

PLAN NATIONAL DE FORMATION

JEUDI 15 MAI 2025

Renault-Trucks
Saint-Priest

RÉNOVATION DE LA FILIÈRE Automobiles

CAP MAINTENANCE DES VÉHICULES

**Baccalauréat Professionnel
MAINTENANCE DES VÉHICULES**

Électrification de la mobilité : enjeux et perspectives

Marc Lejeune, directeur business intelligence de Renault Trucks France

PNF 15 MAI 2025 Saint-Priest



Road Freight Decarbonisation

Marc Lejeune
2025 05 15



**RENAULT
TRUCKS**



Disclaimer: results shown are indicative and based on information provided by the user or the customer and giving current economic situation. Renault Trucks makes no guarantee, warranty or representation on the accuracy of the information nor the results, depending on a variety of factors as, for example, driver's behavior, vehicle speed, topography, weather, price of energy. Renault Trucks is not responsible for the result obtained from the use of these information.

Renault Trucks in 2024



2



57,000
Total deliveries



2,000
Electric trucks in
operation (> 16 tons)



9,400
Workforce

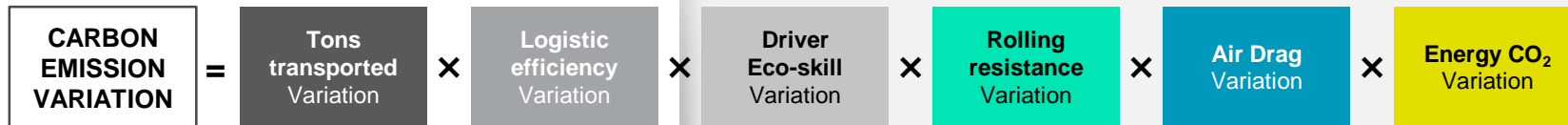


1,450
Dealers &
workshops



In more than
150 countries

Our Decarbonisation Commitment

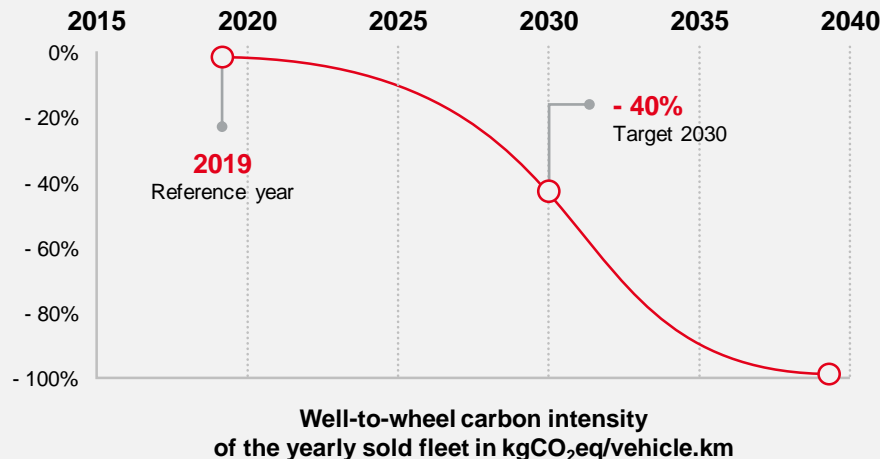


The carbon footprint **trajectory** of our sales is monitored by the “**Science Based Targets**” initiative

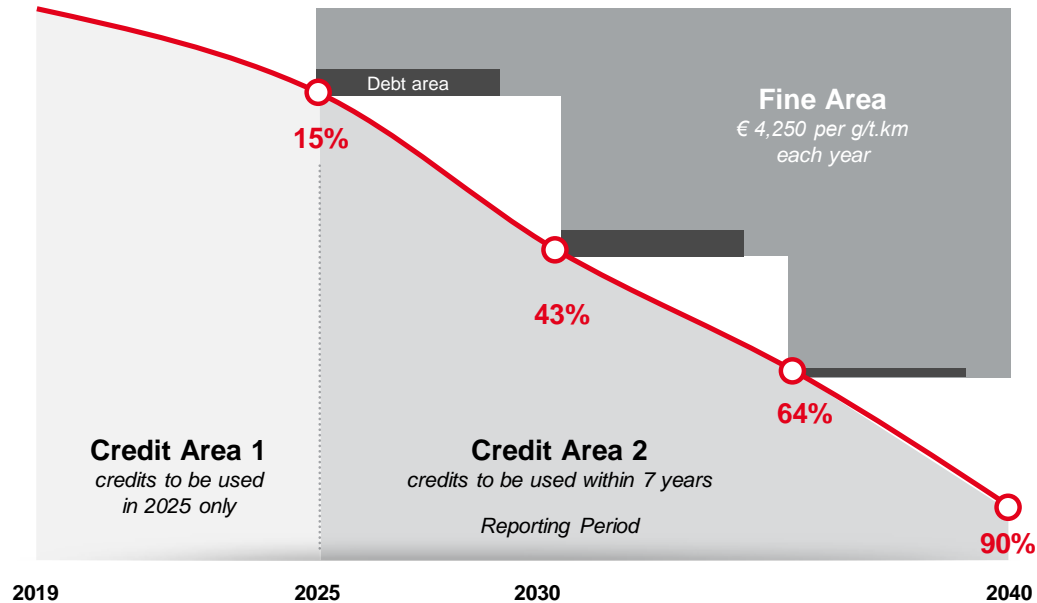
The **Energy CO₂** variation will contribute to 90% of the Trucks manufacturers decarbonisation effort

We will **cease selling trucks using fossil energies** in 2040

Trucks manufacturers scope



European CO₂ Regulation for Trucks



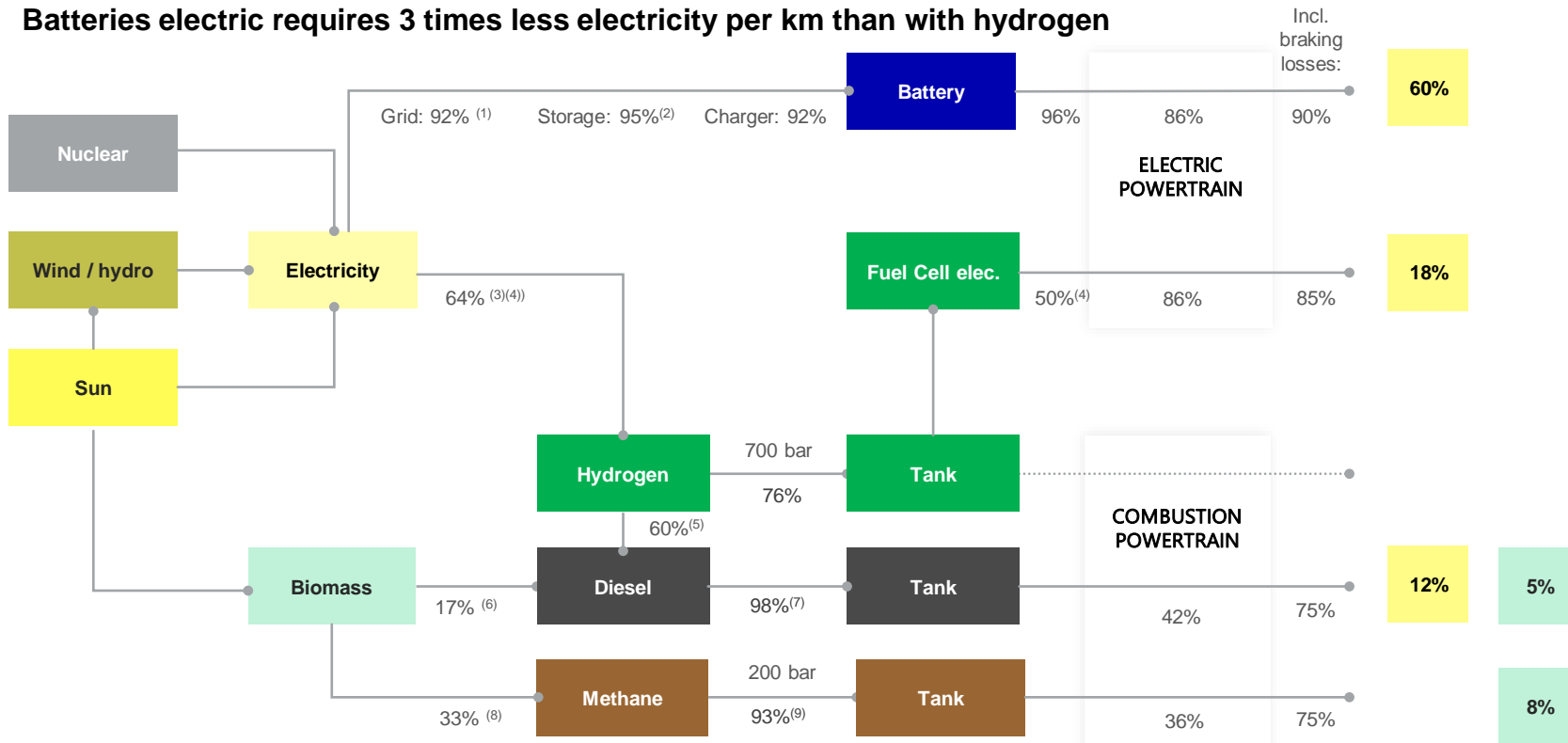
Index 100 = Industry average baseline

* the manufacturer must clear any debt year 2029, 2034 and 2039 onwards via credits or penalty

