CO_2 emissions from Heavy-Duty Vehicles in the EU

Inception impact assessment on HDV CO_2 standards

Stakeholder meeting

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Political Context

- ***Paris Agreement***
  - EU commits to at least **40%** GHG emission reduction domestically 1990-2030
- ***2030 climate and energy framework***
  - At least 40% GHG emission reduction domestically 1990-2030
  - **30%** GHG emission reduction in **non-ETS** sectors 2005-2030
    (Road transport = 1/3 of these emissions)

European Strategy for low-emission mobility

- Transport GHG emissions at least **60%** lower than in 1990 by mid-century and firmly on the path towards zero
- Emissions of air pollutants to be drastically reduced
- **HDV fuel consumption and CO_2 emissions to be measured and monitored** increasing market transparency and vehicle comparability
- The EU will also need to introduce **measures to actively curb HDV CO_2 emissions**
- 3rd Mobility package: first half of 2018 to include proposals for **CO_2 emission standards for lorries**

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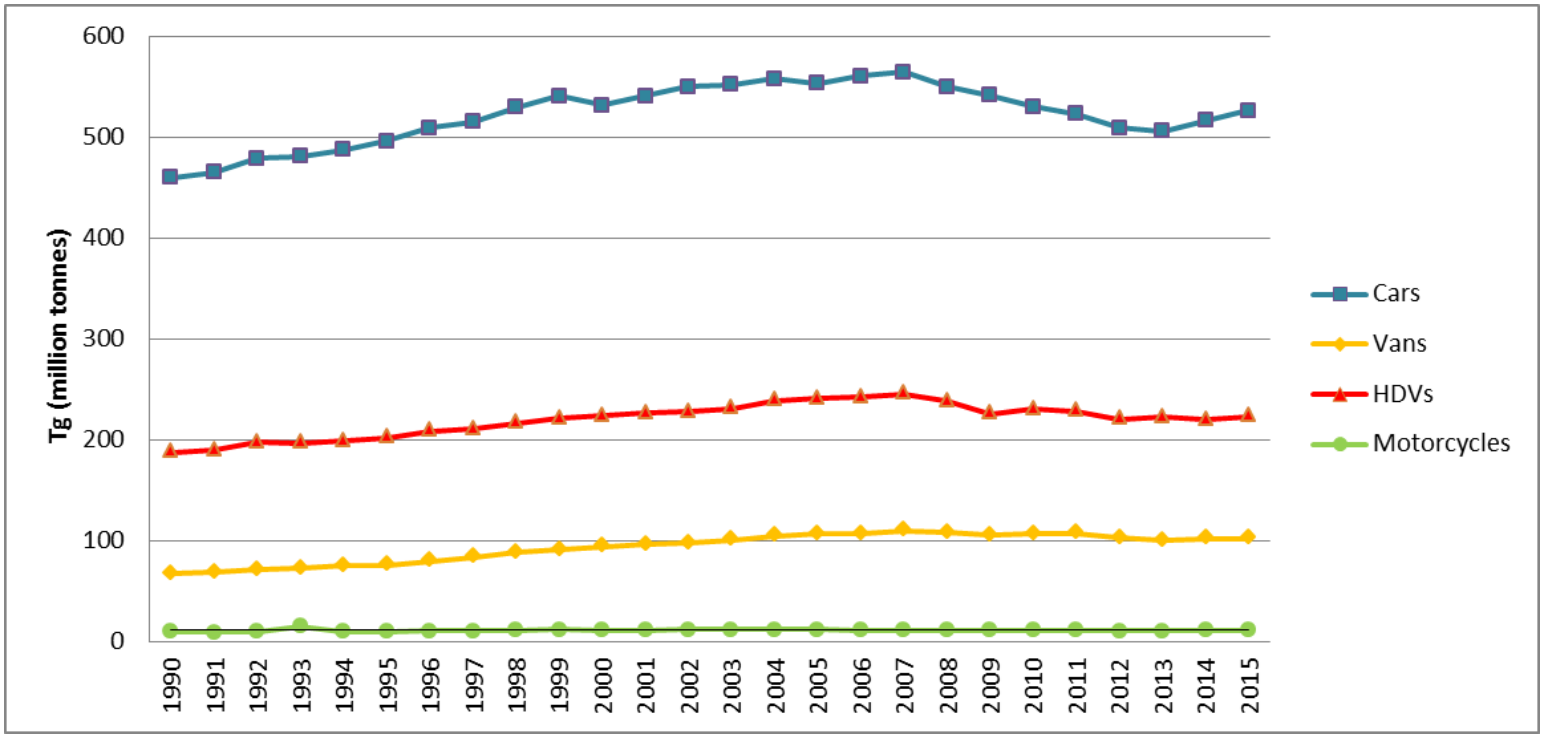
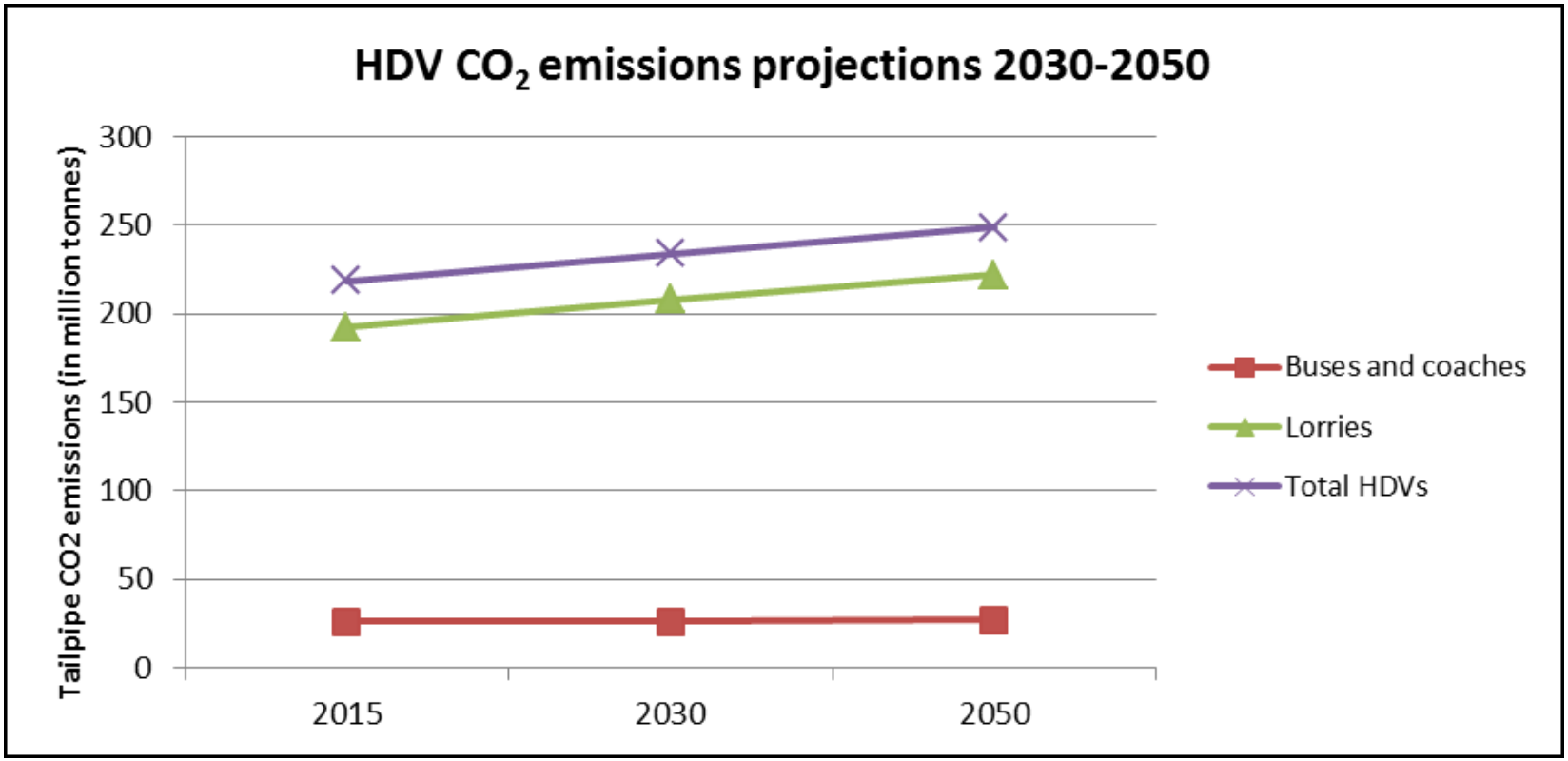
EU28 GHG Road transport emissions 1990 - 2015



