



NGVA
— Europe
for sustainable mobility

g-mobility

CO2 Footprint And The Potential
Of Gas In The Transport Sector



DECARBONISATION



AIR QUALITY



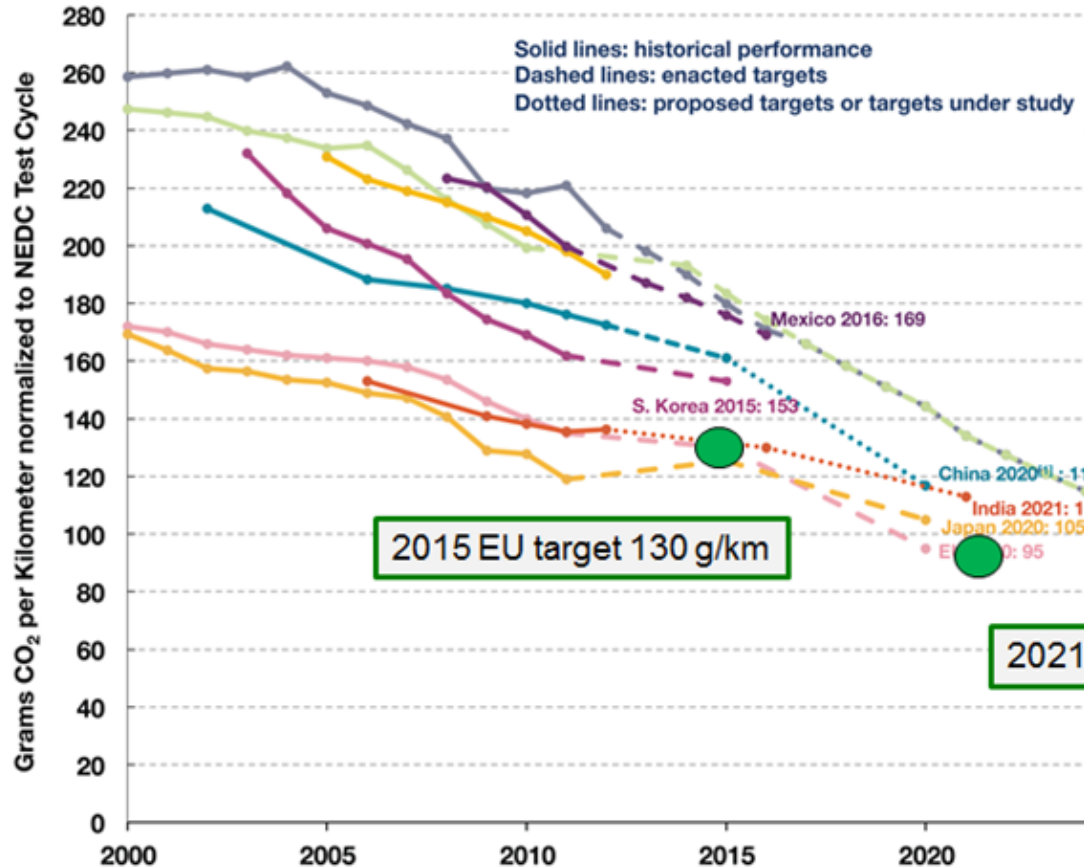
RENEWABLE GAS



1 – DECARBONISATION

