



ENGINIUS<sup>®</sup>  
FAUN GROUP

# INNOVATION IS WHAT DRIVES US

Trucks for carbon-neutral transport.



**ENGINEIUS**<sup>®</sup>  
FAUN GROUP





FAUN Umwelttechnik – Osterholz-Scharmbeck (near Bremen)




**1.600** Refuse collection vehicles p.a.



FAUN Viatec – Grimma (near Leipzig)



**300** Road sweepers p.a.

 FAUN is a leading manufacturer of refuse collection vehicles and road sweepers



## Alternative drivetrain development



### DUALPOWER / FUELCELL / BLUEPOWER

- Jan 2006 First idea alternative drives = DUALPOWER
- Jan 2009 First tests of DUALPOWER
- July 2009 Validation of DUALPOWER (20 vehicles in field tests)
- Oct 2009 FUELCELL - First refuse collection vehicle with hydrogen
- Nov 2010 Handover of first DUALPOWER vehicles to customers
- June 2011 FUELCELL-Prototype in Berlin on the road
- May 2018 Concept presentation BLUEPOWER at IFAT 2018 „first fuel-cell electric garbage truck worldwide“
- May 2022 Start of series production

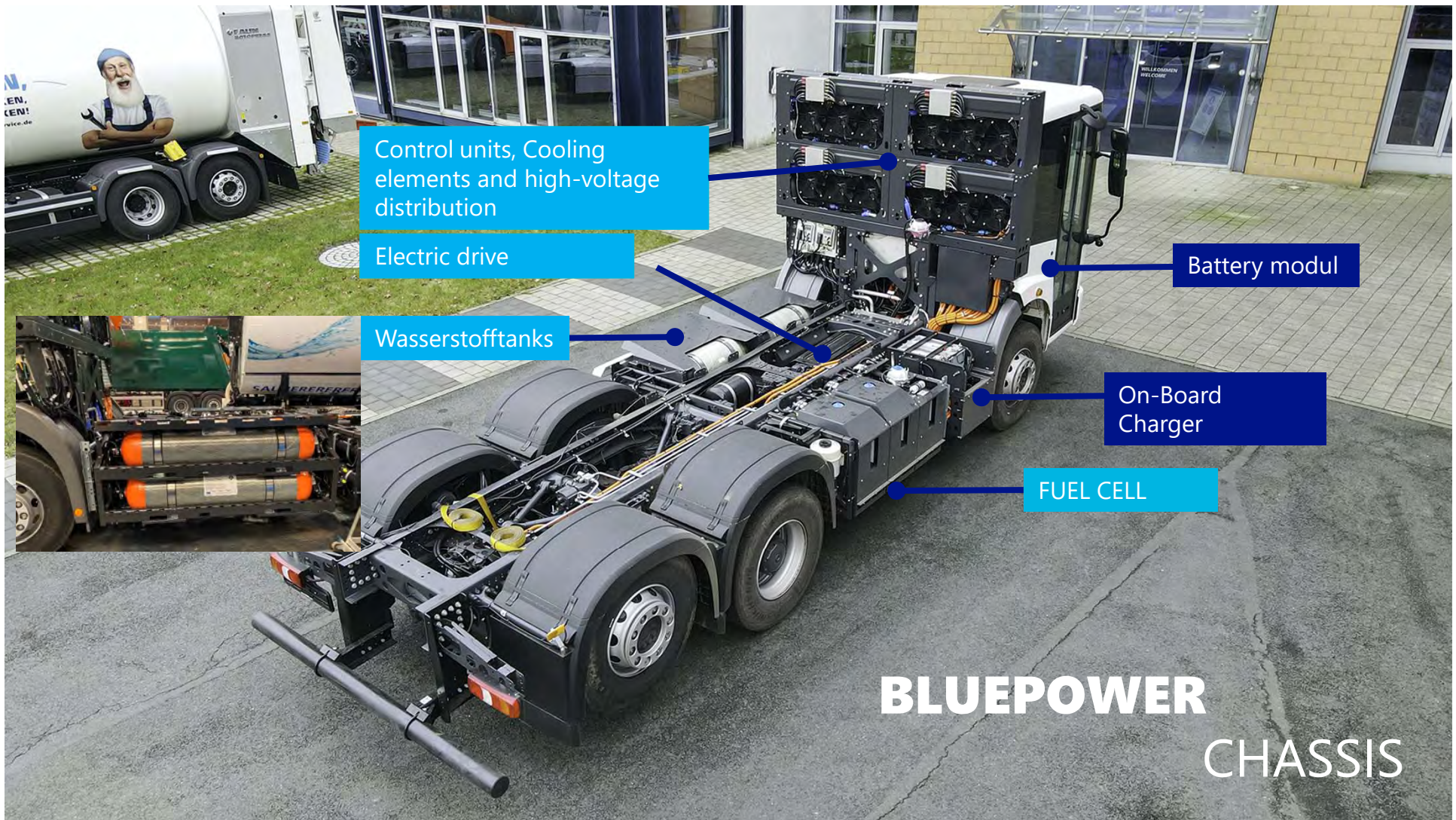




**BLUEPOWER**

CHASSIS





Control units, Cooling elements and high-voltage distribution

Electric drive

Battery modul

Wasserstofftanks

On-Board Charger

FUEL CELL

# BLUEPOWER CHASSIS





# **BLUEPOWER**

1st validation in AUGUST 2020 IN BREMEN



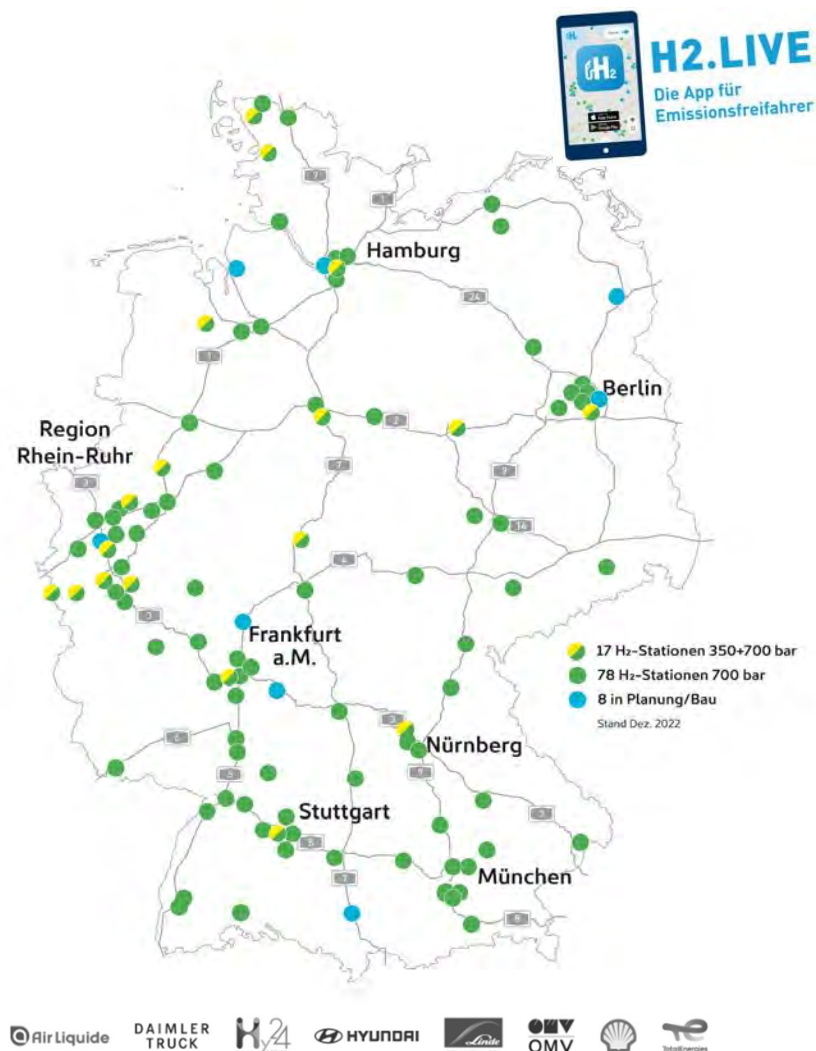
## On the road

- More than 150 BLUEPOWER on the road



# H2 infrastructure

Hydrogen refueling stations (700 bar)  
Germany is „ENGINIUS ready“





# Learn from the best

📍 Service made by FAUN



## ENGINIUS GmbH

- Founded in Bremen 01/2022
- 100 employees





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- Founded in Bremen 01/2022
- 100 employees

