

VOLVO

VOLVO TRUCKS TECHNOLOGY ROADMAP AND ELECTRIFICATION

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E-Mobility and Body Builder Product Manager

2023-04-21

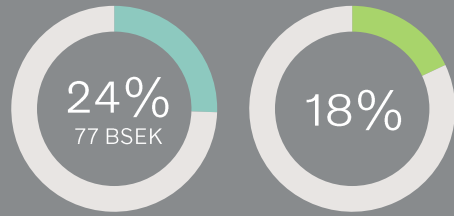
What we do

Volvo Group offers trucks, buses, construction equipment, power solutions for marine and industrial applications, financing and services that increase our customers' uptime and productivity.

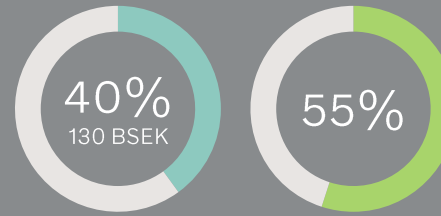
We contribute to the development of electrified and autonomous solutions for the benefit of customers, society and for the environment.



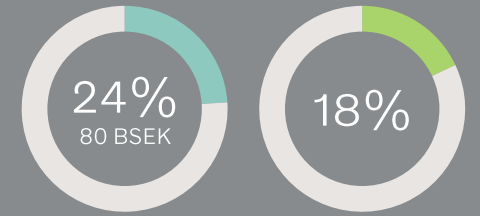
NORTH AMERICA



EUROPE

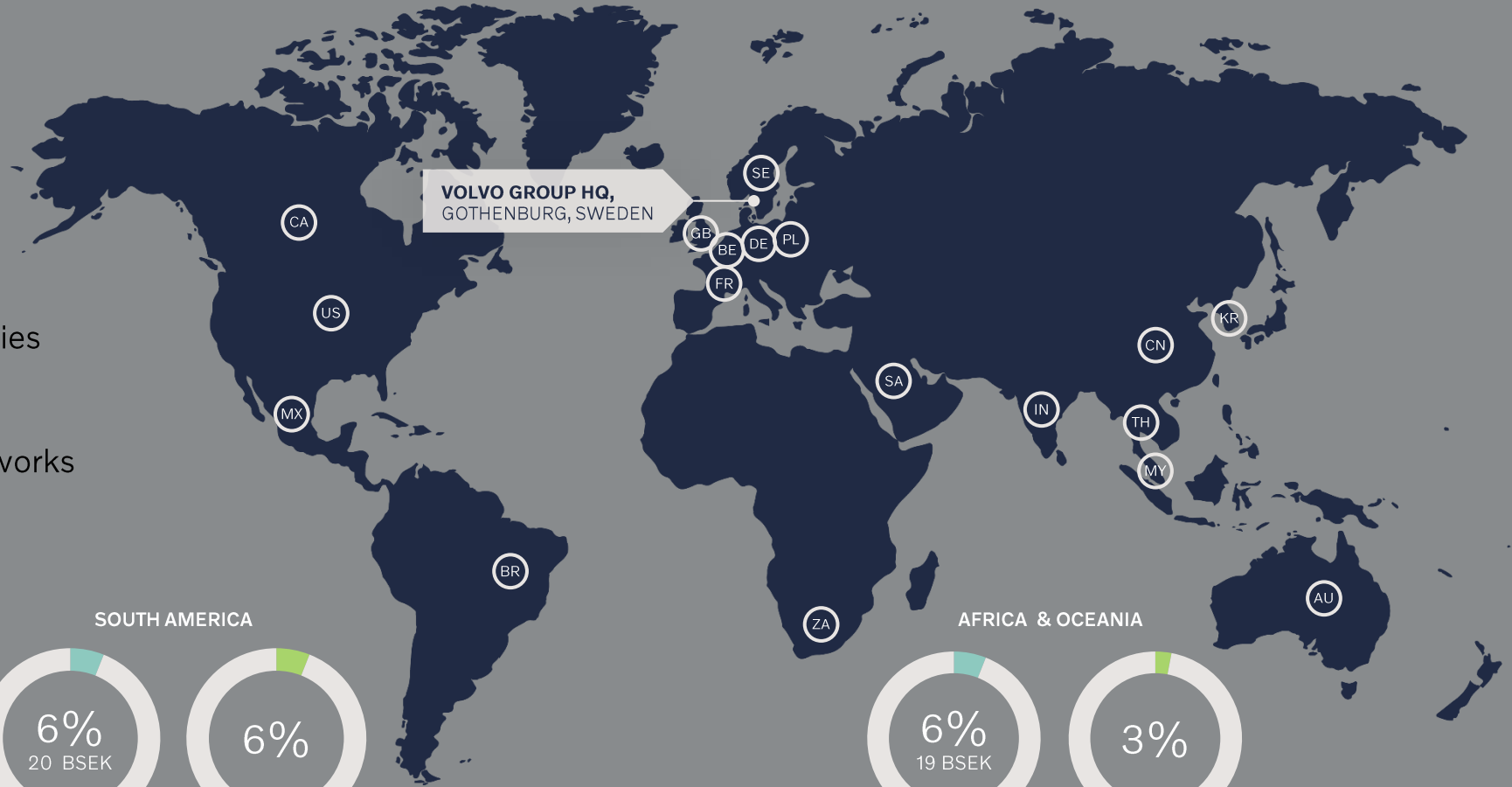


ASIA

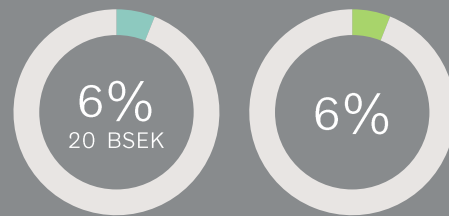


Global presence

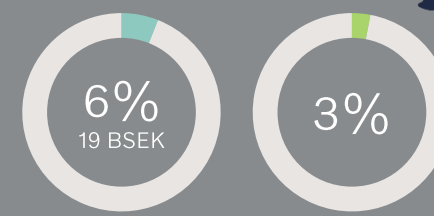
- 100,000 employees
- Production in 18 countries
- 190 markets
- Worldwide service networks and dealerships



SOUTH AMERICA



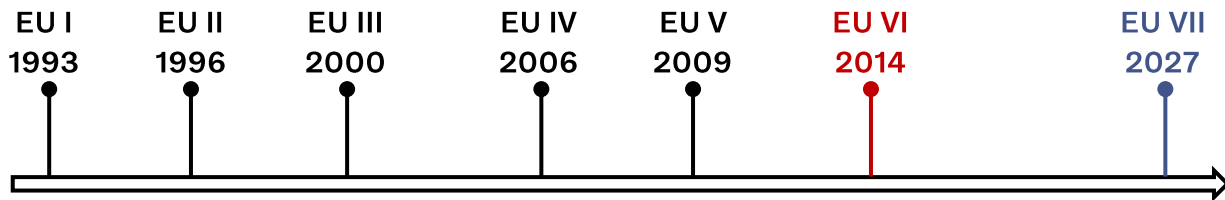
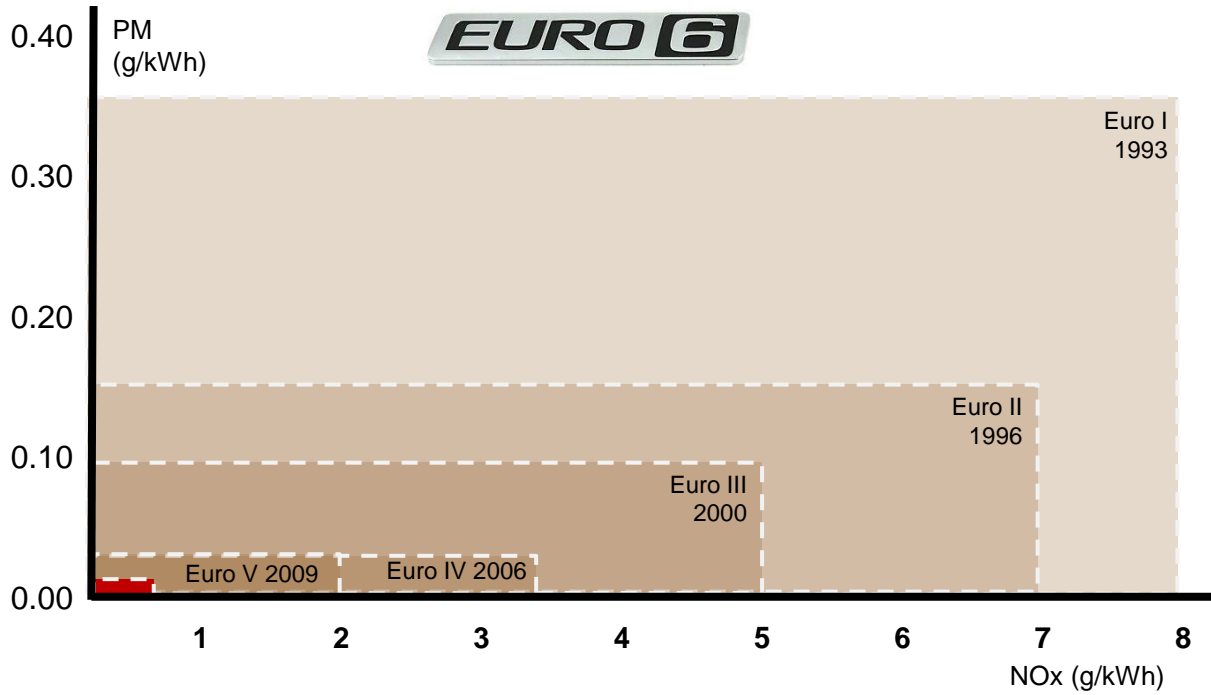
AFRICA & OCEANIA