EU regulatory
constraints weigh
on OEMs

Well-To-Wheel Energy Efficiency

Batteries electric requires 3 times less electricity per km than with hydrogen



Average values overtime. **(1)** 2.2% in high-voltage network (source : RTE), 6% in medium and low voltage network. **(2)** Considered as example: "Target2050: 100% renewable energy supply", UBA, 2010, figure 5, : 52.8 TWh/y stored with an average efficiency of 70% (batteries, dams, hydrogen), hence 23 TWh/y losses out of a consumption of 506 TWh/y, hence 5% losses. **(3)** JEC "Well-to-wheel" report 2020, EMEL 1/CH2a pathway. **(4)** Based on Hydrogen Low Heating Value (120 MJ/kg). **(5)** "E-Fuels: A techno-economic assessment of European domestic production and imports towards 2050", CONCAWE, 2022 **(6)** Considered as example: in France, one hectare of rapeseed getting 1,300 kWh/m²/year as sun energy (65 MWh biomass with 0.5% sun to biomass efficiency) results in 1,500 t (13.6 MWh) of B100, and requires 15.1 MWh of additional primary energy (JEC 2020 ROFA1), hence a biomass to biodiesel efficiency of 13.6/(65+15.1) = 17%. **(7)** JEC "Well-to-wheel" report 2020, COD1 pathway. **(8)** Considered as example: in France, one kg of straw (14.5 MJ/kg at 10% humidity) results in 7.5 MJ biogas produced (France Stratégie, 2021, page 132), and requires 8.5 MJ of additional primary energy (JEC 2020 OWCG4), hence a biomass to biogas efficiency of 7.5 / (14.5 + 8.5) = 33%. **(9)** JEC "Well-to-wheel" report 2020, OWCG4

Life Cycle Analysis

Energy Consumption

Energy Availability

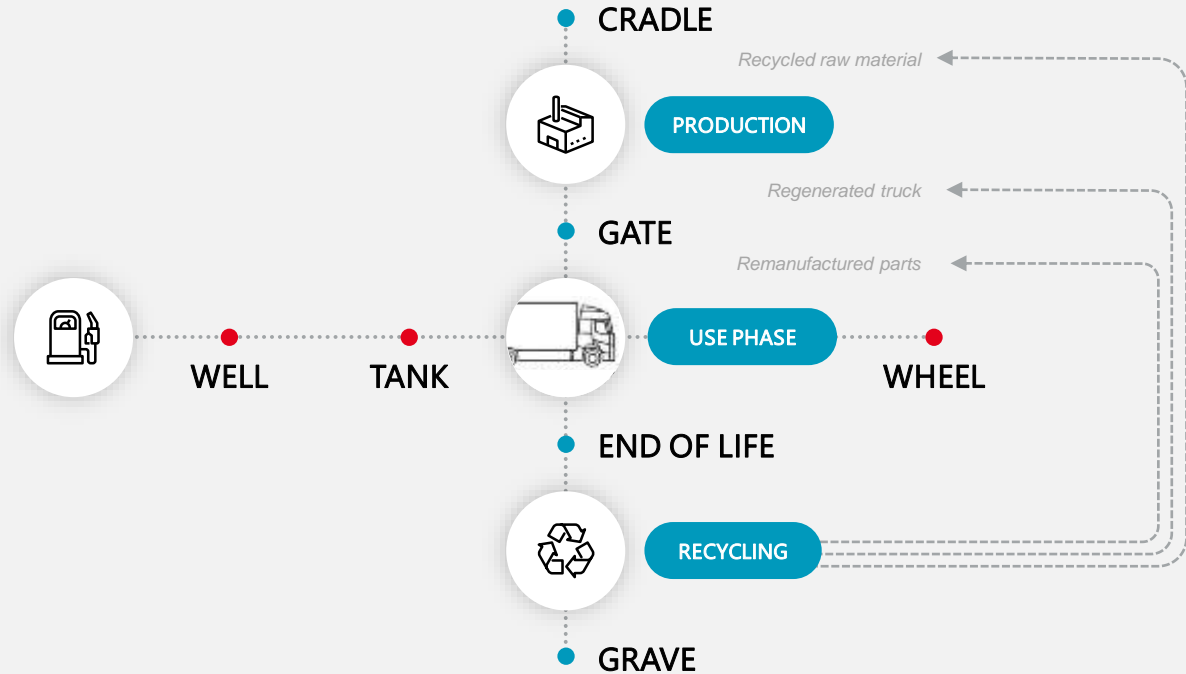
Global Warming Potential

NO_x Emission

Noise Emission

Mineral Resource Depletion

Cost



Life Cycle Analysis

Energy Consumption

Energy Availability

Global Warming Potential

NO_x Emission

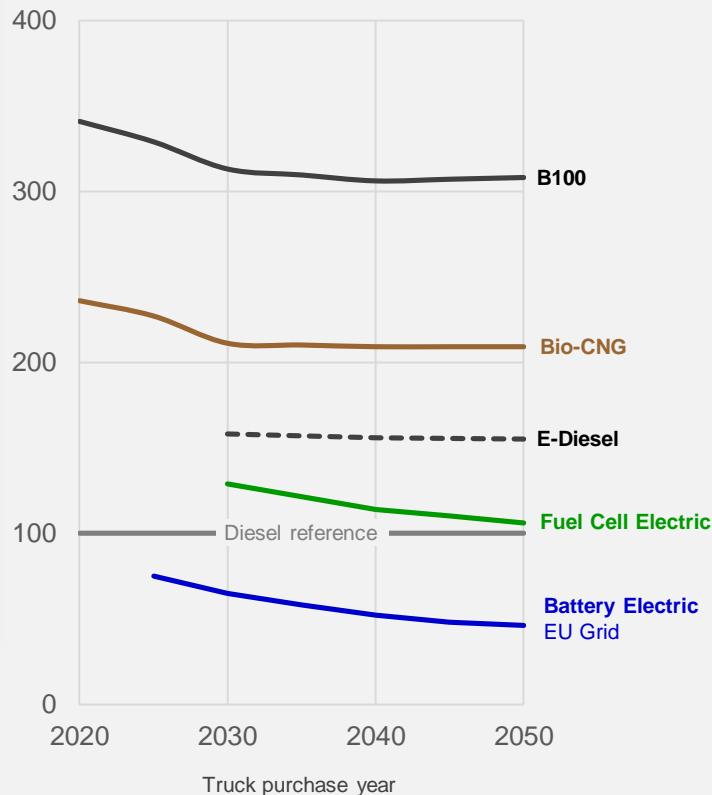
Noise Emission

Mineral Resource Depletion

Cost

LIFECYCLE ENERGY CONSUMPTION

Oil, gas, biomass, nuclear & renewable electricity



Batteries electric is the most energy sober option

40-ton regional-haul tractor
Operating over 800,000 km



Production & recycling & maintenance : Volvo internal LCA, scaled for hydrogen and gas based on CO₂ emissions. Battery, fuel cell and hydrogen tank second life and recycling not taken into account yet.

Multiplicators to get primary energy :

Pump Diesel: x 1.58 in 2020 up to 1.72 in 2030 and afterwards (JEC 2020 COD 1 for the fossil part (x1.26), 7% bio in 2020, 10% in 2030 and afterwards).

Bio-diesel: (B10<0): x 5.88 (17% energy efficiency of converting biomass into B100) in 2020, down to 5.26 in 2050 (19%).

E-diesel: x 2.83 in 2020, down to 2.62 in 2050

Bio-CNG: x 3.03 (33% energy efficiency of converting biomass into bio-methane) in 2020, down to 2.33 (43%) in 2050.

Green Hydrogen: x 2.14 in 2020, down to x 1.97 in 2050

European grid electricity : x 2.83 in 2020 (JEC 2020 EMEL), down to x 1.14 in 2050 (renewable electricity with 8% network losses and 5% storage losses)

Batteries: 134 kWh grid per kWh of battery. Replacement after 7 years as maintenance.

Electricity

Cornerstone of European economy decarbonisation

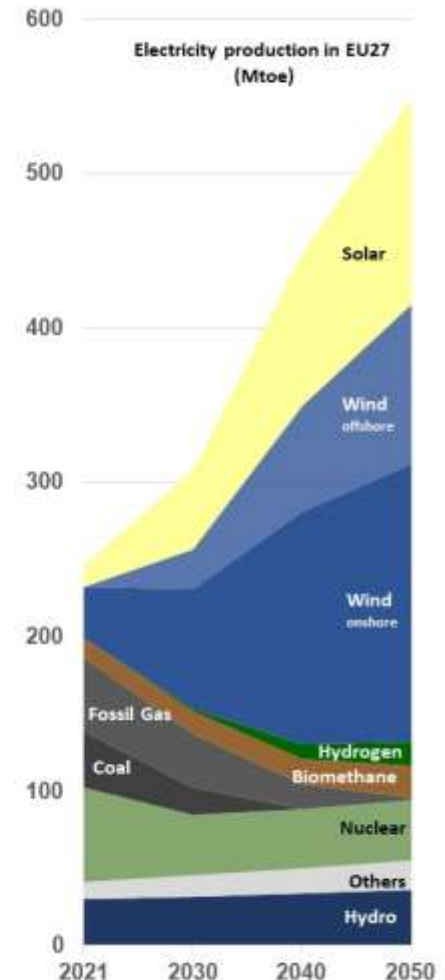
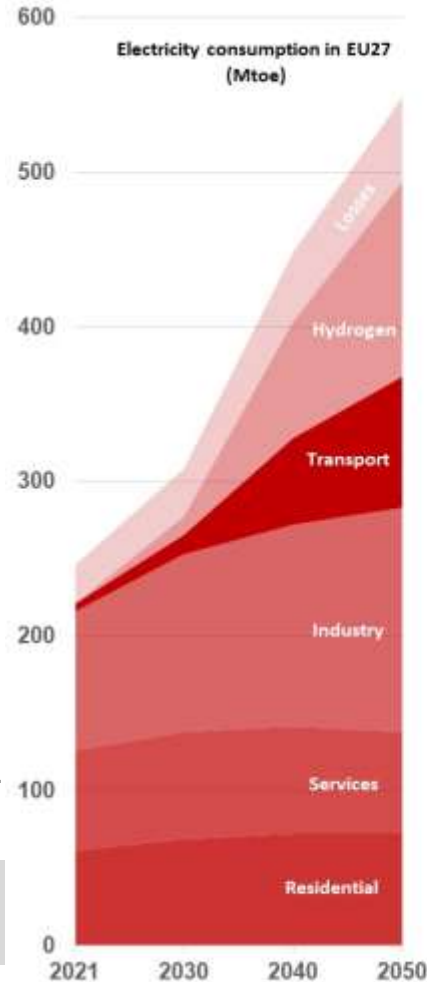
- The rapid decarbonization of European electricity makes it play a major role in the Europea Green Deal: the electrification rate of the European economy will grow from 23% today to 58% in 2050 ⁽¹⁾
- Electricity production might **double** between 2021 and 2050. Production in 2050 might be based at 80% on wind and solar ⁽²⁾.
- The European grid requires more investments to be strengthened and increased by 30% in length up to 2050 ⁽³⁾. Its flexibility capacities will also significantly increase ⁽⁴⁾.
- **Transport** might use **17%** of the electricity production by 2050 (2% for trains, 4% for trucks and 11% for cars).