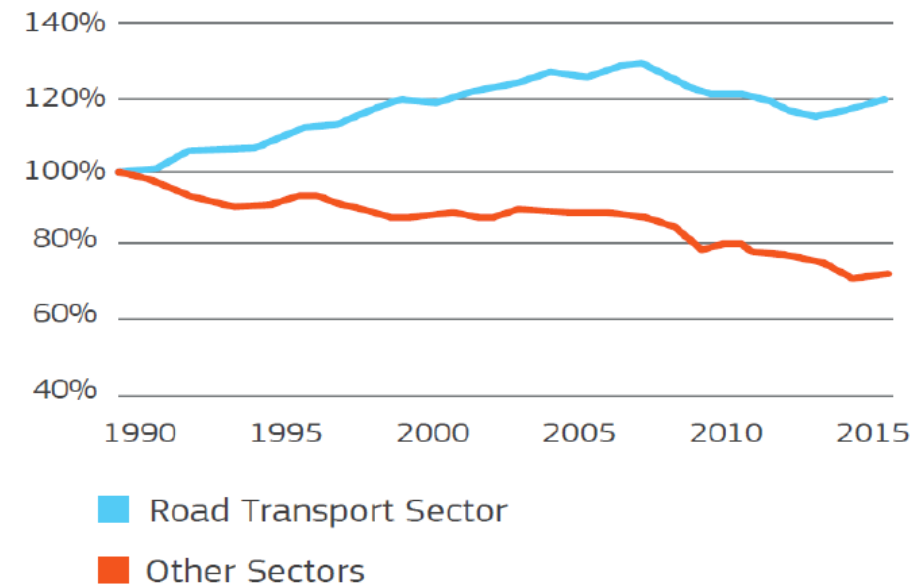


CO₂ emissions of newly registered light vehicles

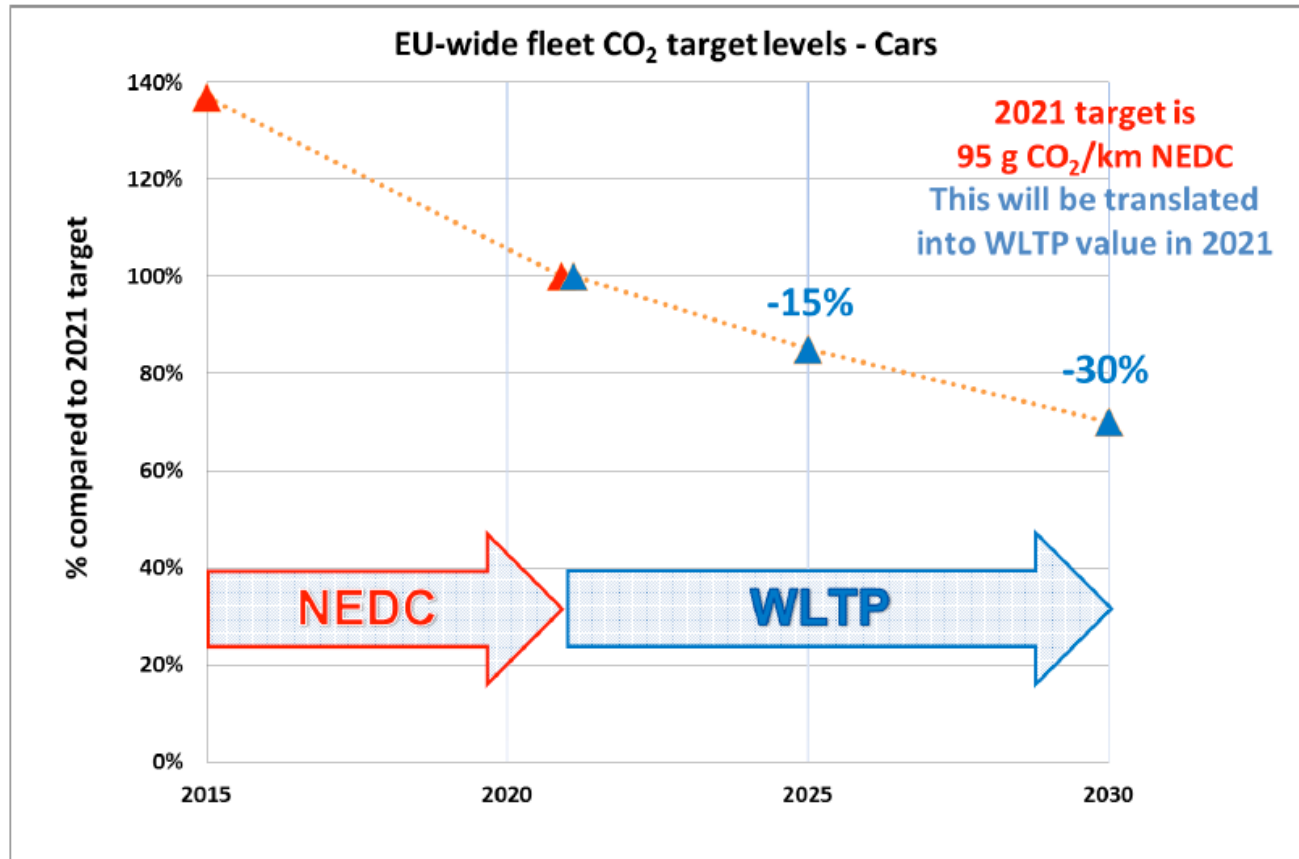


Trends (4): Road transport = 22% of total EU emissions and again growing

Greenhouse gas emission in the EU in percentage change since 1990:

