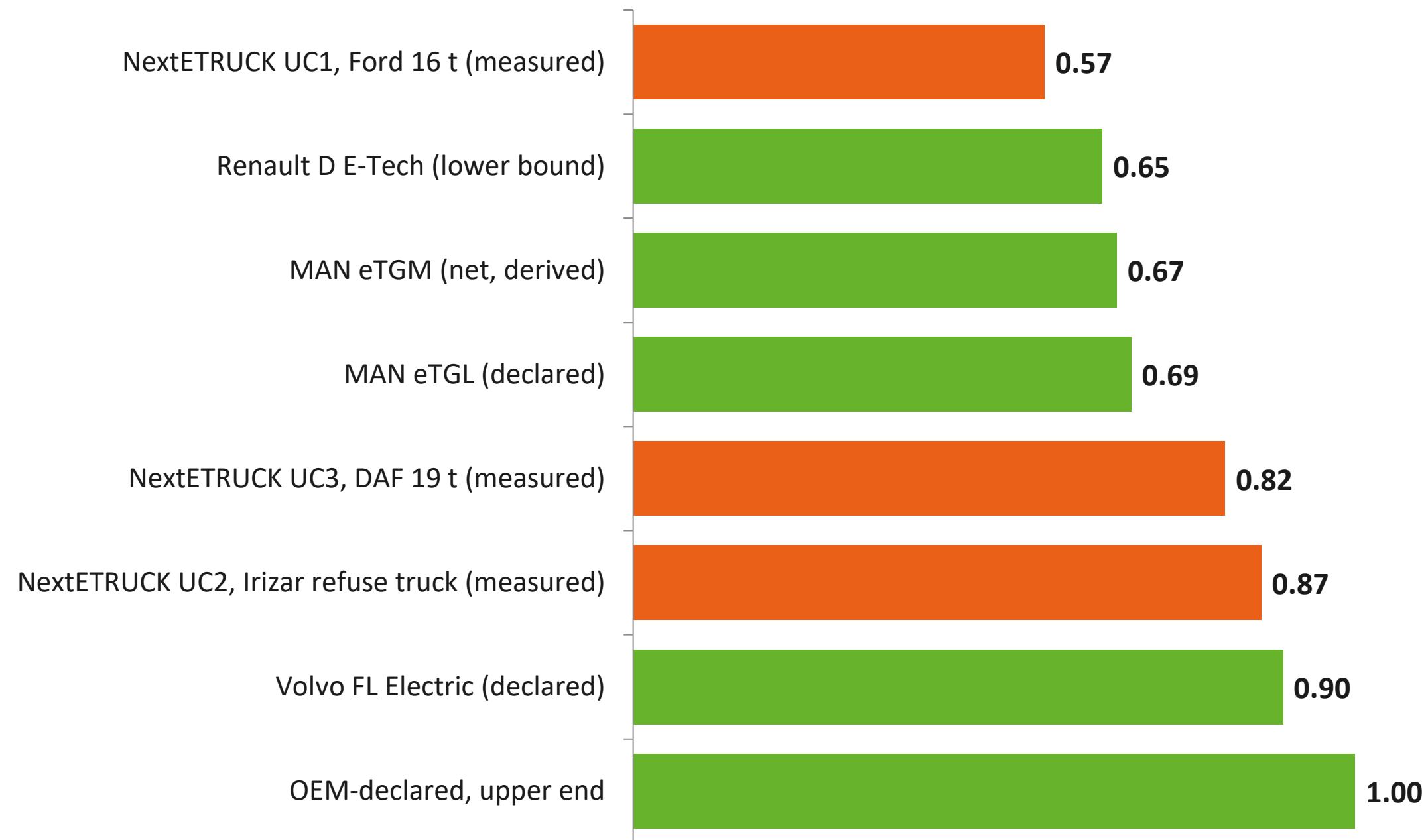
OEM data; NextETRUCK sector benchmark; NOW/BMDV vehicle database; T&E, September 2026.



Energy use benchmark

UC1's 0.57 kWh/km is below every declared medium-duty value found

Energy use in kWh per km



NextETRUCK validation; NOW/BMDV vehicle database; OEM data.

Read with care

- NextETRUCK values are measured in real operation; market values are declared or derived
- UC1 ran with a representative dummy load at 90% of diesel payload
- UC2 is the value at temperatures comparable to the baseline; the average in colder conditions was 0.95 kWh/km
- Refuse trucks with compaction bodies are quoted at about 2.1–2.2 kWh/km per shift; UC2 collects bulky waste
- No independent kWh/km test of any 2024–26 medium-duty truck exists



Charging: from none to 4,300 points

Infrastructure and standards moved, megawatt charging is still rare

~0

dedicated public truck chargers
mid-2022

~4,300

truck-accessible public points
July 2026, +20% year on year

~2,000

“fully suited” to trucks
Commission count, February 2026

4

operational MCS points
June 2026, ICCT

MCS standards are now complete

- ISO 15118-20 Amd 1 (July 2026) and IEC 61851-23-3 (August 2026) close the stack
- No vendor holds a CharIN MCS certification yet: the gap is market-wide, not JEMA's
- Milence and others build hubs; MCS-capable bays estimated at 30–50 in Europe

The tools field is crowded

- OEM route simulators, fleet platforms and depot models now compete with KITE and PANION
- AFIR mandates only CCS2 connectors: no ISO 15118, OCPP or MCS obligations
- Grid connection lead time is the binding constraint for depot electrification

ICCT charging monitor Jan–Jun 2026; Commission non-paper, February 2026; EAFO.