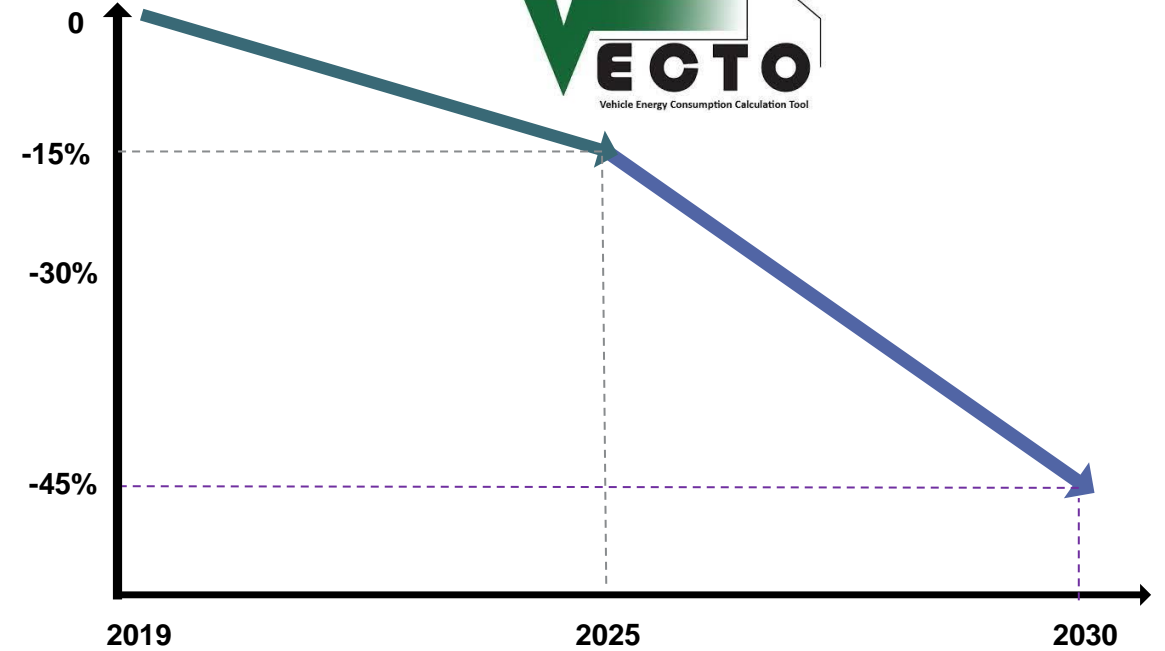
● Share of net sales by market (2020)
 ● Share of total employees (2020)
 Countries with Volvo Group production