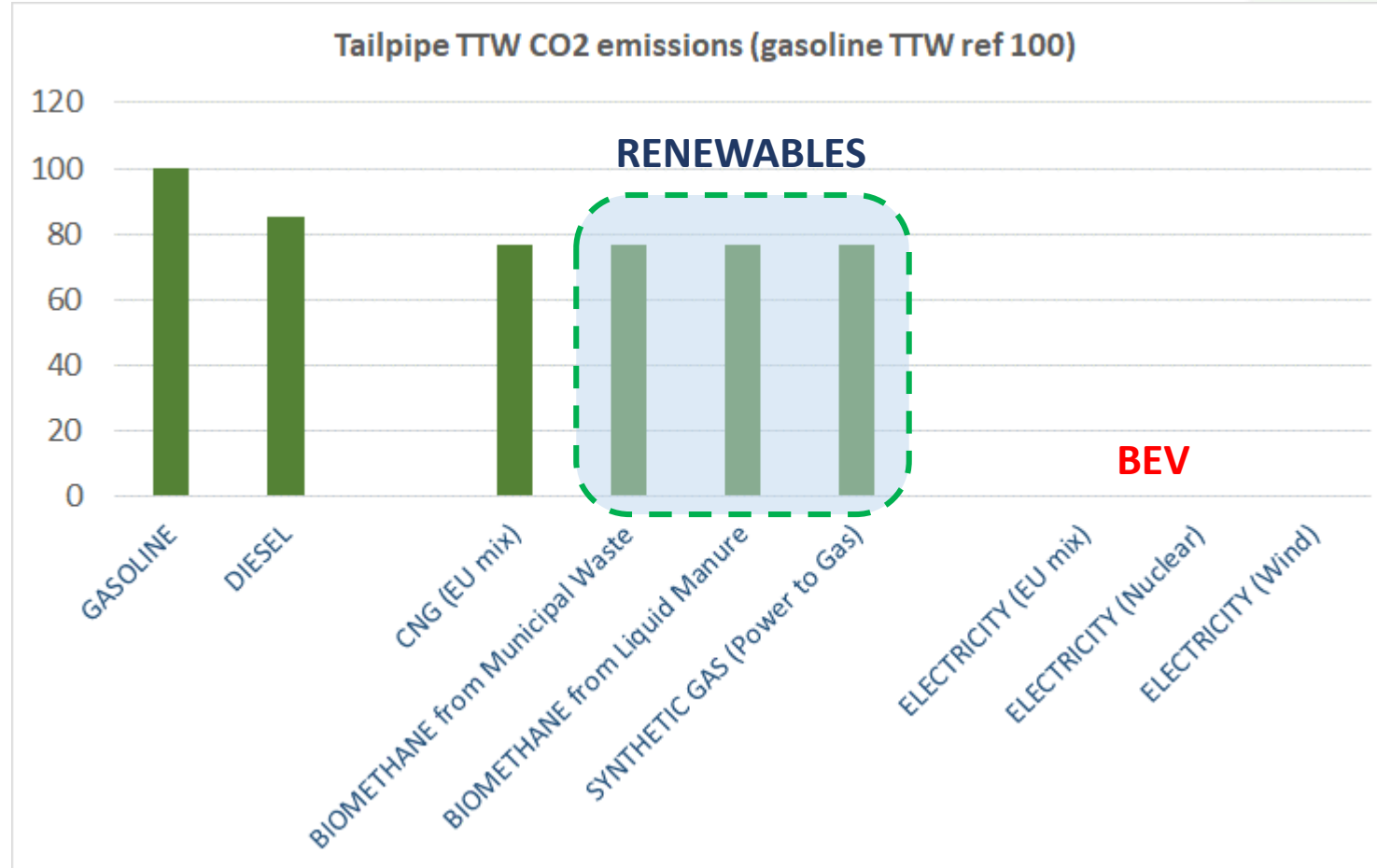


New EU fleet-wide 2025 and 2030 targets - cars



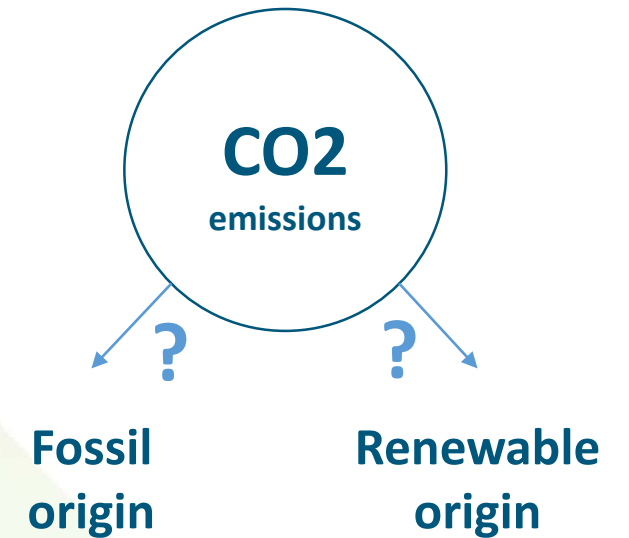
...but are we missing anything?