(1) "Powerbarometer 2023", Eurelectric, [link](#)

(2) ENTSO-E TYNDP model, 2022, Distributed Energy scenario as a base, corrected to fit with the other hypothesis, [link](#)

(3) "Electricity Grid and Secure Energy Transitions", IEA, October 2023, [link](#)

(4) "Flexibility solutions to support a decarbonized and secure EU electricity system", EEA/ACER, September 2023, [link](#)



Biodiesel

will be used mainly for aviation, its role for trucks will be minor

- Diesel-like biofuels represented **4.5%** of the diesel-like fuel need in 2021 in EU27.
- Production could make **x 2** between 2021 and 2050 despite severe challenges (**Sustainable biomass availability**, **Competition of feedstock with other usages** (food, construction...) and risk of adverse **land-use change** for carbon sinks, **Water need**, **Cost** due to **poor energy efficiency** and **labor need**)
- It will go in majority to **aviation**.
- The **bio blend** in road diesel will remain around **7%**, and might increase in 2040-2050. Only a small fraction of the truck fleet (**≈ 3%**) could be supplied with pure biodiesel by 2050, only for cases where battery electric is not possible, as biodiesel trucks will have a higher TCO.

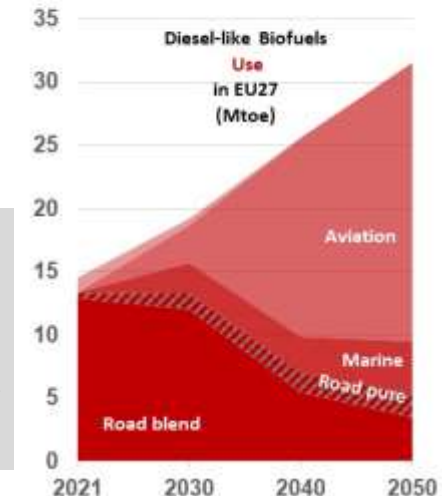
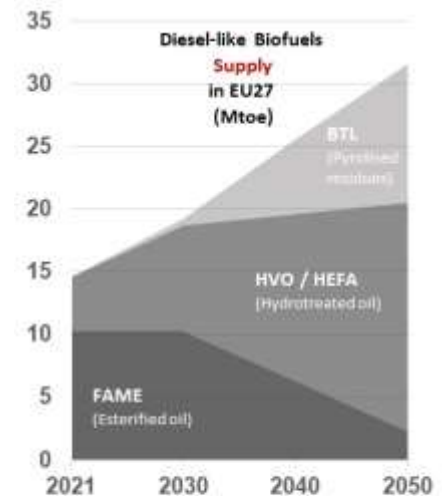
In 2021 in EU27, 14.6 Mtoe of biodiesel were supplied ⁽¹⁾, made from feedstocks imported at 57% ⁽²⁾. 2/3 of FAME, with 1/3 of HVO ⁽³⁾. For 2030, assumption that HVO production grows⁽³⁾, and FAME production remains constant. Afterwards, assumption of an increase of 1%/year of the HVO production capacity, plus a shift from FAME to HVO of 4 Mtoe every 10 years, and a potential of BTL production in 2050 of 11 Mtoe ⁽⁴⁾.

(1) Eurostat "final consumption in transport by type of fuel", and (2) for the industry part

(2) EU Bioenergy Sustainability report, 2023 ([link](#))

(3) T&E, 2021 ([link](#)) indicates a HVO production capacity of 5.1 Mt of HVO in EU27, supposed used at 80%. This is supposed to grow to 10 Mt in 2025, 4 times the quantity that can be made with sustainable feedstock from the EU.

(4) Based on the analysis of "France Stratégie" in 2021 "Biomasse agricole : quelles ressources pour quel potentiel ?" ([link](#)), extrapolated to Europe.



Biogas / biomethane

will be used mainly for powerplants and marine, its role for trucks will be minor

- Biogas/biomethane represented in 2021 **3.0%** of the potential gas need in EU27.
- Production could make **x 4** between 2021 and 2050 despite severe challenges (**Sustainable biomass availability**, **Competition of feedstock with other usages** (food, construction...), **Cost** due to **poor energy efficiency** and **labor need**, **Methane leakage** risk for global warming)
- It would then represent **35%** of the gas consumed in 2050 from the grid, which will be used in majority by **gas powerplants** to manage solar and wind powerplants intermittency, and for **marine**.
- Only a small fraction of the truck fleet (**≈ 3%**) could be supplied with biomethane by 2050, only for cases where battery electric is not possible due to the higher TCO with biomethane.

In 2021 in Europe (EU27), 14.8 Mtoe of biogas were supplied ⁽¹⁾, out of which 2.8 Mtoe was up-graded into biomethane.

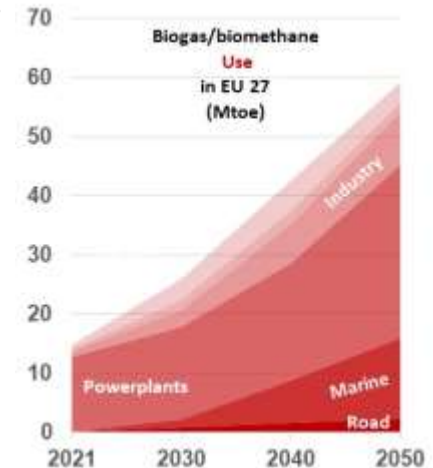
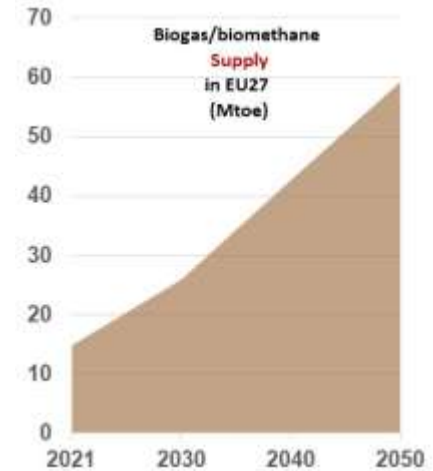
ICCT recommends to limit the biomethane feedstocks to the "sustainable feedstocks" of Annex IX of RED 3, and estimates their potential at 14 Mtoe for 2030 ⁽²⁾.

For 2050, assumption of 79 Mtoe, which is the forecast from Engie of all biogas from digestion or gasification that can be produced below 100 €/kWh ⁽³⁾. This does however not guarantee the sustainability of the feedstocks. To be safe, we have considered 75% of this value.

(1) EU Bioenergy Sustainability report, 2023 ([link](#))

(2) "The climate risk of allowing feed crops in an EU biomethane target", ICCT, 2023 ([link](#))

(3) "Geographical analysis of biomethane potential and costs in Europe in 2050", Engie, 2021 ([link](#))

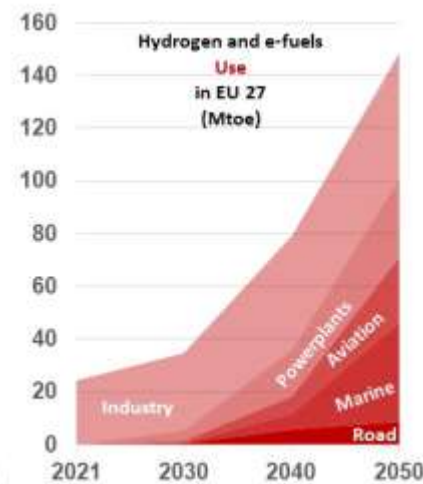
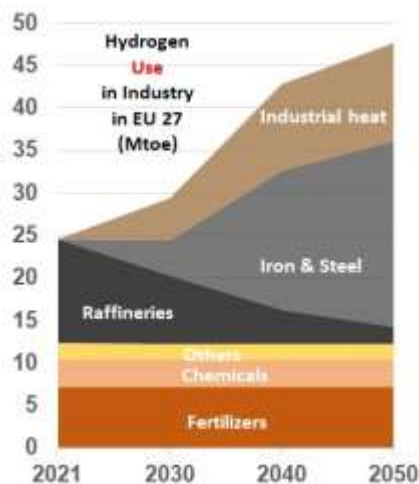
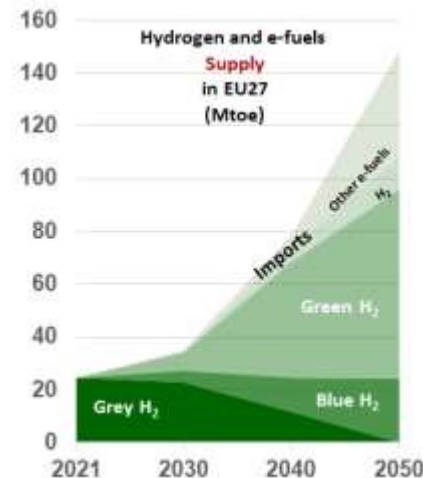


Low-carbon Hydrogen

and its derivatives (e-methanol, e-ammonia, e-SAF, e-diesel)
will come after 2030 for the industry, powerplants, aviation & marine.