Emission Standards

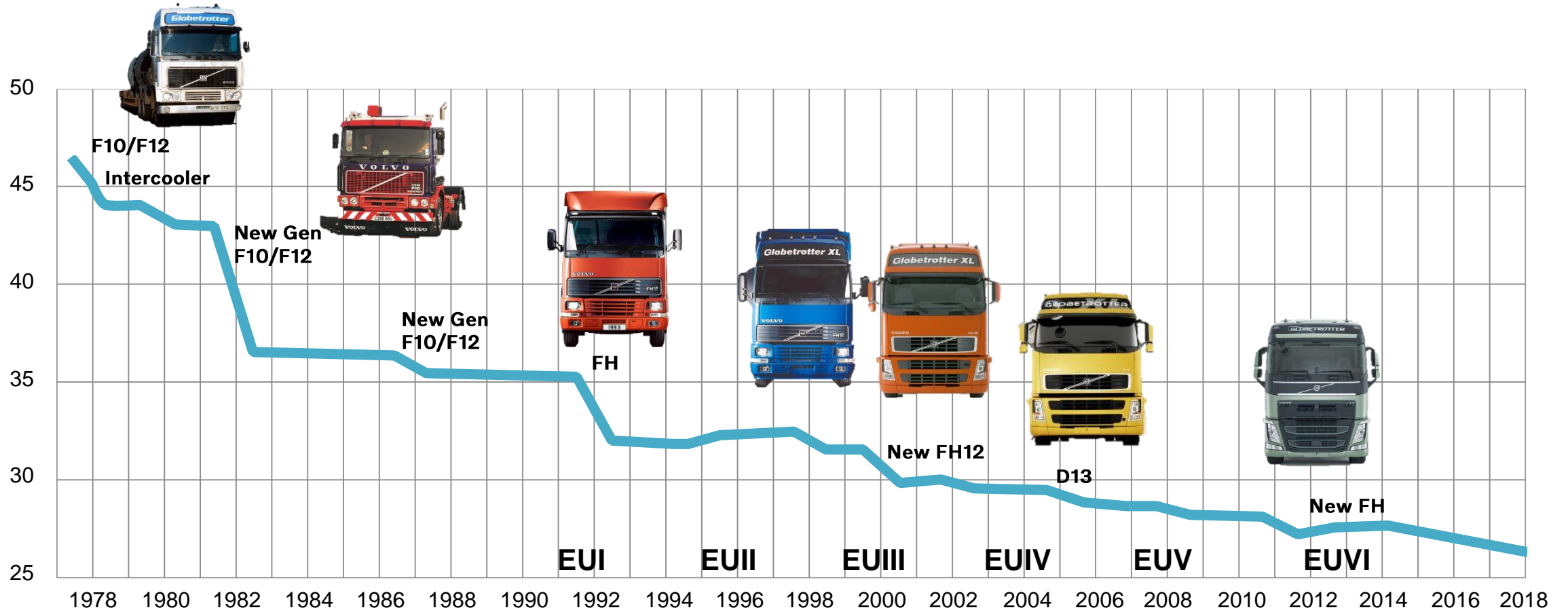
Air Quality
Euro Level Emissions



Decarbonisation
VECTO



How far have we come improving fuel efficiency?

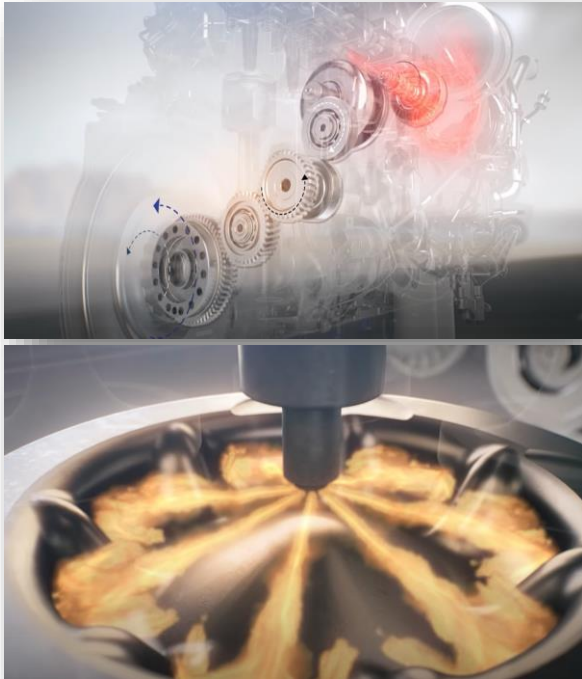


GCV 40 tonnes

Well-to-wheel decarbonisation

What are our options?