Source: GHG Emission Inventory data 2017
http://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer

HDV CO_2 emissions projections

(without additional policies)



Source: **EU Reference scenario 2016**, PRIMES-TREMOVE Transport Model (ICCS-E3MLab)

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HDV CO_2 emissions: step-wise approach

VECTO
Vehicle Energy Consumption Calculation Tool

- **VECTO simulation tool** to calculate fuel consumption and CO_2 emissions from new HDVs placed on the EU market

Commission Regulation (EU) 2017/2400

- **Certification** regulation: Procedure to calculate CO_2 emissions and fuel consumption with VECTO for new HDVs placed on the EU market

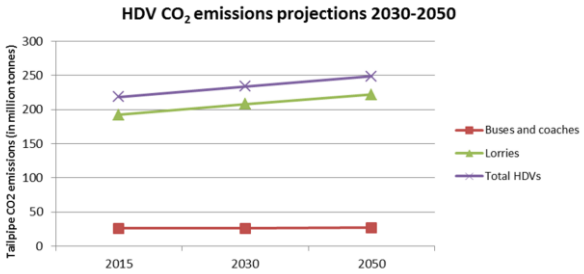
Proposal COM(2017) 279 final

- **Monitoring & reporting** legislation: VECTO CO_2 emissions & fuel consumption from every new HDV registered in the EU to be monitored & reported to EC

