

# THE LOW CARBON FUELS TO DECARBONIZE HEAVY-DUTY ROAD TRANSPORT

**Gianni Murano**  
**UNEM**

29<sup>^</sup> UN Conference of the Parties - **COP29**

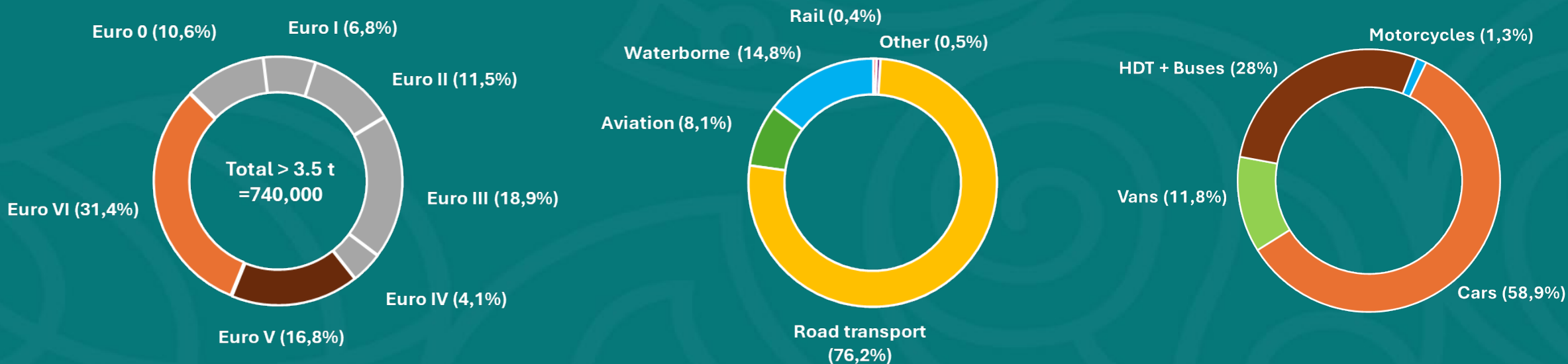
Baku

*November 21, 2024*



**#COP29**

# Italy: Trucks on Roads and CO<sub>2</sub> Emissions



Truck Fleet age at nearly 15 years old and 52% below Euro IV

Trucks represent 40% of transportation CO<sub>2</sub> emissions or 9% of total emissions

Source: Rie, Confcommercio 2024

# European Regulations will drive Emissions reduction in 2025/2050

Emission Reduction Directive EU 2024/1610 for new trucks - to be verified in 2027

