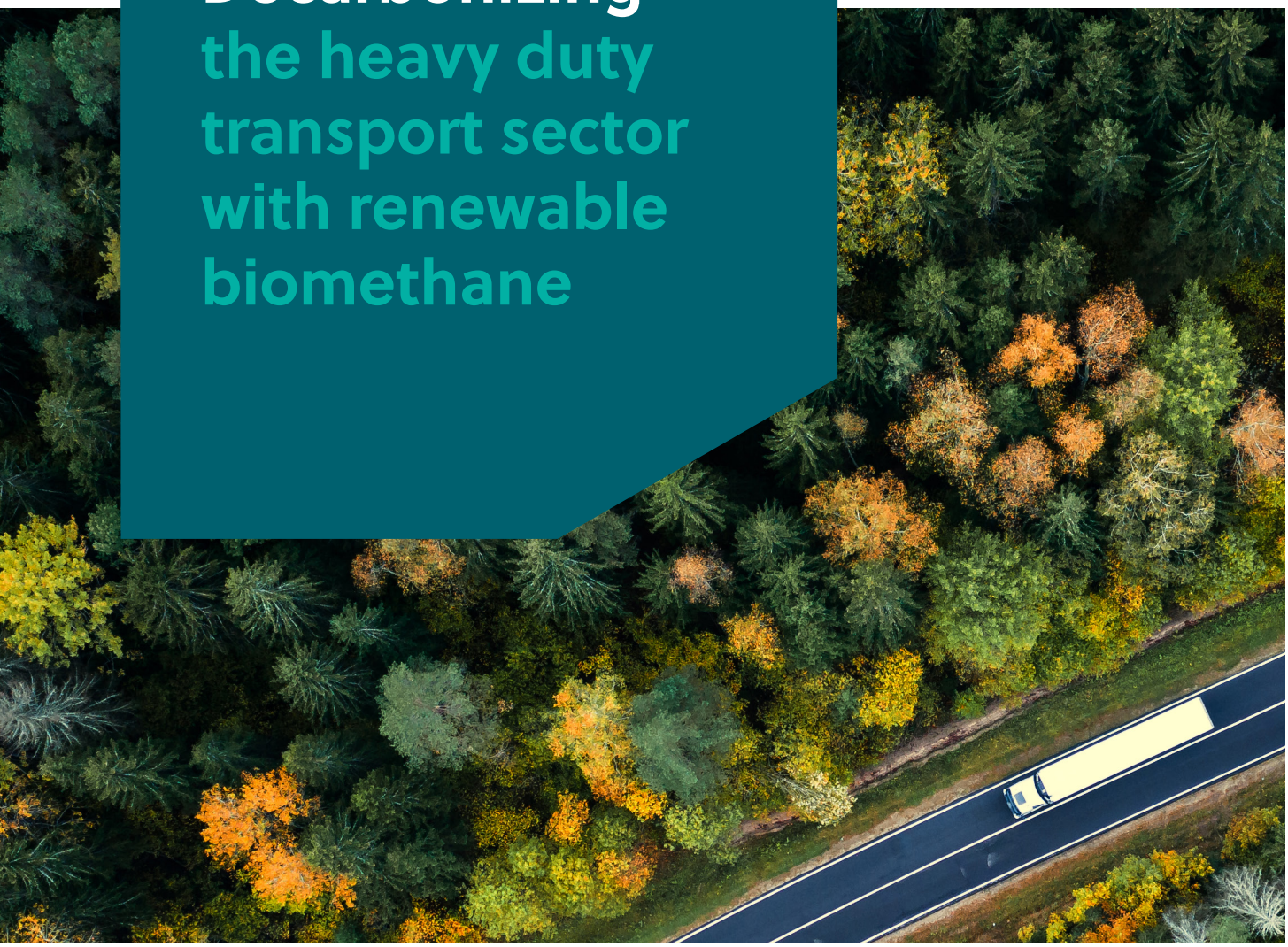
Decarbonizing the heavy duty transport sector with renewable biomethane



Biomethane is the key to decarbonizing the heavy duty transport sector in Europe and globally

Regulations should promote technology competition and allow for a mix of clean solutions

Emissions reductions should be viewed holistically, accounting for all elements of a technology's life cycle to permanently reduce the global carbon footprint of the transport sector.