Work in progress

- **CO_2 emission standards** on the basis of certification values

Key problems



Without further action HDV CO_2 emissions are set to increase

EU HDV manufacturers face increasing global competitive pressures - US, Canada, Japan, China and India set/implemented already fuel efficiency measures

Adopted HDV efficiency standards and certification procedures

Vehicle coverage	GVWR > 3.85t 19 sub-categories, by vehicle type / duty cycle and GVW	GVW > 3.5t 66 sub-categories, by vehicle type / duty cycle and GVW	GVW > 3.5t 25 sub-categories, by type (bus/lorry) and GVW	Undecided. Possible GVW>16 tonnes Rigid trucks and tractor trailers 4x2 and 6x2	>12t Segmentation on GVW, number of axles, and truck type (rigid – tractor)
Timing	7 years to develop and install MY2014 Phase 1 MY2018 Phase 2	4 years to develop and install MY2014 China I MY2016 China II MY2021 China III	2 years to develop, 9 in total MY2015	Under development. Standards proposal will be announced in early 2018	Steering group since 2014 CSFC standards: 2018 – 2021
Certification	Engine dyno for parameters and compliance + whole vehicle simulation	Chassis dyno (base vehicles) or whole vehicle simulation (variants)	Engine dyno for parameters + whole vehicle simulation	Engine dyno for parameters and compliance + whole vehicle simulation	Track testing at 40/60km/h

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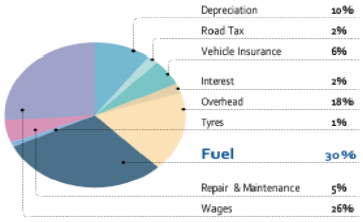
Adapted from: White, B., & Hill, N. (2017). *Analysis of fuel economy & GHG emission reduction measures from HDVs in other countries and of options for the EU*. Ricardo Energy & Environment.

Total operating costs of a 40-tonne tractor-semitrailer combination



Source: ACEA Commercial Vehicles and CO_2, 2010

Transport operators and their clients miss out on possible fuel savings

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Main drivers

Limited uptake of fuel-efficient tech due to market barriers

- Market uncertainties
- Information asymmetries
- Split incentives
- Financial constraints

Payback gap

- Expected amortisation of a tech lower than average lifetime of vehicle

Increase in freight transport activity

- Strong correlation with the economy
- Limited use of alternative fuels

General policy objectives

1) Reduce the climate impact of HDVs in line with the **EU's climate and energy targets**
2) Contribute to maintain the **technological leadership** of HDV manufacturers and component suppliers
3) Facilitate a reduction in the **total cost of ownership** for transport operators, most of which are SMEs

What's it in terms of vehicles concerned*?

*for the first step

Vehicle groups for vehicles of category N

Description of elements relevant to the classification in vehicle groups			Vehicle group	Allocation of mission profile and vehicle configuration							Standard body allocation
Axle configuration	Chassis configuration	Technically permissible maximum laden mass (tons)		Long haul	Long haul (EMS)	Regional delivery	Regional delivery (EMS)	Urban delivery	Municipal utility	Construction	
4x2	Rigid	>3.5 – <7.5	(0)								
	Rigid (or tractor)**	7.5 – 10	1			R		R			B1
	Rigid (or tractor)**	>10 – 12	2	R+T1		R		R			B2
	Rigid (or tractor)**	>12 – 16	3			R		R			B3
	Rigid	**>16**	**4**	**R+T2**		**R**			**R**		**B4**
	Tractor	**>16**	**5**	**T+ST**	**T+ST+T2**	**T+ST**	**T+ST+T2**				
4x4	Rigid	7.5 – 16	(6)								
	Rigid	>16	(7)								
	Tractor	>16	(8)								
6x2	**Rigid**	**all weights**	**9**	**R+T2**	**R+D+ST**	**R**	**R+D+ST**		**R**		**B5**
	Tractor	**all weights**	**10**	**T+ST**	**T+ST+T2**	**T+ST**	**T+ST+T2**				
6x4	Rigid	all weights	11	R+T2	R+D+ST	R	R+D+ST		R	R	B5
	Tractor	all weights	12	T+ST	T+ST+T2	T+ST	T+ST+T2			R	
6x6	Rigid	all weights	(13)								
	Tractor	all weights	(14)								
8x2	Rigid	all weights	(15)								
8x4	Rigid	all weights	16							R	(generic weight+ CdxA)
8x6 8x8	Rigid	all weights	(17)								

* EMS - European Modular System

** in these vehicle classes tractors are treated as rigids but with specific curb weight of tractor

T = Tractor
R = Rigid & standard body
T1, T2 = Standard trailers
ST = Standard semitrailer
D = Standard dolly

Options (1)

Non-regulatory/soft measures

Regulatory measures

Types of CO_2 standards

Scope of the standards

Target levels

Options (2)

Type of targets

Metrics

Timing

Consideration of utility parameters

Flexibilities

Next steps

- **29 January**: *closing of online public consultation*
  https://ec.europa.eu/clima/consultations/impact-assessment-heavy-duty-vehicles-hdvs-co2-emission-standards_en

- **First half of May***: Adoption*

Thank you for your attention!

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