Looking to tailpipe emissions

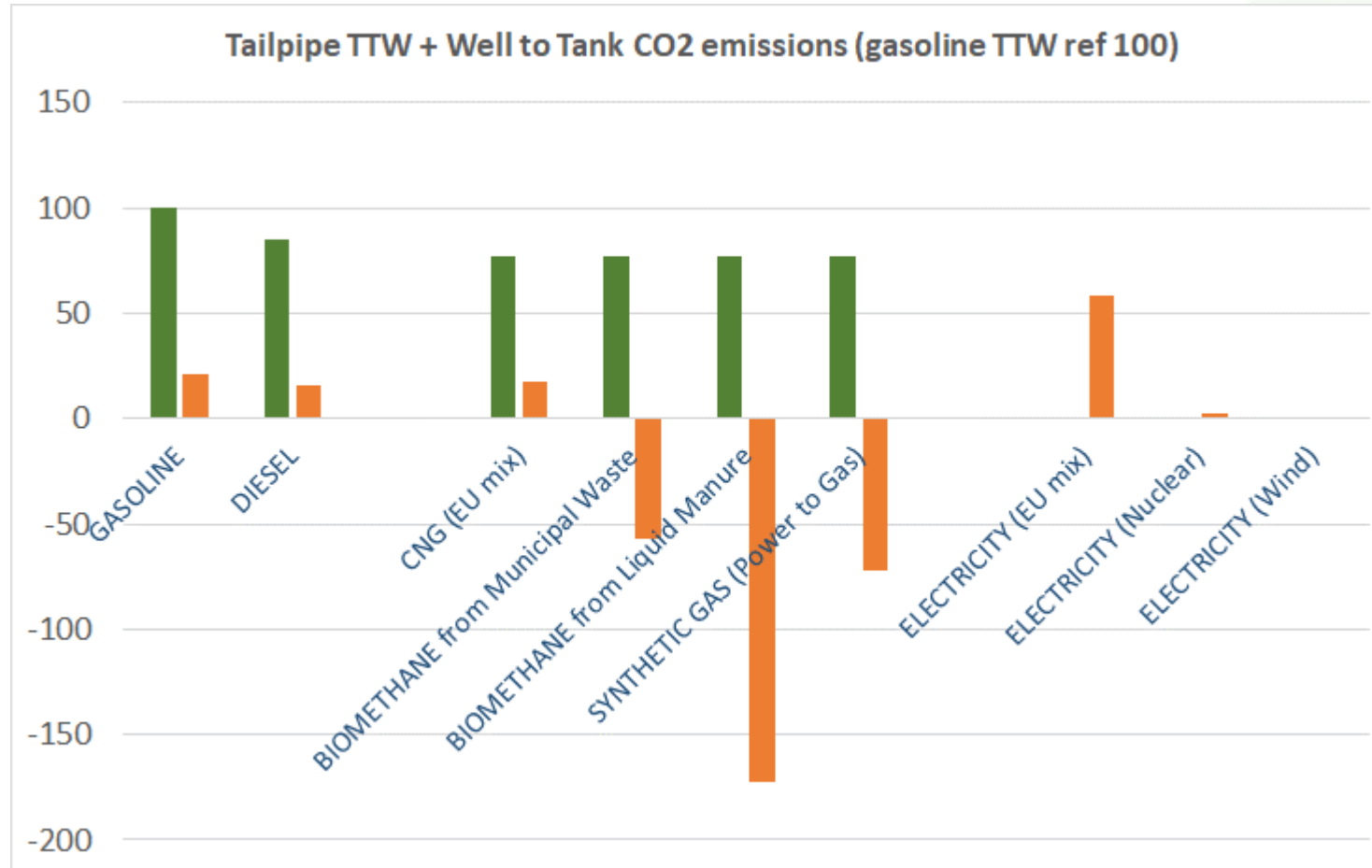


Source: NGVA elaboration data from Thinkstep GHG Intensity Study + JEC Well to Wheel Study Version 4

Tailpipe measurement problem



Looking to tailpipe emissions + **Well to Tank contribution**



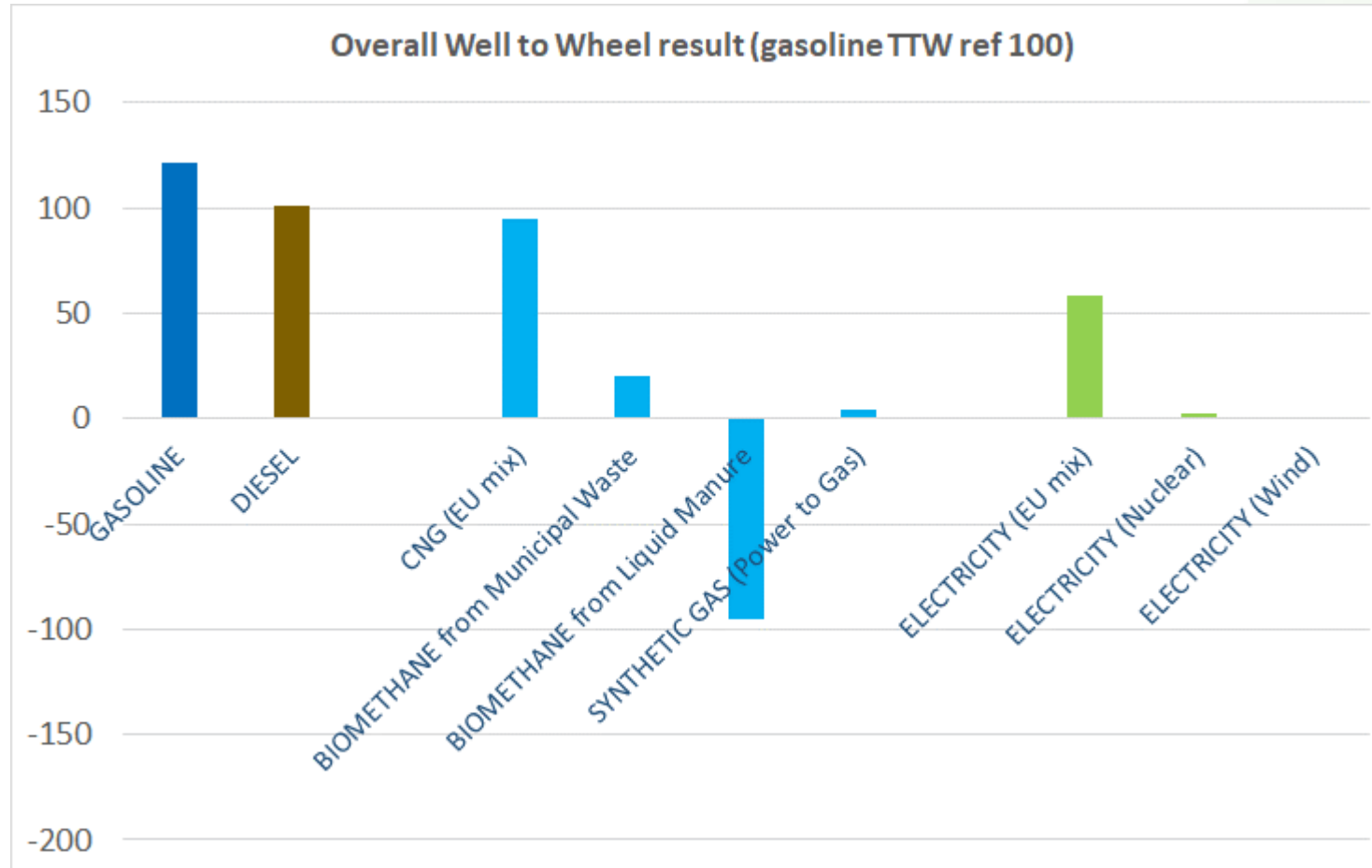
CO₂ emissions
difference - evident with
renewable gas