TCO: diesel parity

Vehicle, fleet and EU-level assessment

3 of 3

use cases below diesel TCO per km
vehicle-level assessment

3,000+

NextETRUCKs by 2031
cumulative sales, OEM forecasts

€180 m+

potential cumulative savings
EU level, 2027–2031

Cost driver	2022	2026
Battery pack	\$151/kWh, first rise since 2010	\$108/kWh average, LFP \$81
Vehicle price	~1.7× diesel (€100k vs €60k)	Upfront cost still 1.5 to 3 times diesel
Tolls	ZE reductions of 50–75% planned	Germany 100% exempt to 2031; Austria and Netherlands follow
Diesel and carbon	EU record €2.23/l	€2.23/l again in September 2026; ETS2 adds €0.12–0.16/l from 2028
Purchase subsidies	Germany KsNI 80%, Netherlands AanZET 45%	KsNI and MOVES III ended; UK grant £15–37k

NextETRUCK TCO assessment; Cenex KITE; BNEF; IEA GEVO 2026; EU Weekly Oil Bulletin.



Business models in the market

The market offers all three models NextETRUCK assessed, and two more

Truck-as-a-Service and Pay-per-Use

Per-km contracts incl. maintenance and insurance: Volvo On Demand, hylane, JUNA

Battery-as-a-Service

Battery swapping at scale in China

Energy as a service

Zenobē, Zeem

Also in the market

Residual-value leases

Volvo Financial Services, Daimler Truck

Also in the market

NextETRUCK modeled three service models for the pilot trucks: Truck-as-a-Service, Pay-per-Use and Battery-as-a-Service.

Uptake is hard to attribute

Most 12–19 t rigid trucks are still bought or leased conventionally. Per-km service models mainly serve heavy tractors.

Buyers want metrics few publish

Fleets ask for uptime and maintenance cost per km. Nearly half of buyers would switch at TCO parity.

ICCT; McKinsey 2025; PwC Strategy&; NextETRUCK business models.



NextETRUCK versus the market

The market caught up with the specifications; measured evidence is still scarce

The market caught up

- Range of 300 km or more in series trucks
- Payload comparable on the same basis
- Fast DC charging, but no megawatt port at or below 19 t
- TCO parity with diesel

NextETRUCK still leads

- Measured energy efficiency in real operation
- Digital-twin chain validated in daily service
- Measured SiC gain over silicon power electronics
- Measured cabin-heating savings
- Remaining-useful-life tool for power electronics
- Measured kWh/km data from three real fleets

The market gains through new component generations; NextETRUCK shows and measures what system co-design adds.

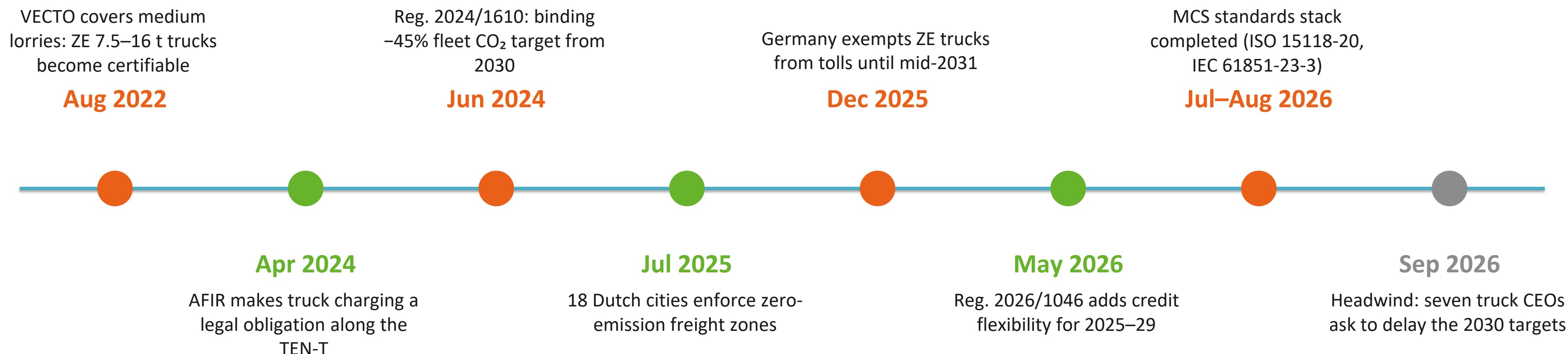
OEM data; NextETRUCK sector benchmark; NextETRUCK validation.