- Decarbonised hydrogen will come from green electricity electrolysis (“green”) and possibly also natural gas reforming with CCS (“blue”). It will be used as such, or transformed into e-methanol, e-ammonia, or e-SAF. Part of this will be imported.
- So far, financed decarbonized hydrogen production plant construction in Europe ⁽¹⁾ can only provide **2%** of the potential need in 2030.
- More hydrogen will likely come after 2030 ⁽²⁾. It will be mainly used for **industry**, **powerplants**, **aviation** (as e-SAF mainly) and **marine** (as e-ammonia and e-methanol mainly) ⁽³⁾.
- Road** usage of hydrogen (directly or as e-fuel) will be only for cases where battery electric is not possible, as hydrogen-based fuels will have a higher TCO.

- (1) Projects in construction or preparatory stage in “Clean Hydrogen Monitor”, Hydrogen Europe, 2023
- (2) For 2040, projects in any phase in “Clean Hydrogen Monitor”, Hydrogen Europe, 2023. For 2050, values in figures from ENTSO-E TYNDP model, 2022, Distributed Energy scenario, [link](#), for green hydrogen, own assumption for blue hydrogen.
- (3) Demand for 2030 for the industry are from RePowerEU ([link](#)). For transport sectors, demand defined to comply with the respective CO₂ regulation, selecting preferably the cheapest energy.



Life Cycle Analysis

Energy Consumption

Energy Availability

Global Warming Potential

NO_x Emission

Noise Emission

Mineral Resource Depletion

Cost

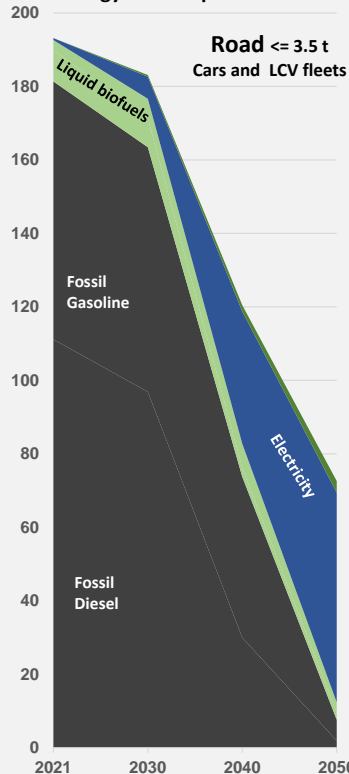
A logical split of renewable resources for transport will happen through regulation or market prices:

Aviation will fulfill its “ReFuelEU Aviation” targets by taking all possible **liquid biofuels**, and complete the rest of its need with more expensive **e-SAF**.

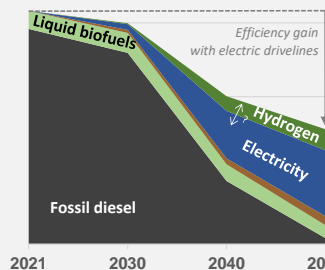
Marine will fulfill its “FuelEU Maritime” targets by starting with biofuels, then going for **e-fuels**, mainly e-methanol and e-LNG, and e-ammonia for cost reasons if environmental and safety issues can be addressed.

Road transport will go mainly for energy-efficient **battery electric** drivelines, and cover some needs with **biofuels** and **hydrogen**.

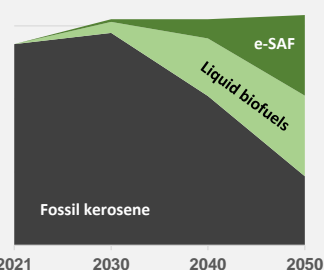
Energy Consumption forecast in EU 27 (Mtoe)



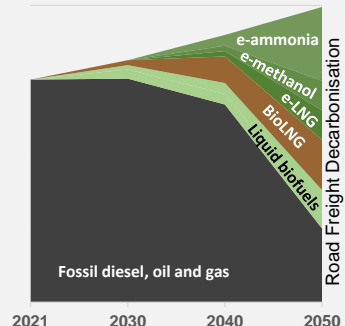
Road > 3.5 t
Trucks and buses fleets



Aviation



Marine



Life Cycle Analysis

Energy Consumption

Energy Availability

Global Warming Potential

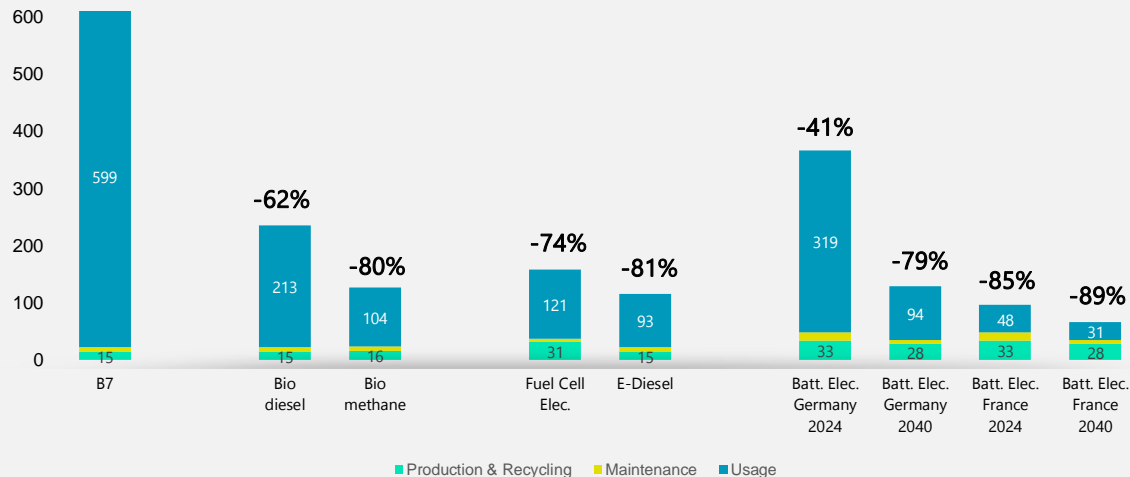
NO_x Emission

Noise Emission

Mineral Resource Depletion

Cost

LIFECYCLE GLOBAL WARMING POTENTIAL (tCO₂eq)



Batteries, hydrogen and bio energies are valid candidates to decarbonise road freight

40-ton regional-haul tractor Operating over 800,000 km



Production & recycling & maintenance : Volvo internal LCA for diesel and BEV in 2020, scaled for the other cases with Ricardo ED11344 report. For batteries, change after 7 years taken into account, assuming that 40% of the accumulated storage energy is left at SOH=80% for the second life, and that recycling saves 30% of the carbon footprint of a new battery.

CO₂ emission coefficients:

Pump Diesel: 3.09 kgCO₂/eq/l in 2020 (7% bio) decreasing linearly to 2.85 kgCO₂/eq/l in 2030 (17% bio), and constant afterwards

B100: 1.14 kgCO₂/eq/l in 2022 (ADEME), decreasing linearly to 1/3 of this value in 2050

E-diesel: 0.57 kgCO₂/eq/l in 2020, decreasing to 0.17 kgCO₂/eq/l in 2050.

Bio-CNG: 0.66 kgCO₂/eq/kgCH₄ in 2020 (ADEME), decreasing linearly to at 1/3 of this value in 2050.

Green Hydrogen: 2.7 kgCO₂/eq/kgH₂ in 2020, decreasing to 1.5 kgCO₂/eq/kgH₂ in 2050

Grid electricity : 57 gCO₂/eq/kWh in 2021 in France (ADEME), 505 gCO₂/eq/kWh in 2018 in Germany (IEA), decreasing linearly to 30 gCO₂/eq/kWh in 2050.

Life Cycle Analysis

Energy Consumption

Energy Availability

Global Warming Potential

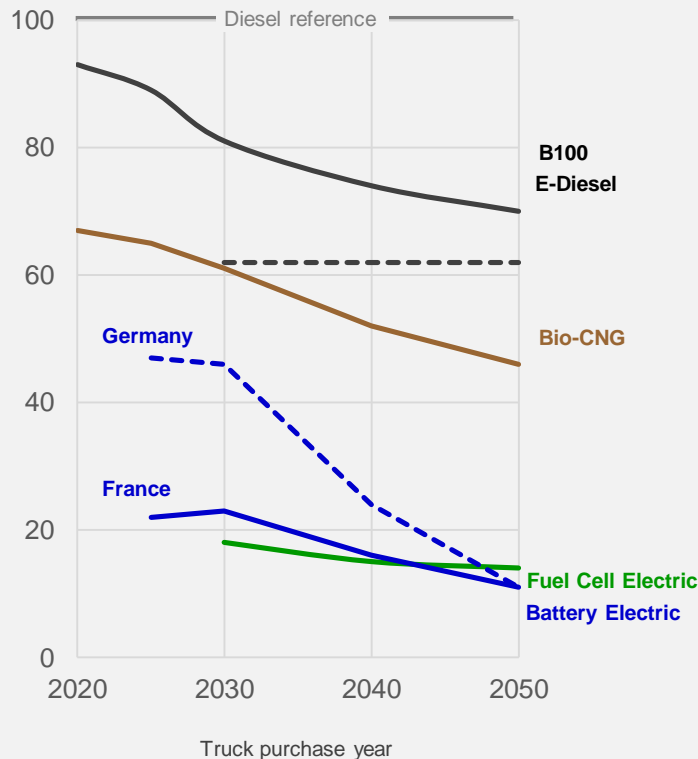
NO_x Emission

Noise Emission

Mineral Resource Depletion

Cost

LIFECYCLE GLOBAL NO_x EMISSIONS versus diesel



Electric trucks are a must to remove local NO_x emissions, and have the lowest global Nox emissions

40-ton regional-haul tractor
Operating over 800,000 km



Production & recycling & maintenance : Volvo internal LCA, scaled for hydrogen based on GWP.

NO_x emissions:

Pump Diesel: 400 mg/km WTT in 2020 (based on Eco invent database), down to 320 mg/km WTT in 2050. 590 mg/km TTW ⁽¹⁾ in 2020, down to 300 mg/km TTW with Euro VII in 2029.