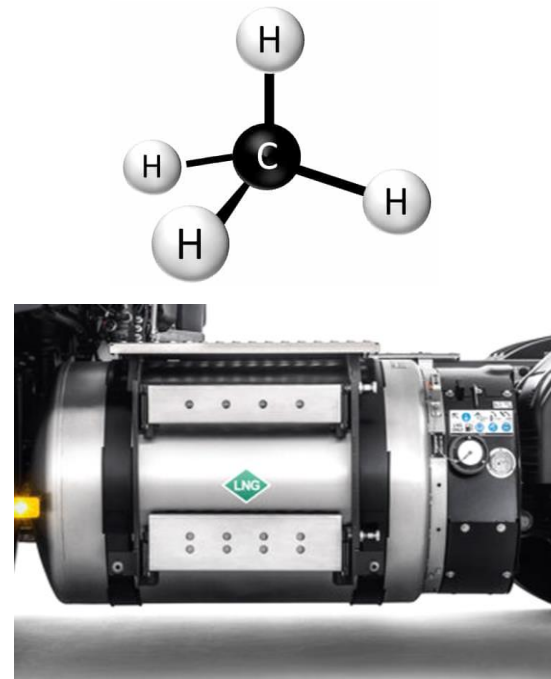
Improving current diesel technology



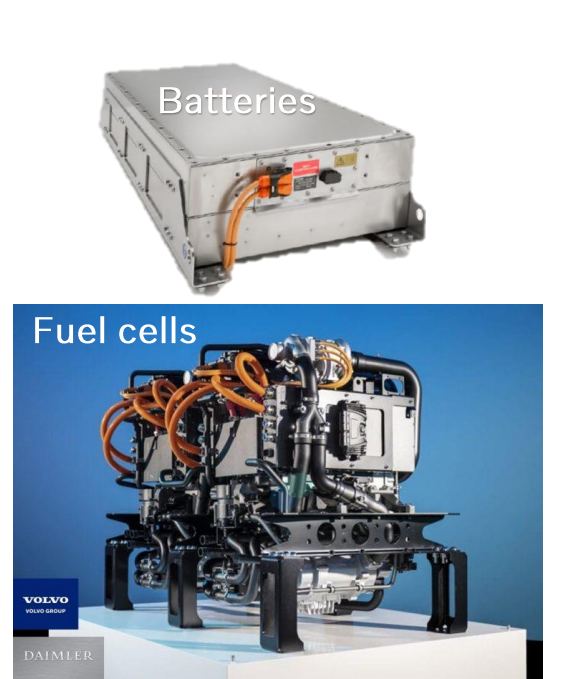
Renewable 'drop-in' fuels



Liquified methane/biomethane



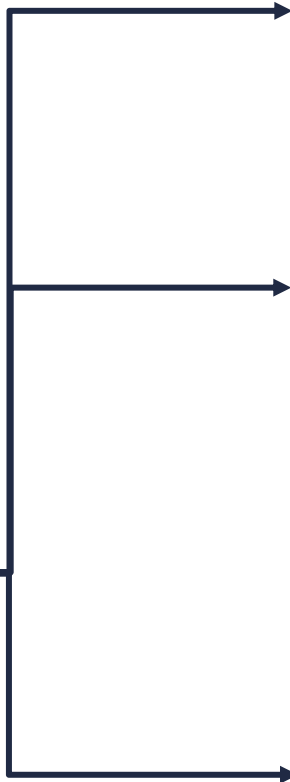
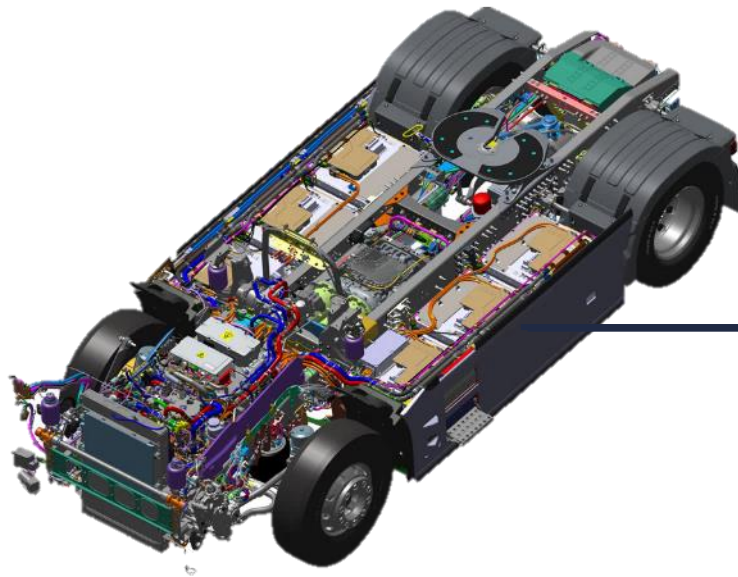
Electric