What about electricity?

Today's CO₂ emissions from
electricity generation
is **465 g/kWh** (EU mix)

Source: NGVA elaboration data from Thinkstep GHG Intensity Study + JEC Well to Wheel Study Version 4

Looking to the overall picture (Well to Wheel)



Source: NGVA elaboration data from Thinkstep GHG Intensity Study + JEC Well to Wheel Study Version 4

Renewable gas provides significant contribution to decarbonisation.

Today's CNG and LNG vehicle technologies are **ready to run 100% renewable!**

Focus of the current 443/2009 CO₂ regulation



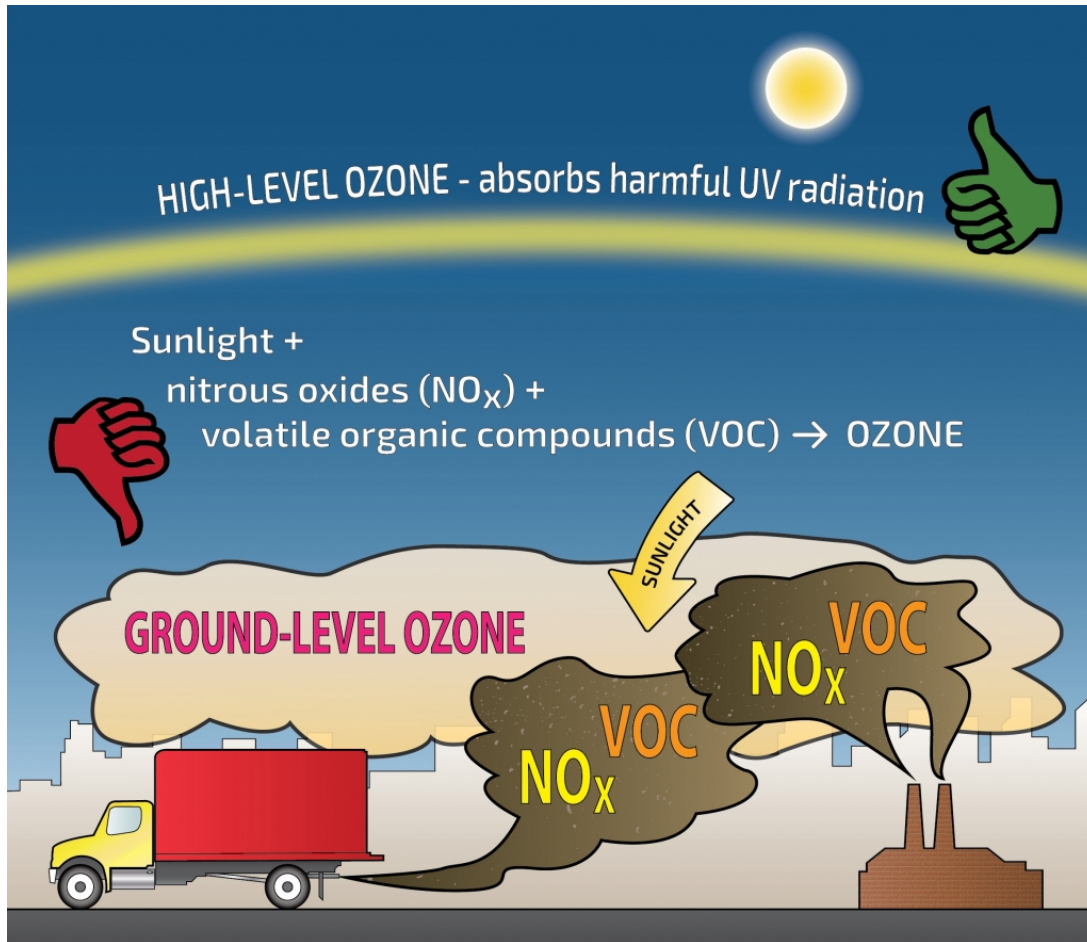
Well to Wheel approach to guarantee fair comparison among different solutions



In an evolutive scenario where powertrain electrification and renewable fuels will play an important role, Well to Wheel assessment is mandatory to support a technology neutral approach.