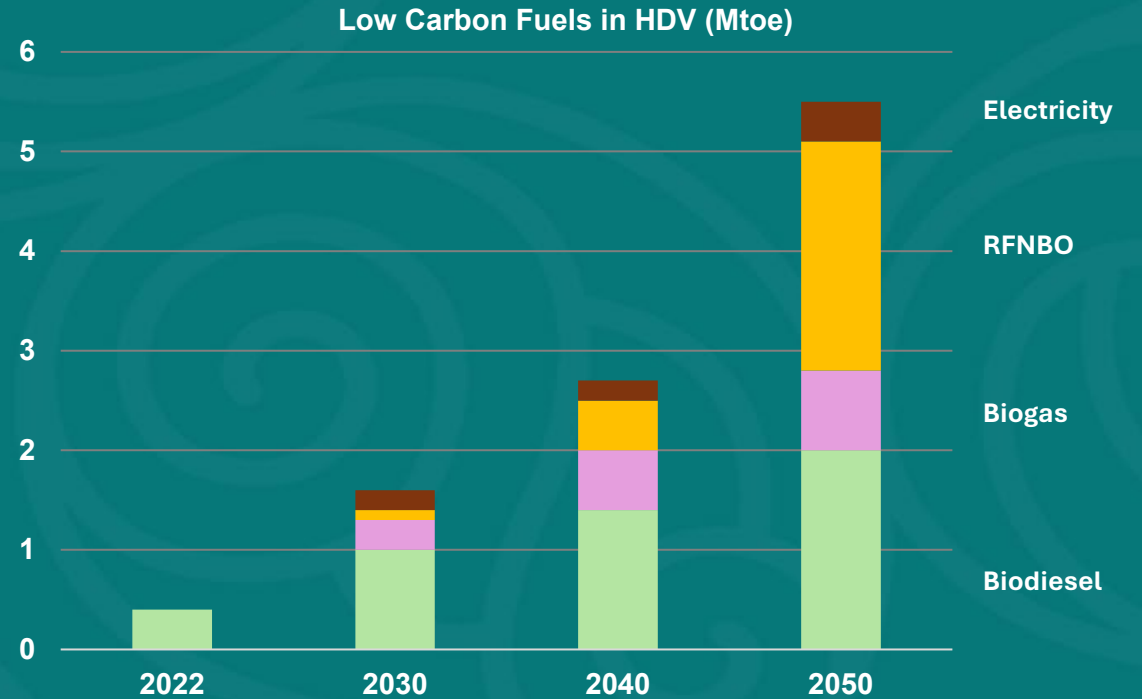
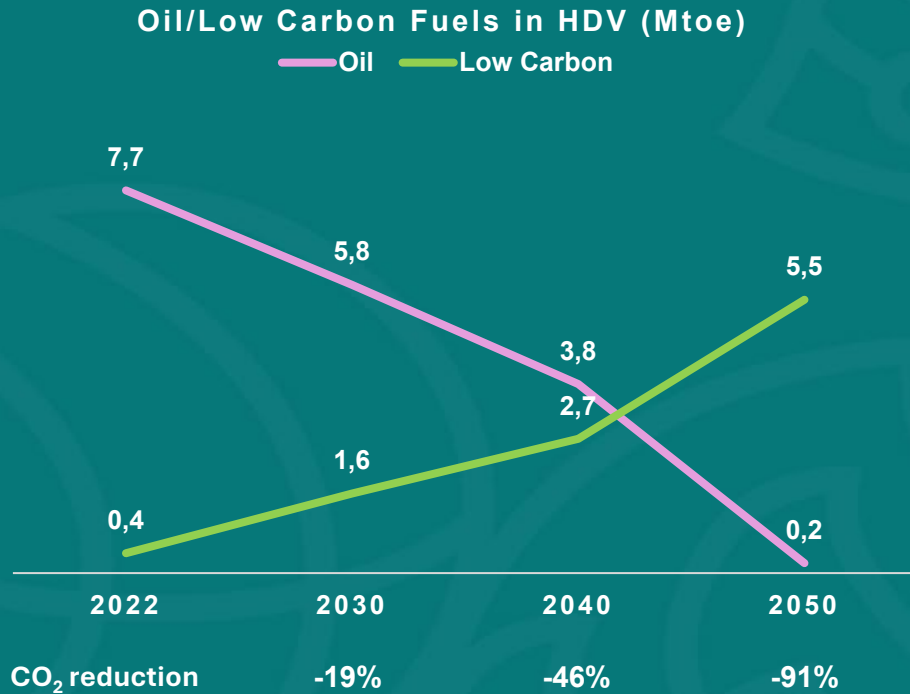
EU 2024/1610 Regulations: CO2 emission reduction target					
	2021	2025	2030	2035	2040
<b>VAN</b>	147 gr/km	-15%	-50%	-100%	
<b>Heavy duty</b>	2019 baseline	-15%	-45%	-65%	-90%
<b>City bus</b>	2019 baseline	-15%	-100%		

ETS Directive EU 2003/87 will enforce Certificate System for road transportation in 2027

REDIII Directive will drive no-fossils fuels in transportation up to 29% in 2030

AFIR will calibrate electrical recharging stations and H2 fueling outlets in the main European routes

# How decarbonize Heavy Duty transportations – Italy scenario



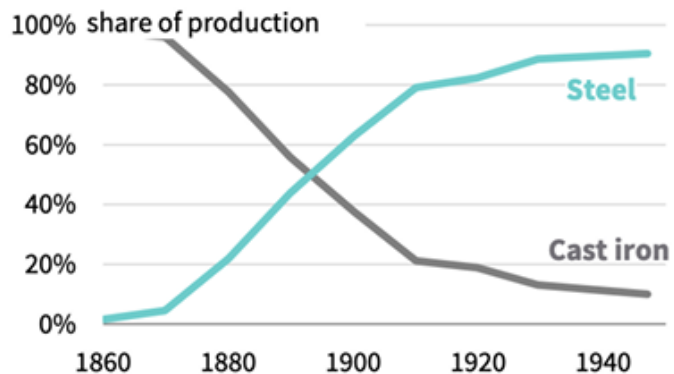
Source: UNEM-RIE 2024

Trucks Efficiencies, Rail/Shipping optimizations, Digital solutions and switch to LCF to meet EU target reductions