Scale Comparison

Energy Density

What's required for 300km of range?



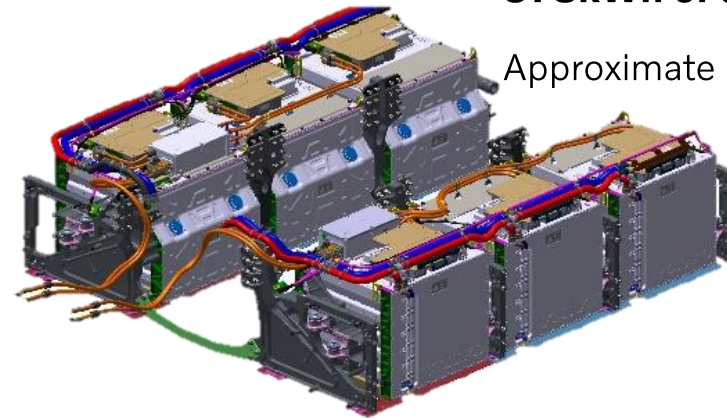
100 litres of diesel + tank

Approximate mass = 130kg



70kg LNG + tank

Approximate mass = 150kg

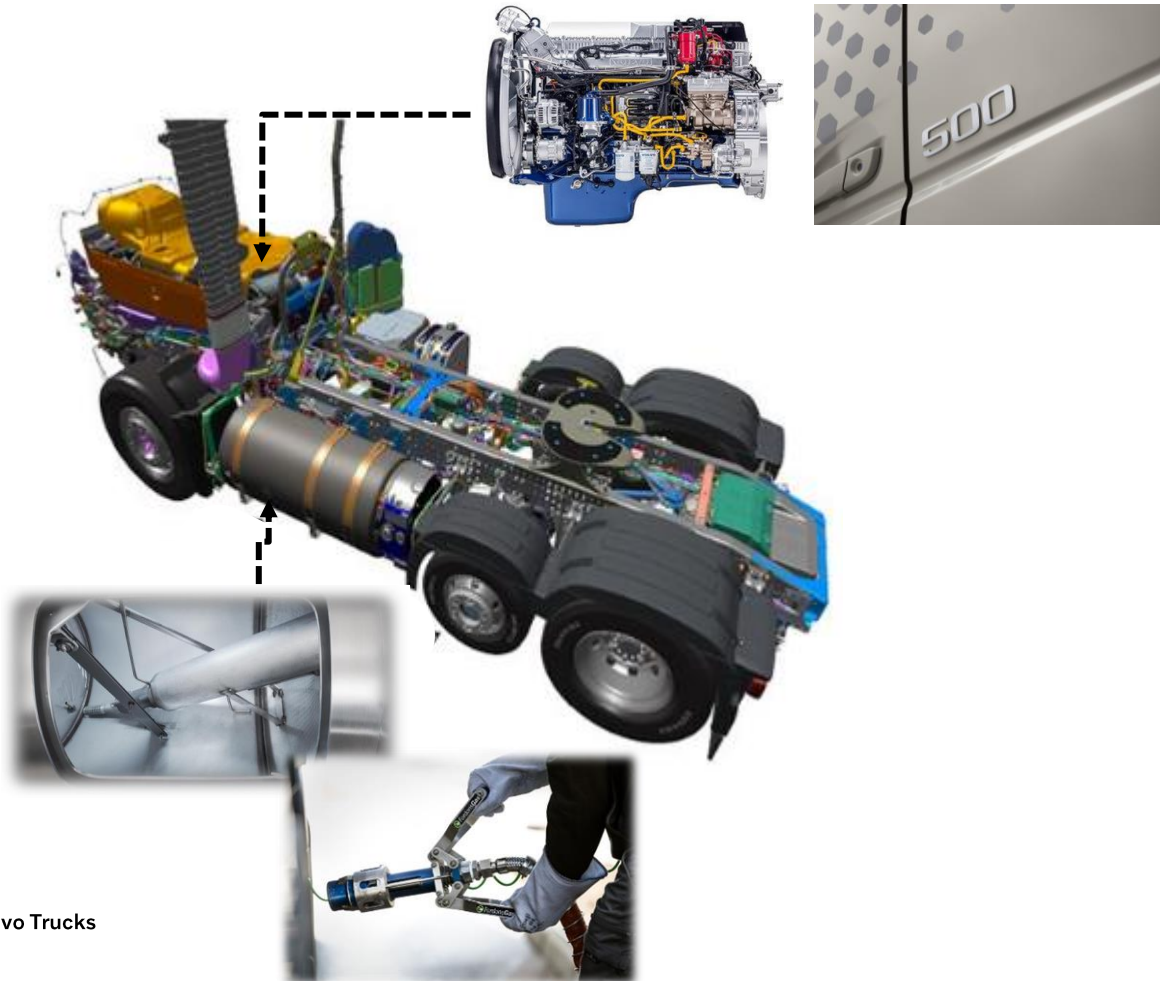


**x6 Energy Storage Systems
378kWh of useable energy**

Approximate mass = 3000kg

Liquefied Natural Gas / Bio-methane

400-mile range with LNG



Launched 2018

Over 900 in operation across the UK

Infrastructure dependent

20% CO2 reduction at the tail pipe



Production, in-use, recycling



Carbon-neutral assembly in Tuve, Sweden and Ghent, Belgium



NCA Li-ion batteries on FH/FM/FMX
NMC Li-ion batteries on FL/FE



Fossil free steel from SSAB