2 – AIR QUALITY

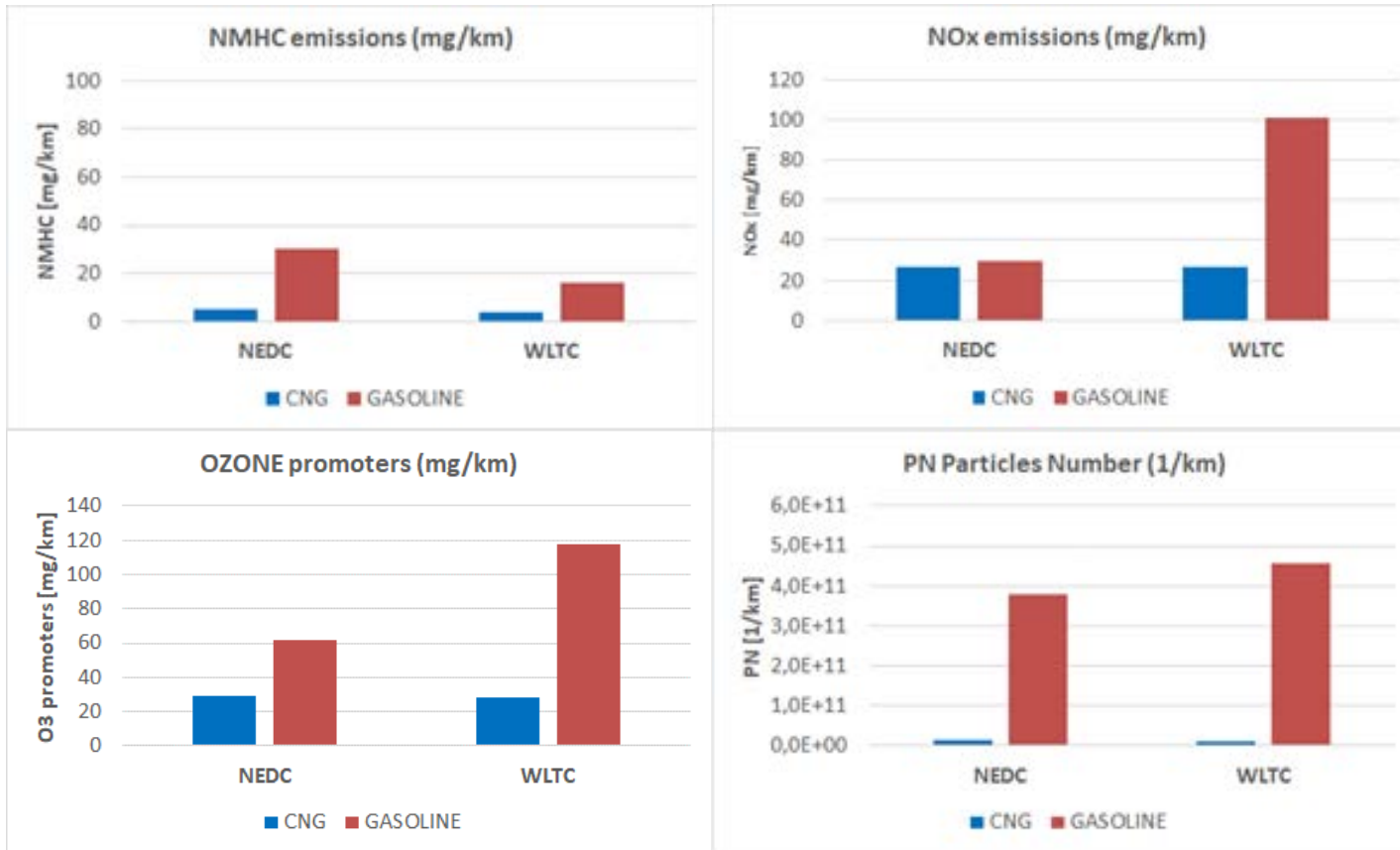




How does it happen?

NO₂ in the atmosphere is responsible for the formation of ground-level ozone in combination with non-methanic hydrocarbons and sunlight, causing direct effects on respiratory tract.

Source : IPCC



CNG provides better figures in terms of **pollutant emissions** (THC, NMHC, NOx) compared to conventional fuels.

Thanks to fuel properties reactivity to form, **ground-level ozone** is 10 times less than conventional fuels.