Bio-diesel: (B100): 370 mg/km WTT in 2020 (assumption based on the energy balance of JEC 2020, ROFA1 pathway), down linearly to 140 mg/km in 2050.

E-diesel: 140 mg/km WTT in 2020, down linearly to 120 mg/km in 2050, based on the green hydrogen value below scaled with the primary energy ratio.

Bio-methane: 370 mg/km WTT in 2020 (assumption based on the energy balance of JEC 2020, OWCG5 pathway), down linearly to 110 mg/km in 2050. TTW part considered 40% lower than for pump diesel.

Green Hydrogen: 21 mg/km in 2020 (based (3)), down linearly to 8 mg/km in 2050.

Grid electricity: 74 mg/m in 2020, down to 30 mg/km in 2050, based on French mix content and (3). In Germany, similarly: 312 mg/km in 2020, down to 30 mg/km in 2050.

Batteries: 60% (first life) of 97 g/kWh (4), down linearly to 32 g/kWh in 2050.

(1) "Real world performance of Euro VI D trucks", ICCT, 2021, page 9 truck 1 and 3, [link](#)

(2) NREL database, [link](#)

(3) "Incorporating upstream emissions into electric sector nitrogen oxide reduction targets", EPA, 2020 [link](#)

(4) Life Cycle Analysis of Li-ion Batteries, Argonne National Laboratory, 2019, [link](#)

Life Cycle Analysis

Energy Consumption

Energy Availability

Global Warming Potential

NO_x Emission

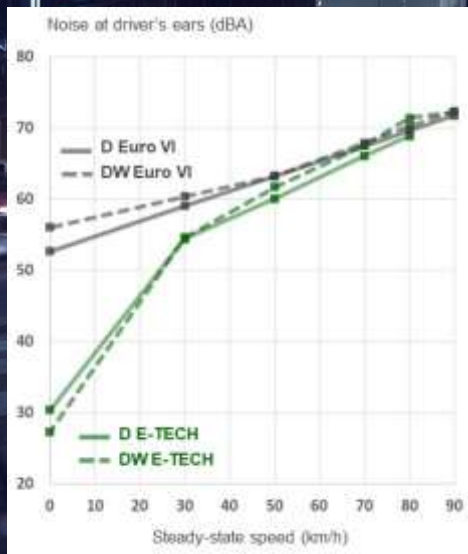
Noise Emission

Mineral Resource Depletion

Cost

Externally, Renault Trucks E-Tech D emits 85% less noise (- 8 dBA) in the legal pass-by test EC R51-03 than the diesel version

Inside the cab, compared to diesel, the electric truck D E-Tech compared to diesel saves:



Life Cycle Analysis

Energy Consumption

Energy Availability

Global Warming Potential

NO_x Emission

Noise Emission

Mineral Resource
Depletion

Cost

Electric trucks require more minerals for the battery and the fuel cell

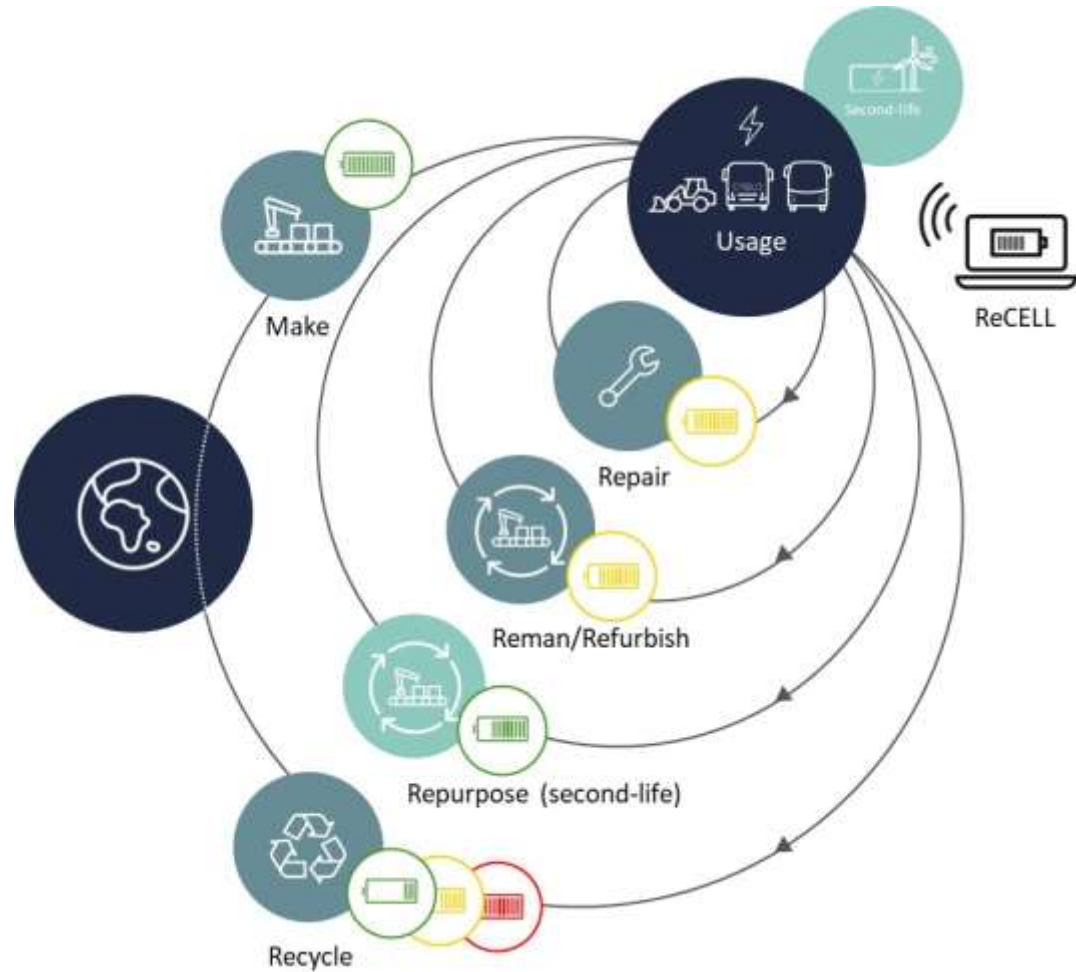
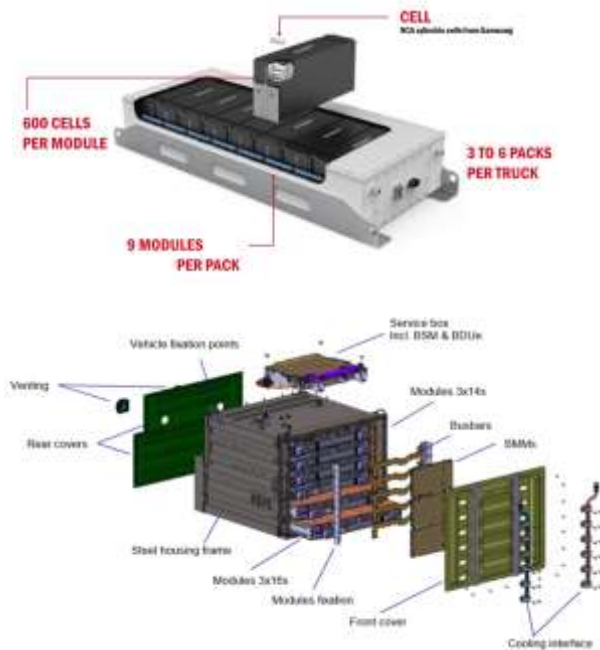
No physical limitation with today's reserve

OEMs strongly pay attention to extraction conditions

By 2031, more than 70% of battery weight, 80% of Lithium, 95% of Cobalt, Copper and Nickel will be recycled by law (European Battery Regulation)

In next decade, "fresh" mineral need will start to decrease due to recycling, and eventually become small

Battery Circularity





BATTERY PRODUCTION

Integrating the upstream value chain

2022

Pack assembly
in Gent, Belgium

2030+

Large-scale cells manufacturing
plant in Mariestad, Sweden

CELL



MODULE



PACK



SYSTEM



2022

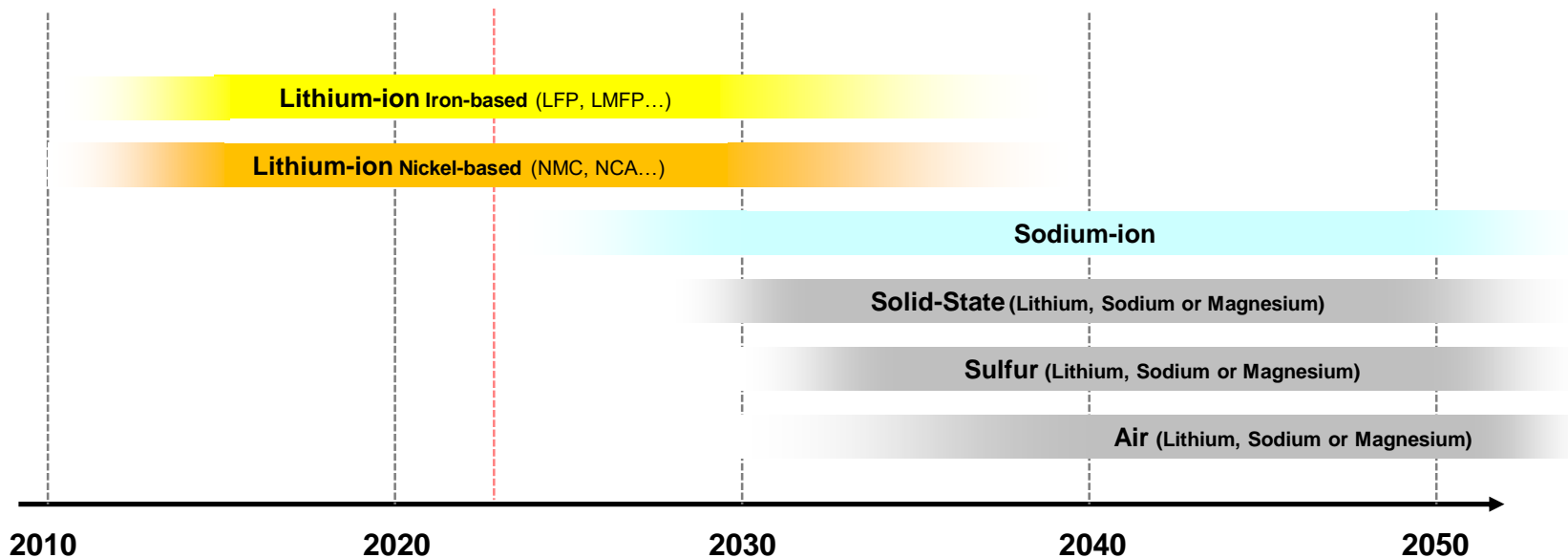
2026

2030+

Battery Chemistry Evolution for Trucks

- Today's Lithium-ion technology will continue throughout the decade in the new gigafactories
- OEMs will continue to navigate between the possible cathode chemistries guided by minerals availability and price (Ni, Co, M, Al, Fe, P...)
- Sodium-ion might come in the second part of the decade for low-cost or low-range trucks
- Solid-State, Sulfur and Air are more likely for the next decade