Volvo Energy – recycling, reusing, remanufacturing



Medium Duty – Distribution, Construction, Waste & Municipal



Heavy Duty – Distribution, Construction, Waste & Municipal





Adoption of Hydrogen



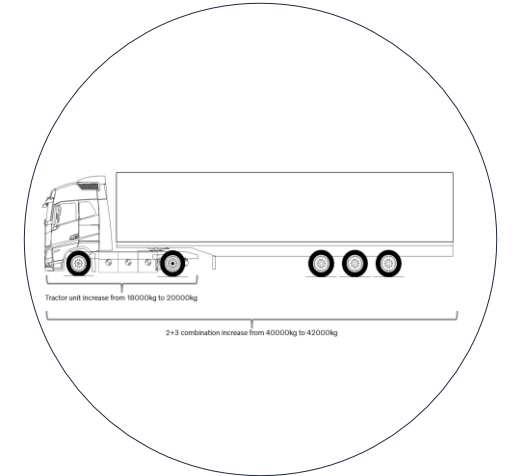
Technology testing



Infrastructure and green hydrogen

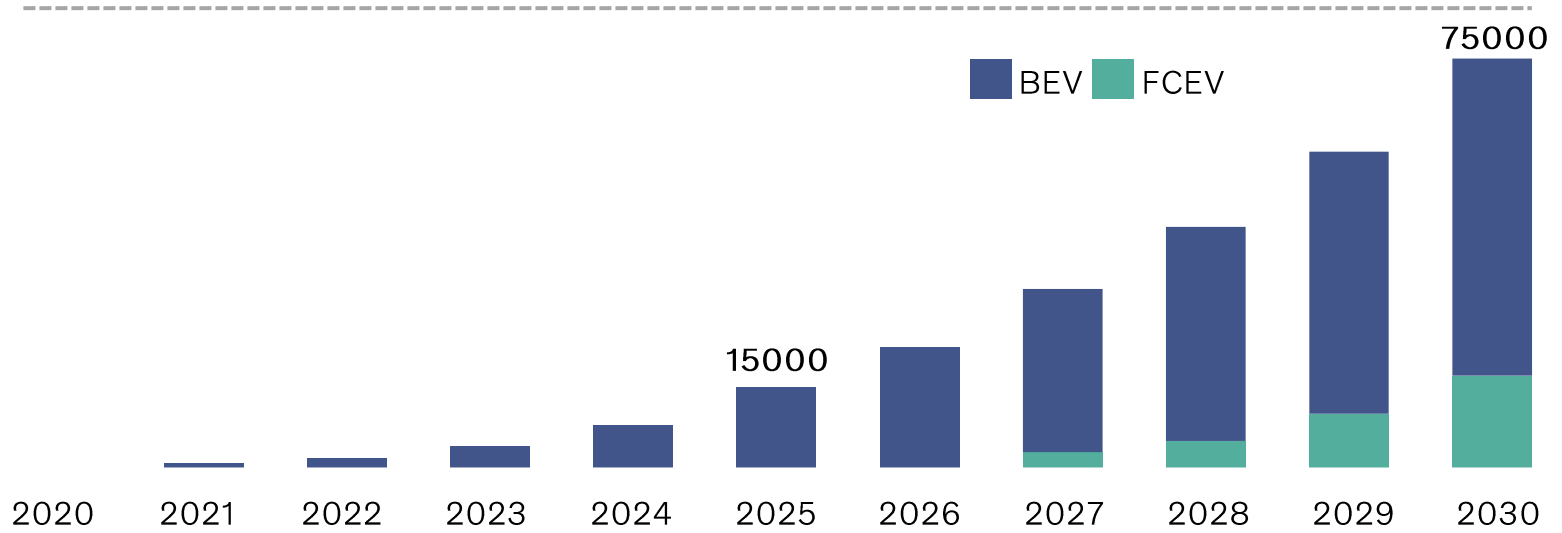
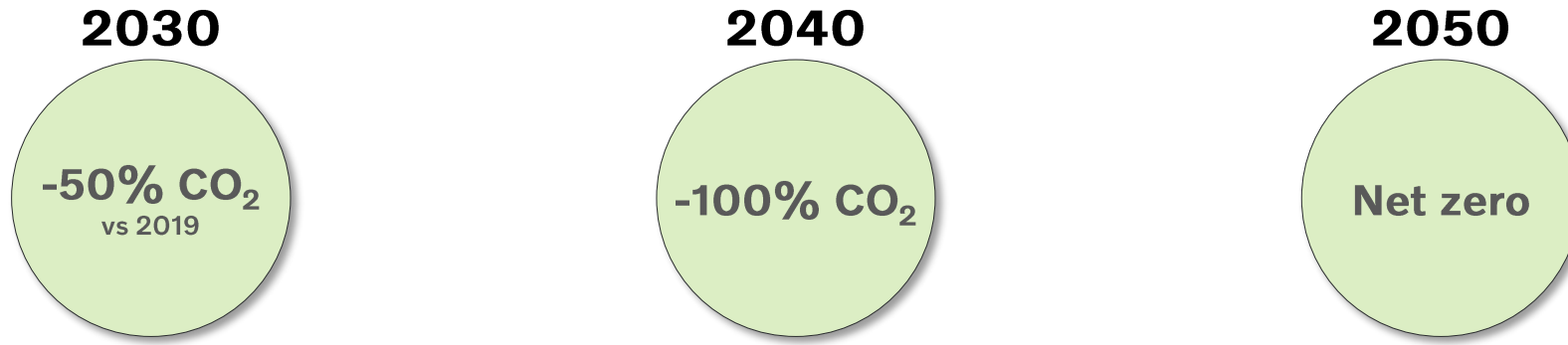


Collaboration



Legislation and operational updates

The Transition to Electric



General Safety Regulations



2024



2025

July 2026

GSR New Registrations 2nd Package

- Advanced Driver
- Distraction Warning System

January 2029

GSR New Registrations 3rd Package

- Direct Vision
- Event Data Recorder

Transport For London are leading DVS

★ 2021 Enforcement of TfL Direct Vision Standard 1 star requirement / Safety Permit

★ ★ ★ 2024 TfL Direct Vision Standard 2nd Phase

The diagram shows two scenarios of Direct Vision Standard (DVS) enforcement. The top scenario, labeled '2021', shows a blue truck with a single star rating and a driver's view through the windshield showing a person on a bicycle. The bottom scenario, labeled '2024', shows a red truck with three star ratings and a driver's view through the windshield showing a person on a bicycle and a person on a motorcycle. The driver's view is represented by a light-colored cone extending from the truck's windshield.

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THANK YOU.
ANY QUESTIONS?

V O L V O