CNG guarantees also better performance when moving from NEDC towards **Real Driving conditions**.



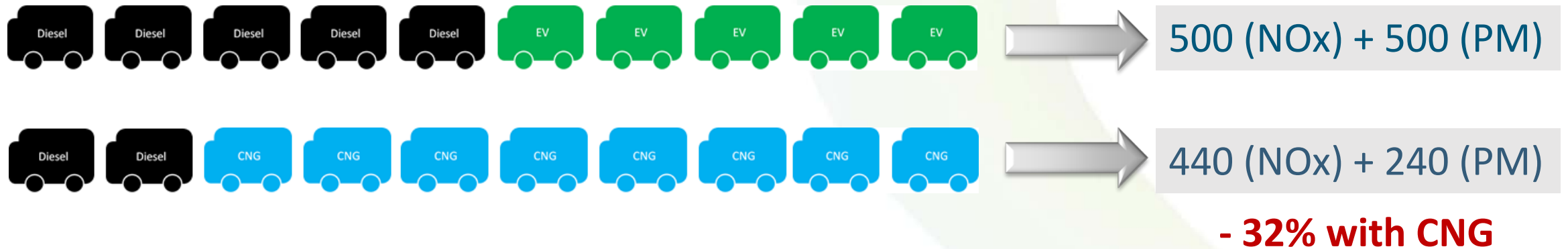
Natural gas is a key solution with close-to-zero emissions ideal to tackle air pollution issues in urban areas