3 · Policy recommendations



Policy moved with the project

From monitoring-only in 2022 to binding targets, charging duties and zero-emission zones



In 2022 our 7.5–16 t segment sat outside the CO₂ targets. By 2026 it faces –43% from 2030, with tolls, zones and charging duties behind it.



Where an e-truck pays off

Tolls became the largest single TCO lever, and our demo markets did not have them

Market	Zero-emission toll advantage	Other levers
Germany	100% exempt to 30 June 2031, ~€0.35/km	THG credits; KsNI subsidy ended 2024
Austria	~€0.22/km	ENIN funding up to 60%
Netherlands	€0.09–0.16/km from 1 July 2026	ZE zones in 18 cities; AanZET
Spain (UC2)	None on concession motorways	MOVES III ended; trucks excluded from Plan Auto 2030
Türkiye (UC1)	None on concession motorways	—
United Kingdom (UC3)	HGV levy exemption, £161–619 a year	Grant £15–37k for 7.5–19 t trucks

So what

Türkiye and Spain offer neither toll advantages nor purchase support; the UK offers a purchase grant but little toll advantage. That helps explain the small TCO margin in UC2.

Under German or Dutch conditions the same truck would gain €35–60k a year in avoided tolls and €8–45k in credits.

Shaded rows: the project's demonstration markets. Directive 2025/2459 lets Member States keep full ZE toll exemptions to mid-2031.

Policy lesson: a technically better truck only pays off where the use-phase framework rewards it. Parity in the demo markets means a clear advantage in the lead markets.



Six recommendations

What the project's evidence recommends to policymakers

1 Hold the 2030 CO₂ targets

Use the 2027 review to fix enablers, not ambition. The products exist; the segment can deliver –43%.

2 Make use-phase levers EU-wide

Zero-emission toll exemptions, ZE zones and carbon credits move the TCO more than any purchase subsidy, and they cost the treasury less.

3 Unblock depot grid connections

Set lead-time targets for grid access and fund depot charging; the grid, not the truck, is now the bottleneck.

4 Extend AFIR to interoperability

Require ISO 15118-20, OCPP 2.x and MCS readiness at truck charging sites, not only CCS2 connectors.

5 Measure, do not declare

Independent kWh/km testing and uptime reporting for e-trucks, as VECTO did for diesel; fleets buy on measured numbers.

6 Keep a medium-duty R&I line

No 2026–27 Horizon Europe medium-duty topic. Fund field validation of megawatt charging for rigids and digital-twin standards.

4 · Communication and legacy



Reaching the community

Four years of dissemination in numbers

771

LinkedIn followers

+156 in the last year; 51,104 impressions

58

news items on nextetruck.eu

217 visitors a month on average

18

scientific publications

target was 3

16

interventions at external events

plus 15 articles in specialised magazines

5 + 5

e-courses and webinars

200+ views of the IRU webinar series

2

pilot kick-off events

Barcelona and Istanbul



D9.4 dissemination activities report (final update, draft), September 2026.



Highlights and what stays online

Where the results were shared, and where to find them after today

Highlights

- Mid-term conference, Brussels, February 2024 (44 participants)
- TRA 2024 Dublin and TRA 2026 Budapest, with the AEVETO cluster and ALICE
- Joint HoLA and MACBETH megawatt-charging symposium, Berlin, September 2025
- Joint NextETRUCK and ESCALATE workshop, ITS European Congress, Istanbul, April 2026
- E-Truck Experience Zandvoort and Cenex Green Mobility Exchange, Amsterdam

What stays available

nextetruck.eu

repository of all public deliverables, news and the YouTube channel

KITE and TEIDE

planning tools from Cenex at cenex-tools.io

E-courses

five modules on cenex.cademy.io and the ERTICO Academy

AEVETO cluster

joint working groups and a white paper to the Commission with the sister projects

Publications

open access where possible, via nextetruck.eu



Take Home Message

NextETRUCK, July 2022 to September 2026

1 The Real-World Demos

Three fleets, three missions, more than 50,000 km. Every monitored mission was completed, and TCO per km is below diesel in all three use cases.

2 Market caught up with our specs

Every OEM sells a 12–19 t e-rigid truck today. Assessment metrics such as measured efficiency, digital twin accuracy or SiC gains remain unpublished.

3 Importance of Policy

The same truck saves €35–60k a year more under German or Dutch conditions than in our demo markets. Use-phase levers matter most.

4 Beyond NextETRUCK

KITE and PANION are on the market; the megawatt charger moves to field validation. OEMs forecast over 3,000 NextETRUCKs by 2031 and more than €180 m in savings.



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