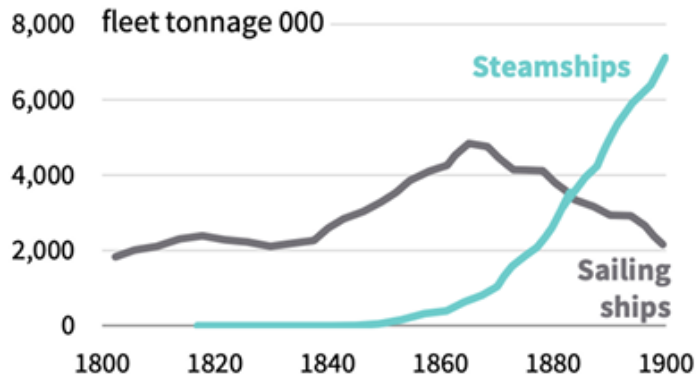
Supporting LCF developments on LDV key to sustain decarbonization in HDV

Ensure competitive transformation costs by Technology neutrality and CO<sub>2</sub> Life Cycle Assessment

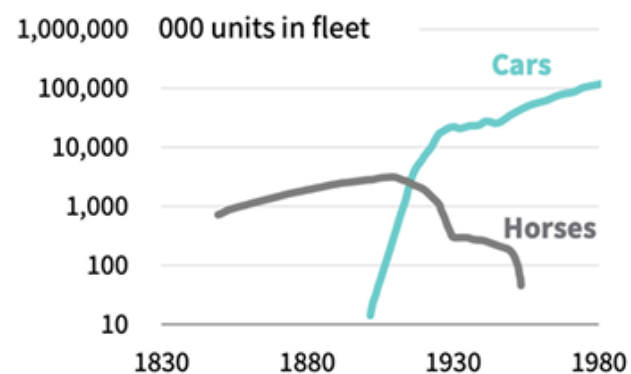
### Industry: Cast iron to steel



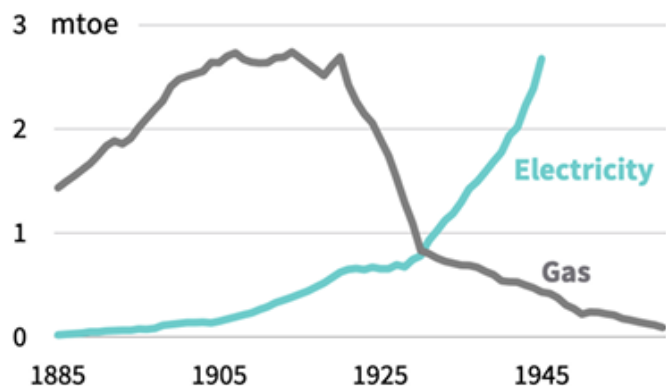
### Ships: Sailing ships to steamships



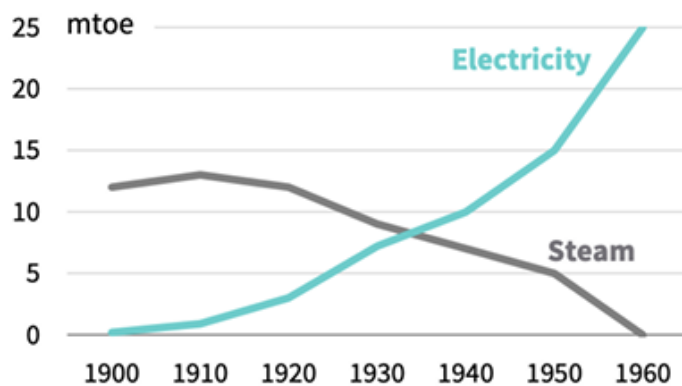
### Land transport: Horses to cars



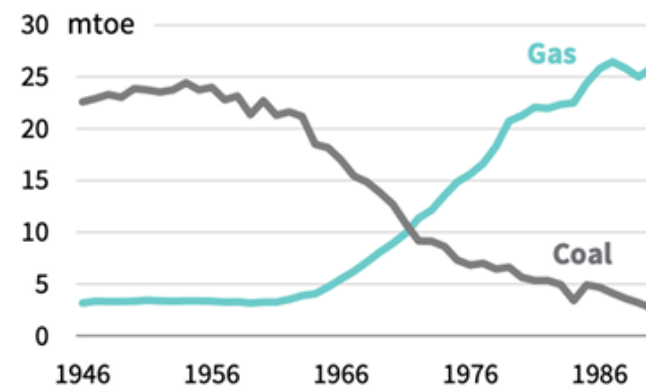
### Lighting: Gas to electricity



### Power: Steam to electricity



### Heat: Coal to gas



Source: Italy for Climate 2024