IA			
H 1 1.008 Hydrogen			
Li 3 6.941 Lithium	IIA	Be 4 9.012 Beryllium	
Na 11 22.990 Sodium		Mg 12 24.305 Magnesium	



Life Cycle Analysis

Energy Consumption

Energy Availability

Global Warming Potential

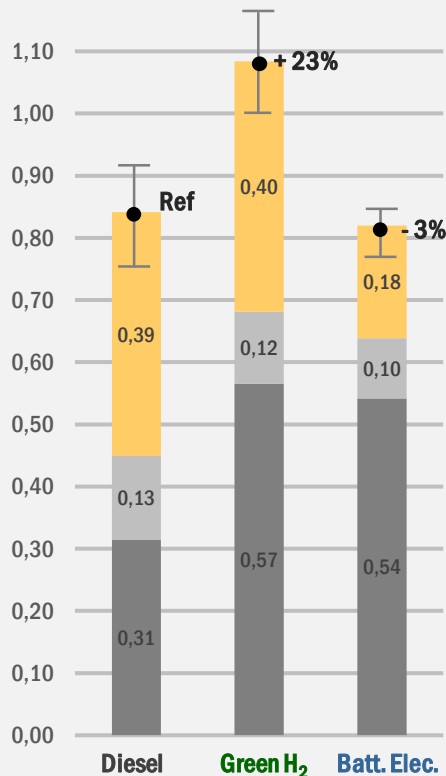
NO_x Emission

Noise Emission

Mineral Resource Depletion

Cost

TOTAL COST OF OWNERSHIP for a truck bought in 2030 €₂₀₂₄ / km



TCO parity electric vs diesel before 2030 for urban trucks

16-ton urban distribution truck
running 280 000 km over 7 years



Energy cost (average over 7 years) is based on a forecast using financial market futures when available, no VAT included

- Diesel: 1.60 €/l (30-36). Includes ETS2
- B100: 1.93 €/l (30-36)
- Bio-CNG: 2.52 €/kg (30-36). Public subsidies not considered.
- Green hydrogen: 7.1 €/kg (30-36)
- Electricity: 0.19 €/kWh (30-36), based on depot night AC charging and with IC band contract. Includes charger installation and initial connection cost amortization.

Tires, air drag improvements, and internal combustion engine (incl. Euro VII) improvements over time taken into account. Energy consumption increase of 3.5% (16-ton), 2.4% (40-ton) per added ton of empty weight for diesel, 1.5% for electric.

Maintenance cost includes predictive & corrective costs and tires (corrected proportionally to vehicle weight.).

Truck cost includes purchase, resale and capital cost.

All decided public support taken into account in 2024, none in 2030

- Battery pack: 130 €/kWh (2030) with 80% Depth of Discharge, and a residual value of 20% of a new battery for second life at 80% SOH.
- H₂ tank: 400 €/kg (2030). Fuel cell: 170 €/kW (2030), average cycle efficiency of 55% (2030), efficiency decrease of 5 points at mid-life.
- Initial low-volume production and extra warranty cost taken into account for FCEV and BEV.
- Diesel and gas: +2%/year cost increase after 2027 due to the volume base and suppliers number reduction.

Uncertainty range on the graph relates only to energy cost.

All values in Jan 1st 2024 Euros (no inflation) without VAT.

Comparison exercise independent from Renault Trucks product plan

Version 932 - Oct 2024

Life Cycle Analysis

Energy Consumption

Energy Availability

Global Warming Potential

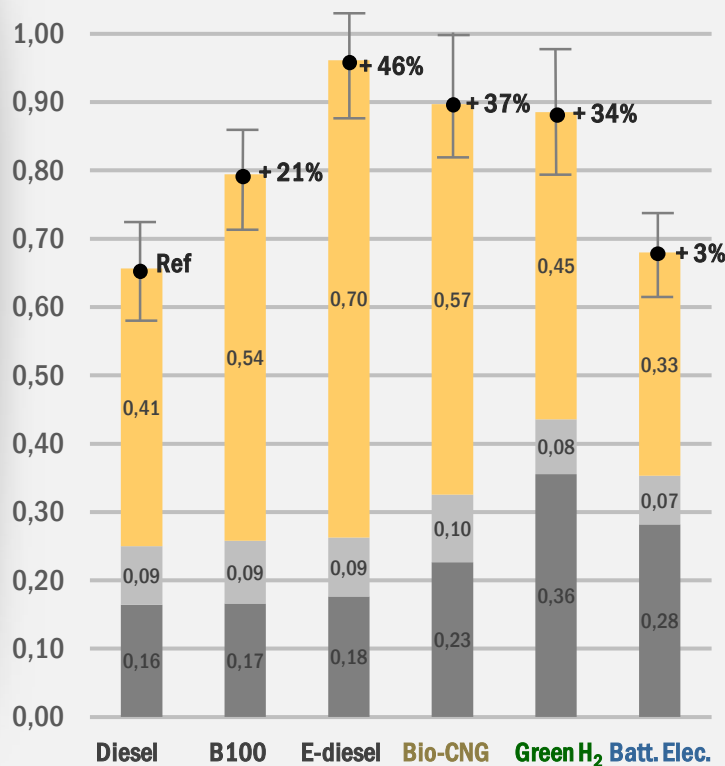
NO_x Emission

Noise Emission

Mineral Resource Depletion

Cost

TOTAL COST OF OWNERSHIP for a truck bought in 2030 €₂₀₂₄ / km



TCO parity electric vs diesel before 2030 for long-haul trucks

40-ton urban distribution truck running 829 000 km over 7 years



Energy cost (average over 7 years) is based on a forecast using financial market futures when available, no VAT included

- Diesel: 1.60 €/l (30-36). Includes ETS2
- B100: 1.93 €/l (30-36)
- Bio-CNG: 2.52 €/kg (30-36). Public subsidies not considered.
- Green hydrogen: 7.1 €/kg (30-36)
- Electricity: 60% private DC at 0.22 €/kWh (30-36), based on depot night DC charging with IC band. Includes charger installation & initial connection cost amortization. And 40% public at 0,32 €/kWh (30-36).

Tires, air drag improvements, and internal combustion engine (incl. Euro VII) improvements over time taken into account. Energy consumption increase of 3.5% (16-ton), 2.4% (40-ton) per added ton of empty weight for diesel, 1.5% for electric.

Maintenance cost includes predictive & corrective costs and tires (corrected proportionally to vehicle weight.).

Truck cost includes purchase, resale and capital cost. All decided public support taken into account in 2024, none in 2030

- Battery pack: 130 €/kWh (2030) with 80% Depth of Discharge, and a residual value of 20% of a new battery for second life at 80% SOH.
- H₂ tank: 400 €/kg (2030). Fuel cell: 170 €/kW (2030), average cycle efficiency of 55% (2030), efficiency decrease of 5 points at mid-life.
- Initial low-volume production and extra warranty cost taken into account for FCEV and BEV.
- Diesel and gas: +2%/year cost increase after 2027 due to the volume base and suppliers number reduction.

Uncertainty range on the graph relates only to energy cost.

All values in Jan 1st 2024 Euros (no inflation) without VAT.

Comparison exercise independent from Renault Trucks product

Version 932 - Oct 2024

Summary

Battery Electric

- | | |
|--|------------------------------------|
| ■ ■ ■ Lowest energy need | ■ ■ Battery minerals supply |
| ■ ■ ■ Lowest CO₂ footprint | ■ ■ Grid load management |
| ■ ■ ■ Lowest Transport Cost | ■ ■ Operational constraints |
| ■ ■ Zero tailpipe NOx | ■ Up-front investment |
| ■ ■ Lowest Noise | |
- 

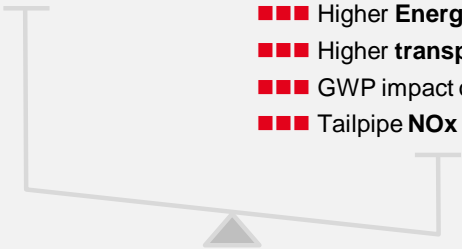
Low-carbon Hydrogen

- | | |
|-------------------------------|--|
| ■ ■ When BEV not possible | ■ ■ ■ Higher Energy need |
| ■ ■ Synergies with industries | ■ ■ ■ Higher transport cost |
| ■ ■ Zero tailpipe NOx | ■ ■ Higher CO₂ footprint |
| | ■ ■ Operational constraints |
| | ■ Up-front investment |
- 