Environmental benefit from fleet renewal at same cost



	DIESEL Euro VI	CNG Euro VI	EV
Vehicle cost	100	115	182
NOx	100	30	0
PM	100	5	0

Source: JRC GPP-TR_D2_0517



Natural gas : close-to-zero emissions + affordability

CNG mobility – from small city car to upper segment sedan

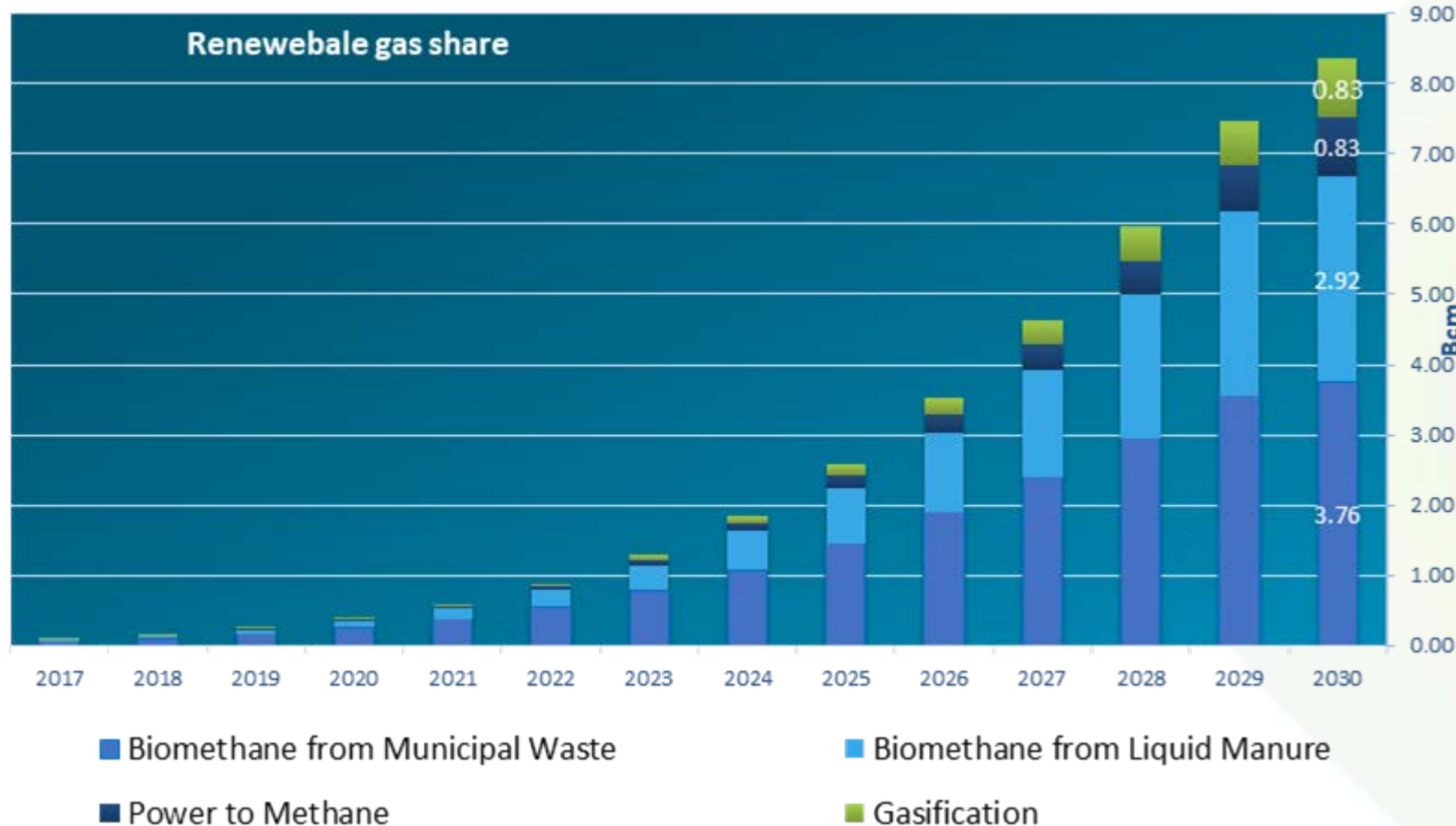


CNG and LNG from urban delivery up to long-haul trucks

3 – RENEWABLE GAS



Renewable gas is a fast accelerator towards decarbonisation



Data based on cumulative amount of the period between 2017 to 2030

Fuel consumption 133 bcm



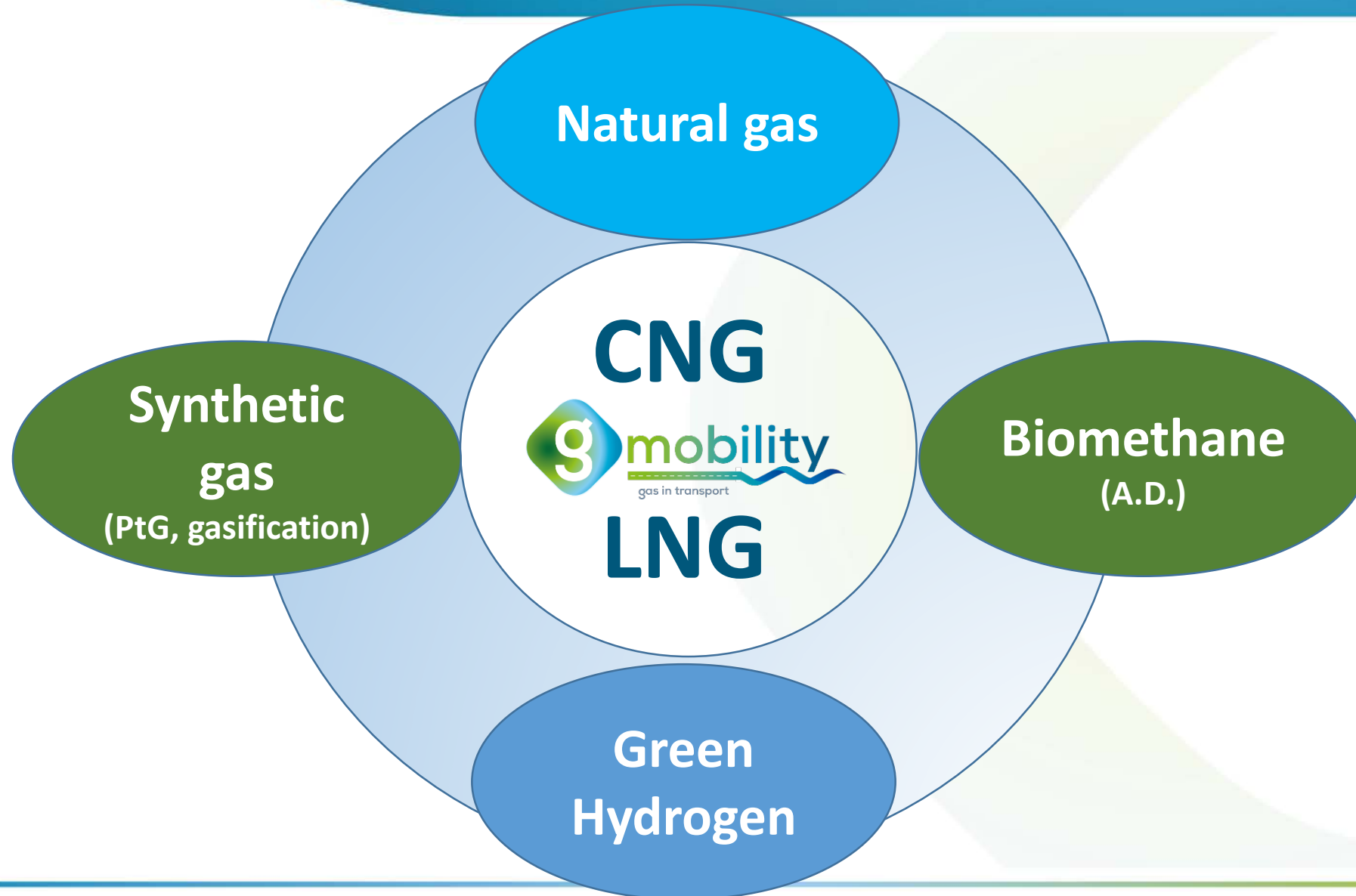
**WtW CO₂ emissions
238 Mt**

30% renewable gas

**36 bcm renewable gas
(out of 133 bcm total)**



**WtW CO₂ saving
239 Mt**





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