## ENGINIUS TEC GmbH

- Founded 04/2023 as NewCo resulting the asset deal with the Clean Logistics Group
- 60 employees from formerly 3 companies (E-Cap Mobility, XPANSE Powertrain and Clean Logistics SE) are now employed at ENGINIUS TEC



# Clean waste collection

## Refuse collection vehicles

BLUEPOWER 27 t / 380 HP



And more to **come.**



Customized applications, beverage transport,  
platform with crane



Refrigerated- and dry cargo boxes



Hook-lift / roll-off tipper



...in 2024

# Next steps CITYPOWER

Q3/2025

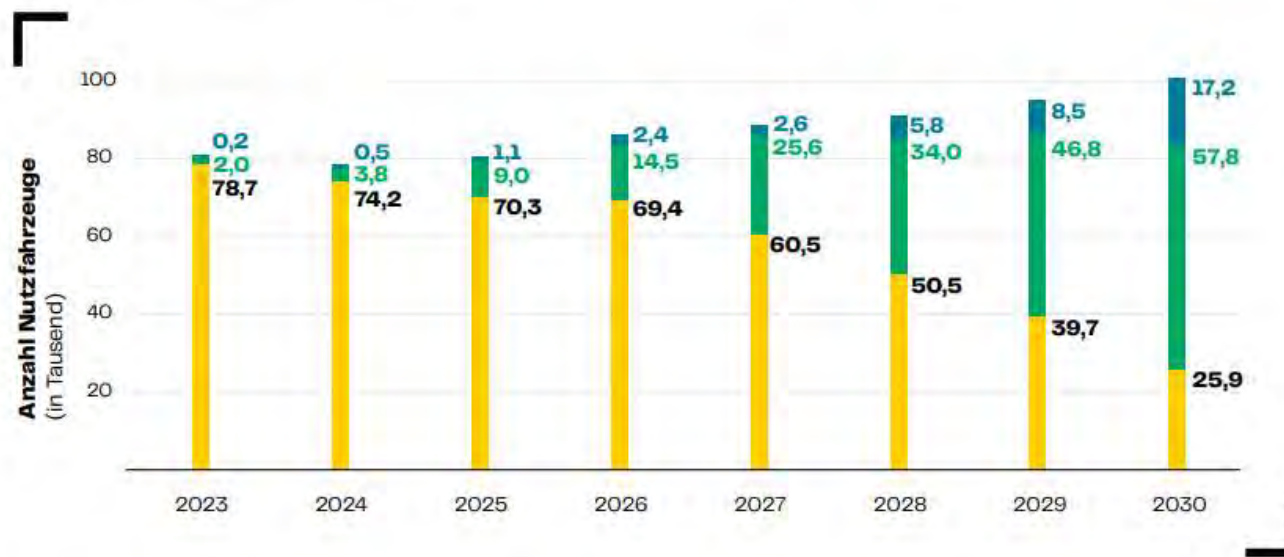




# Hydrogen or Battery?

## Prognostizierte Absatzzahlen schwerer Nutzfahrzeuge (N3/> 12 t)

In Deutschland laut Herstellerangaben



Hinweise zur Unsicherheit durch unvollständige Marktabdeckung:

- Angaben liegen nicht für alle Antriebsarten, Hersteller und Jahre vor.
- Für die zweite Hälfte des Jahrzehnts liegt die Rückmeldungsquote bezogen auf die aktuellen Marktanteile bei 95%.
- Für die fossilen Antriebe lag die Rückmeldungsquote bis 2025 zwischen 70% und 90%.

Zur besseren Lesbarkeit sind die niedrigen Absatzzahlen zu PHEV, H<sub>2</sub>-Verbrennungsmotor und Erdgas (CNG/LNG) nicht aufgeführt.

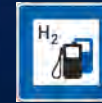
■ H<sub>2</sub>-Brennstoffzelle  
■ Batterie  
■ Diesel

# We need both



## + 0 emissions

- + energy efficiency
- + long lifetime of batteries, 2<sup>nd</sup> life as stationary energy storage
- + begin of series production - “technology readiness level”
- + lower CAPEX vs. FCEV



## + 0 emissions

- + short refueling time (almost comparable to Diesel)
- + high energy density -> 1 Kg H<sub>2</sub> = 33kWh vs. 0,5 kWh per Kg battery (“import and storage of green energy”)
- + higher payload
- + higher range
- + no investment in infrastructure needed, when HRS available
- + lower dependency on scarce raw materials



# Thank you!



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