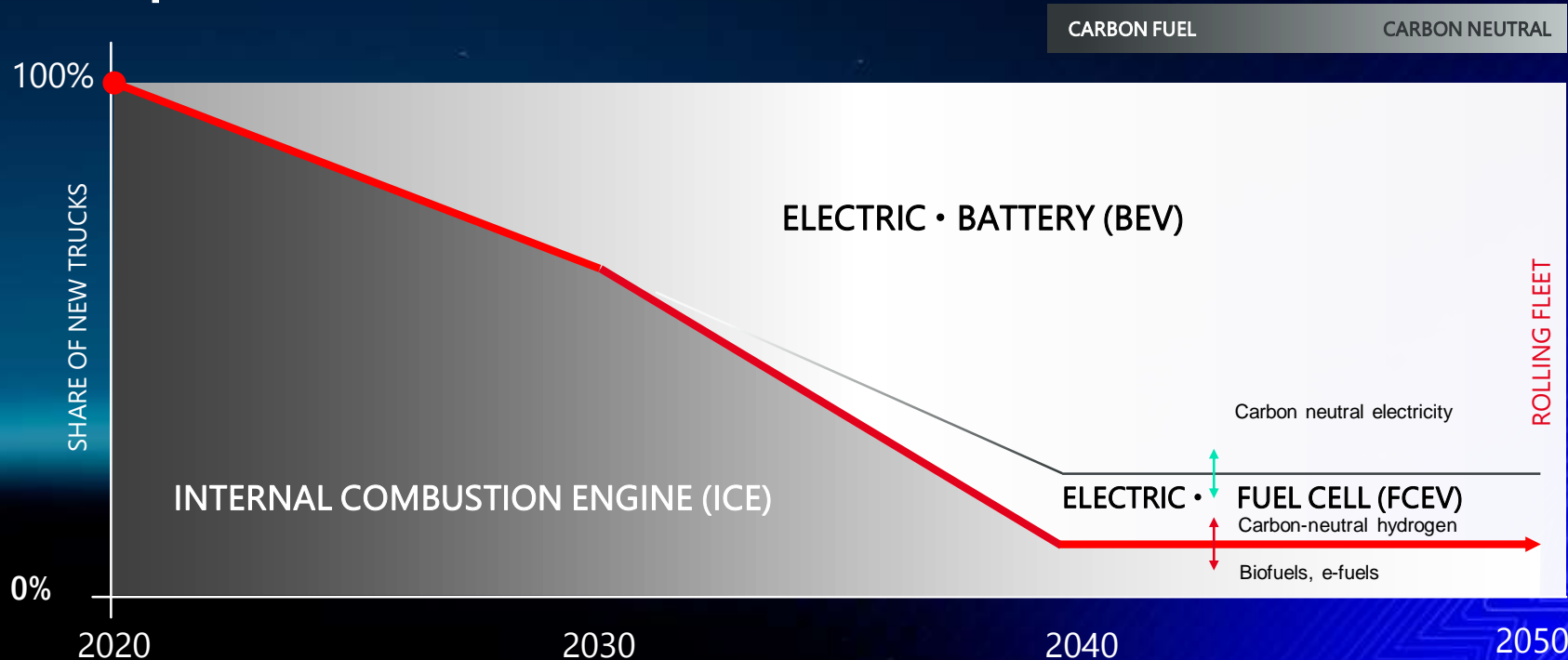
Biodiesel

- | | |
|--|---------------------------------------|
| ■ ■ ■ Drop-in in existing fleet | ■ ■ Limited quantity available |
| | ■ ■ Higher Energy need |
| | ■ ■ Higher transport cost |
| | ■ Tailpipe NOx |
- 

Biomethane

- | | |
|--|---|
| ■ Drop-in in existing gas fleet | ■ ■ ■ Limited quantity available |
| | ■ ■ ■ Higher Energy need |
| | ■ ■ ■ Higher transport cost |
| | ■ ■ ■ GWP impact of leaks |
| | ■ ■ ■ Tailpipe NOx |
- 

Renault Trucks roadmap towards carbon neutral transportation



Renault Trucks fast-paced electric introduction

Average range with depot night charging (km)
 Between brackets: with an additional charge during the day
 (1 hour at 250 kW in 2023, 1h at 350 kW or 30 min at 750 kW in 2024)

Regional & long-haul

300 (500) 500 (800)

Construction

100 150 200 300 (500)

Waste & recycling / environment

80 110 150

Urban distribution

150 225 300

Energy services

Depot charging Destination charging Opportunity charging *

2020

2021

2022

2023

2024

2025

* Milence

**The widest electric
range in Europe**

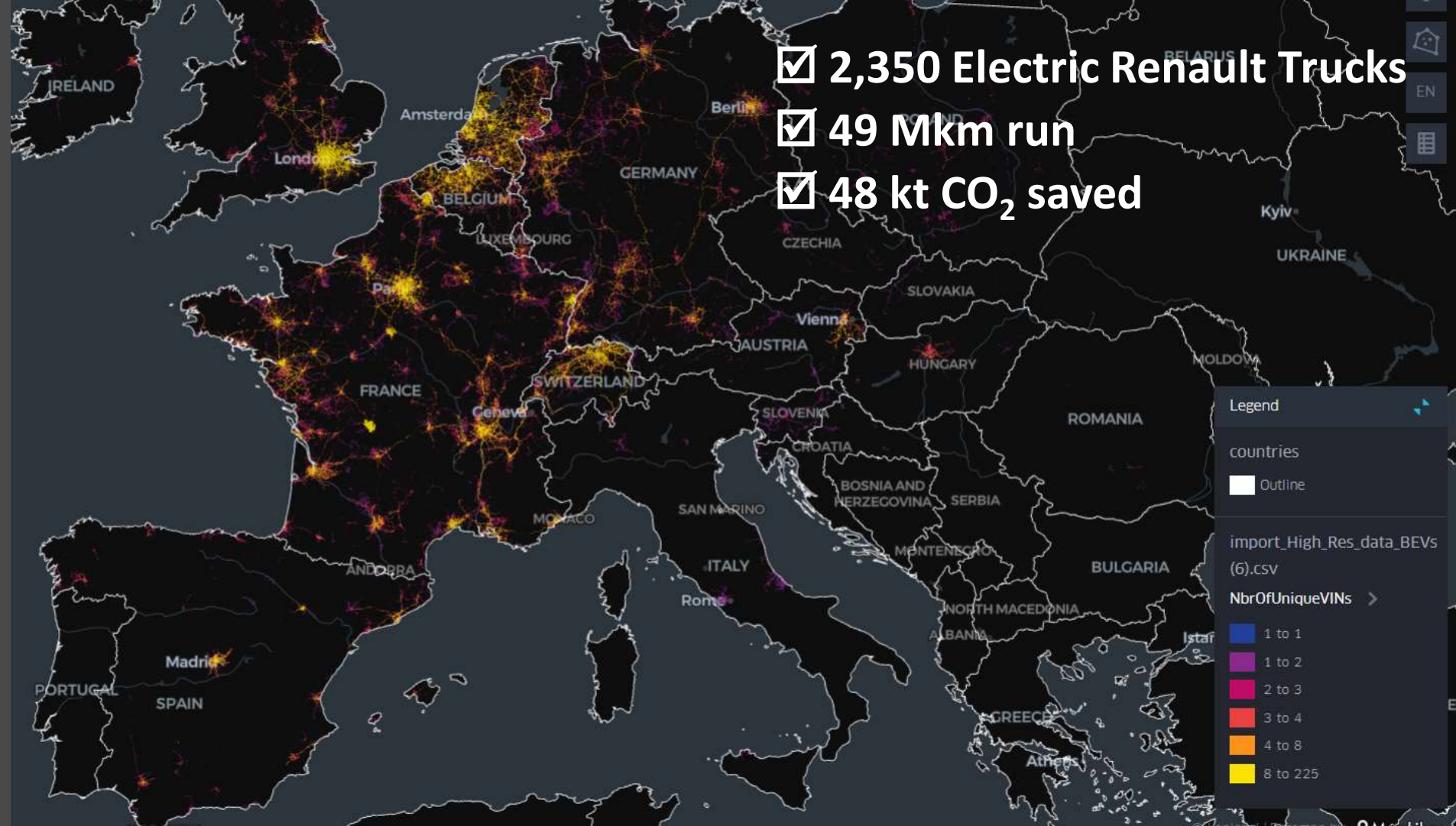
From 0.6 to 44t



✓ 2,350 Electric Renault Trucks

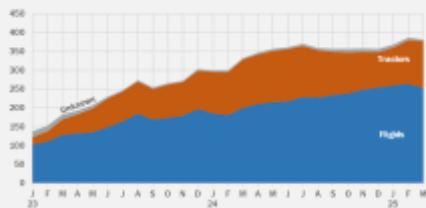
✓ 49 Mkm run

✓ 48 kt CO₂ saved



Market outlook

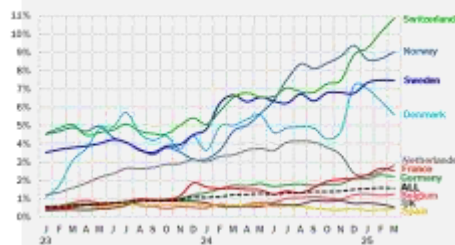
High speed & leading positions



MHDV BEV Registrations
Europe (EU27 + NO + CH + UK)

1 098 u. +11% vs. LY

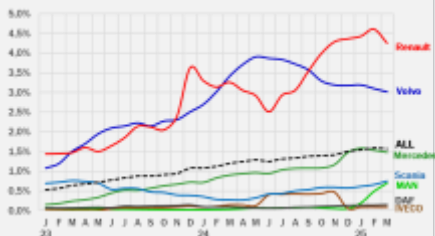
% tractor units : 39%



Electric trucks
penetration per country
6 months rolling average

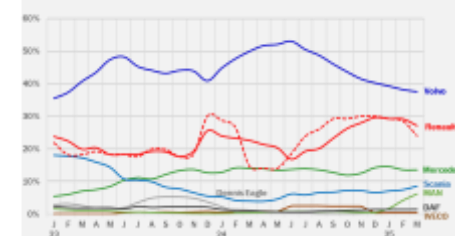
Europe: 1.6%

Nordics, CH > 8%



Electric trucks
penetration per OEM
6 months rolling average

4.3%; x2,7 market speed



OEM Market Share
All countries • All types
6 months rolling average

All types : 27%

Rigids only: 31%

Journey towards decarbonisation, with serenity



We have developed a dedicated offer
to support you in this transition with serenity