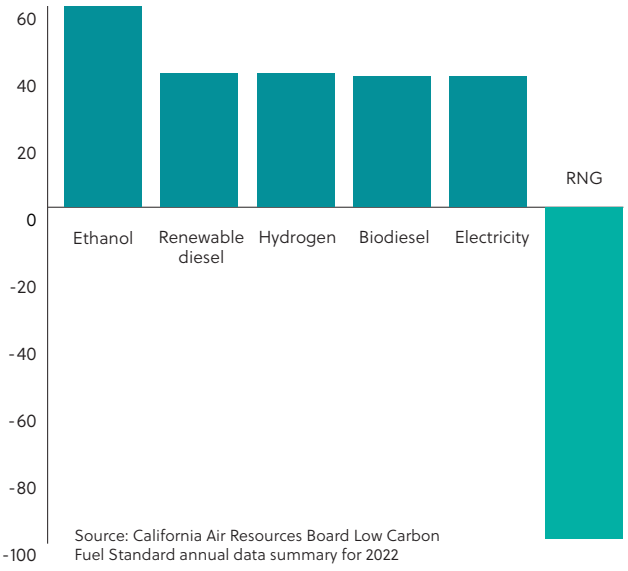
Trucks fueled by biomethane are ready right now

- ✓ Road tested, proven, commercially available and scalable.
- ✓ Over 4,100 CNG and 700 LNG stations throughout the EU
- ✓ Unmatched system resiliency & redundancy in times of storms & disasters

Only carbon negative fuel available today

- **Carbon negative fuels result in more than 100% reduction** of emissions by
  1) fully replacing fuel from fossil sources (100% CO_2 net-zero) and
  2) capturing methane that would have otherwise been released to the atmosphere if not used for fuel production
- **Carbon intensity is determined by assessing** a fuel's total carbon emissions from **the entire lifecycle** of a fuel from production to consumption — including feedstock types, raw materials, processing, transportation, and final use
- In 2022, the annual average carbon intensity value of the biomethane fuel portfolio was carbon negative at 99gg CO_2e/MJ

Renewable fuels average carbon intensity score

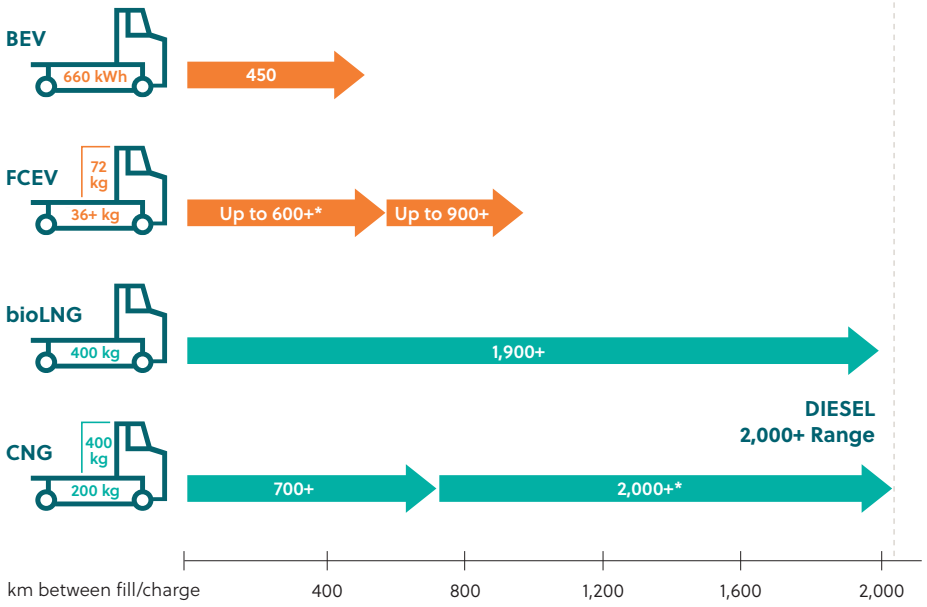


Source: California Air Resources Board Low Carbon Fuel Standard annual data summary for 2022

Perfectly suited to decarbonize the long-haul, heavy duty transport sector, a traditionally hard to abate sector

- **Battery electric technologies** are well suited for certain applications, **but are not ideal** for the long-haul, heavy duty sector
- **Challenges exist with grid demands, infrastructure availability and megawatt charging**, particularly during peak hours when wind and solar power may be in short supply
- **The power demand for megawatt charging one heavy duty trucks = over 2000 average German homes**
- **Commercial readiness** for hydrogen technologies and infrastructure has potential, **but is years away**
- **Biomethane** is best suited for **high payload and long-haul applications**

Clean energy solutions for today's European transport sector vary greatly in readiness and suitability for heavy-duty long haul



Promotes Europe's goal of strategic autonomy and energy independence

- ✓ Domestically sourced
- ✓ Aligned with REPowerEU targets
- ✓ Scale-up of renewable biomethane in Europe would enable global deployment and facilitate developments of secondary markets

Note: Assumes directive for truck length increases is adopted for FCEV and CNG trucks

A holistic approach to Heavy-Duty Vehicle CO_2 standards

Recognizing Carbon-Neutral Fuels via Carbon Correction Mechanism

1. The Commission's proposal on HDV CO2 standards overlooks the full life-cycle emissions of the vehicles and fails to acknowledge the contribution of carbon-neutral and carbon-negative fuels.

2. The Carbon Correction Factor, as a regulatory coefficient, adjusts the measured CO2 emissions from vehicles based on the fuel type, facilitating an accurate and fair assessment.

   This method acknowledges the environmental benefits of carbon-neutral and carbon-negative fuels, ensuring a balanced regulatory landscape and healthy competition among different clean technologies.