Optifleet MISSION



Driver App



Optifleet CHECK / MAP



Serenity pack

Charging understanding: AC vs. DC

The power that comes from the grid is always AC

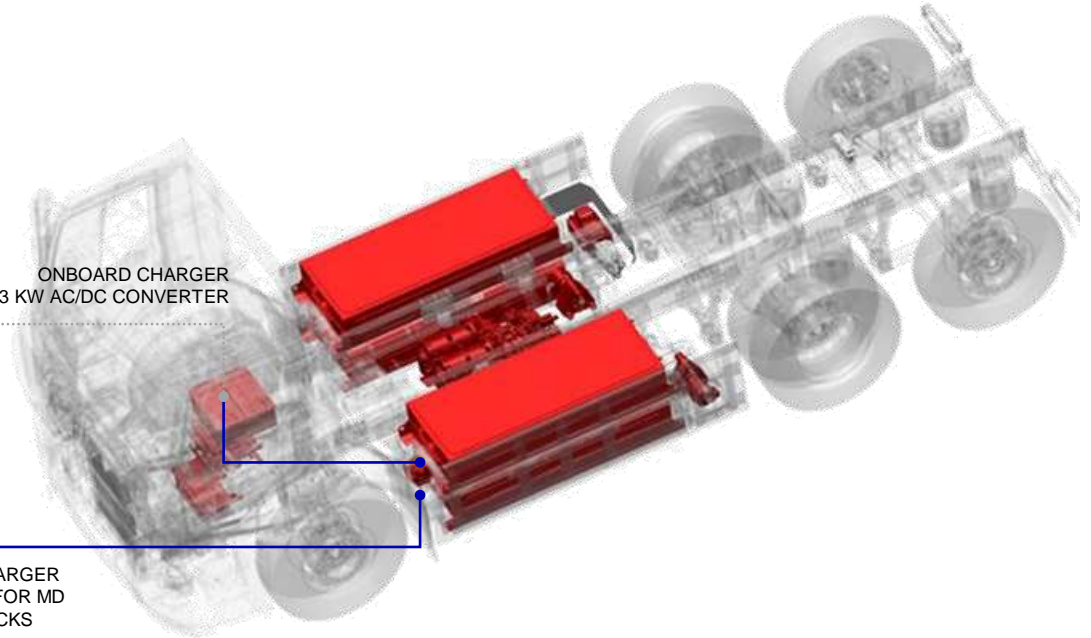
AC

ONBOARD CHARGER
43 KW AC/DC CONVERTER

DC

CONVERTER INSIDE THE CHARGER
ITSELF MAX POWER 150 KW FOR MD
AND 250 KW FOR HD TRUCKS

But batteries accept only DC



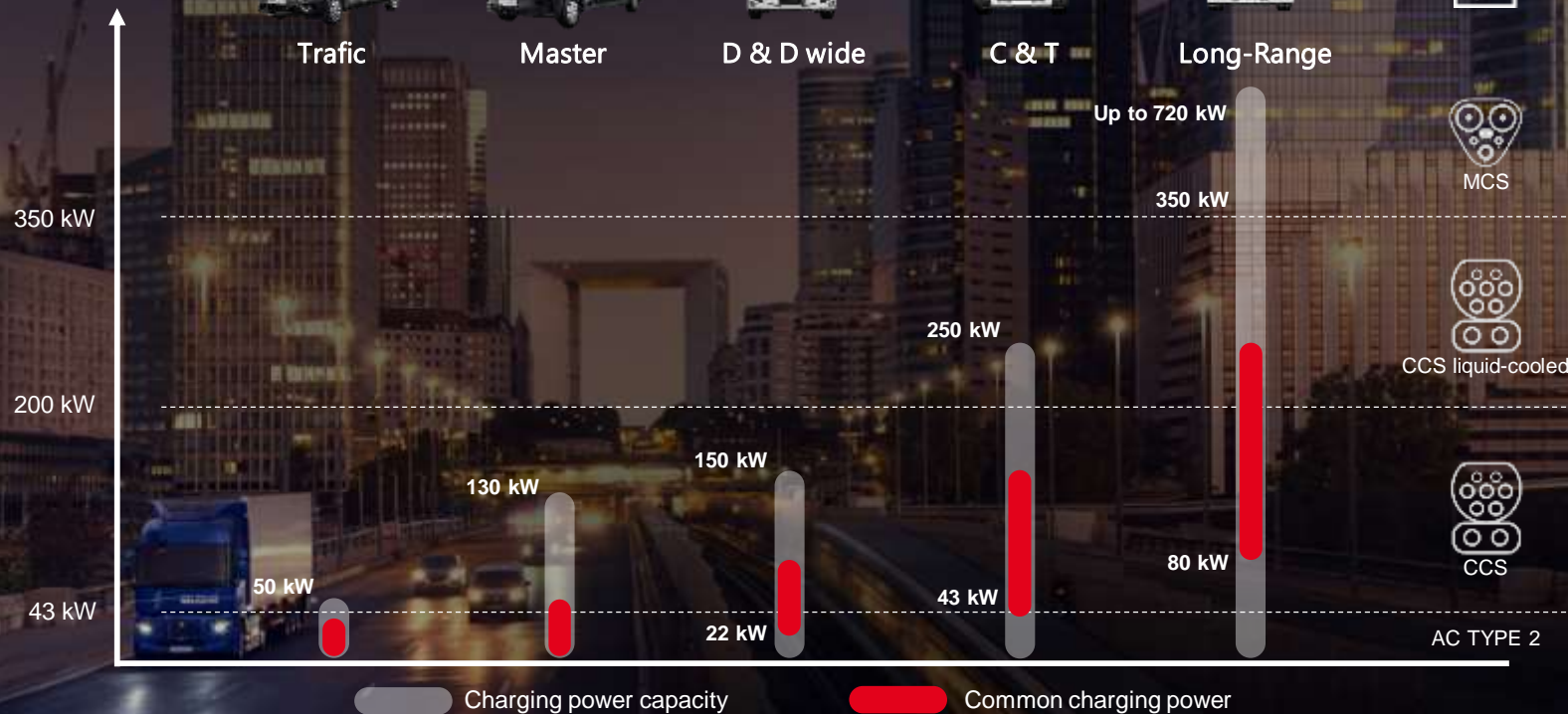
Renault compatible with all charging modes for more flexibility

CHARGING CAPABILITY

Charging power

@700Vdc MHDV

@300Vdc LCV



Public charging infrastructure development

AFIR • EUROPEAN REGULATION THAT DEFINES

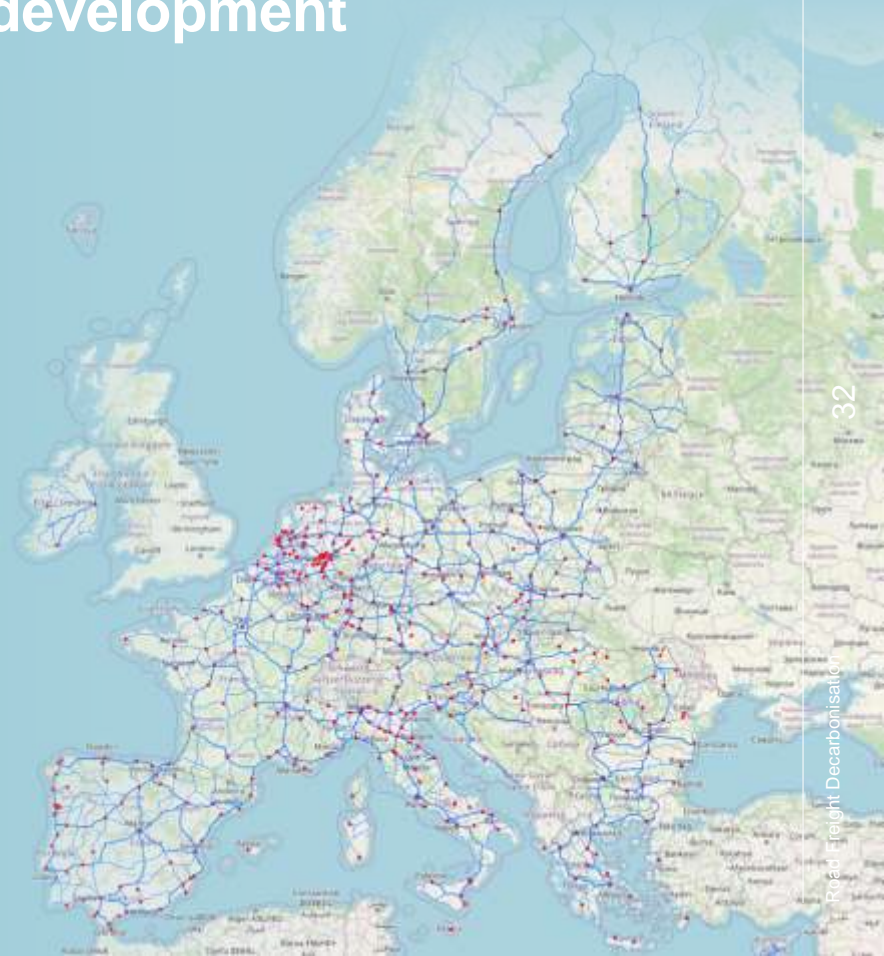
2026 500 high power charging pools for trucks

2031 Each 60 km (or 100 km on non-core networks) on the 90,000km of the main European highways

HD TRUCKS PUBLIC CHARGING HUBS LOCATIONS
(Maintained by Renault Trucks)



Europe - Electric Trucks Charging Locations Map



Electrifying Plants Logistics

