



The EU policy on CO₂ and cars

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European Commission**

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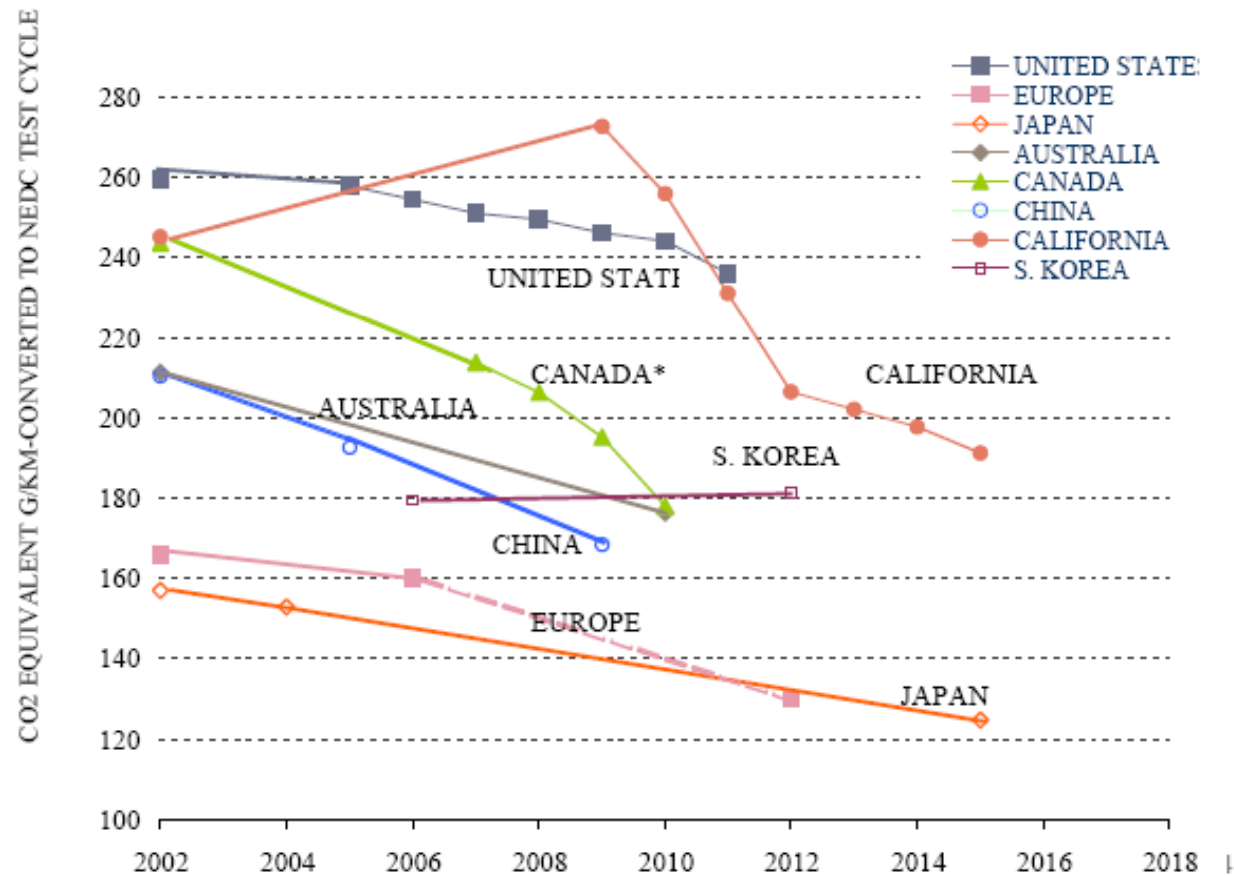
Overview

- **Part 1: Background**
 - **International comparison**
 - **History of CO₂/cars in the EU**
 - **Key concepts used in the proposal**

 - **Part 2: The Proposal**
 - **Key elements**
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A global comparison



Source: International Council on Clean Transportation



History of EU policy on CO₂ from cars

- **UNFCCC 1992**
 - **Community strategy to reduce CO₂ emissions from passenger cars and improve fuel economy (COM(95)689)**
 - 5 l/100km petrol, 4.5 l/100km diesel (=120g/km)
 - 3 pillars: voluntary commitments, fiscal measures, consumer information
 - **Voluntary commitments**
 - ACEA: Feb.1999, target date 2008
 - JAMA, KAMA: April 2000, target date 2009
 - Objective 140 gCO₂/km
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Revised CO₂ and cars strategy

COM(2007)19

- **120 g delivered in 2012 through an “integrated approach”.**
 - a) **130 g on the vehicle side;**
 - b) **10 g through additional measures on car components (tyres, airco etc.) and increased use of biofuels.**
- **Legislation**



Revised strategy on CO₂ and cars strategy (2)

- **The automotive value chain remains at the heart of the new strategy...**
 - ❑ **Vehicle technology improvements (engine, transmission, hybridisation, vehicle body etc.)**
 - ❑ **Efficiency requirements for air-conditioning systems**
 - ❑ **Tyre pressure monitoring systems**
 - ❑ **Low rolling resistance tyres**
 - ❑ **Gear shift indicators**
 - ❑ **Mandatory fuel efficiency targets for light-commercial vehicles**
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Revised strategy on CO₂ and cars strategy (3)

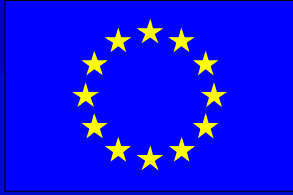
- **...with increased involvement of other stakeholders**
 - ❑ **Fuel suppliers** (low carbon content fuels – e.g. biofuels)
 - ❑ **Member States** (taxation, fiscal incentives, traffic management, infrastructure etc.)
 - ❑ **Consumer awareness** (e.g. amending the labelling directive, code of conduct for « sustainable » advertising)
 - ❑ **Drivers' behaviour** (e.g. eco-driving)
 - **Accountability and monitorability** are needed for different elements to make a quantified contribution
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Revised strategy on CO₂ and cars strategy (4)

- **Review in 2010 to assess potential for progress beyond 120g/2012**
- **Long-term vision**
 - **R&D further promoted towards advanced CO₂ reduction technologies, with a view to analysing the possibility of setting more ambitious objectives beyond 120 g CO₂/km at a later stage**
 - **The Commission will support research efforts towards reaching the ERTRAC research target of “*Improvements in vehicle efficiency [that] will deliver as much as a 40% reduction in CO₂ emissions for passenger cars for the new vehicle fleet in 2020*”.**

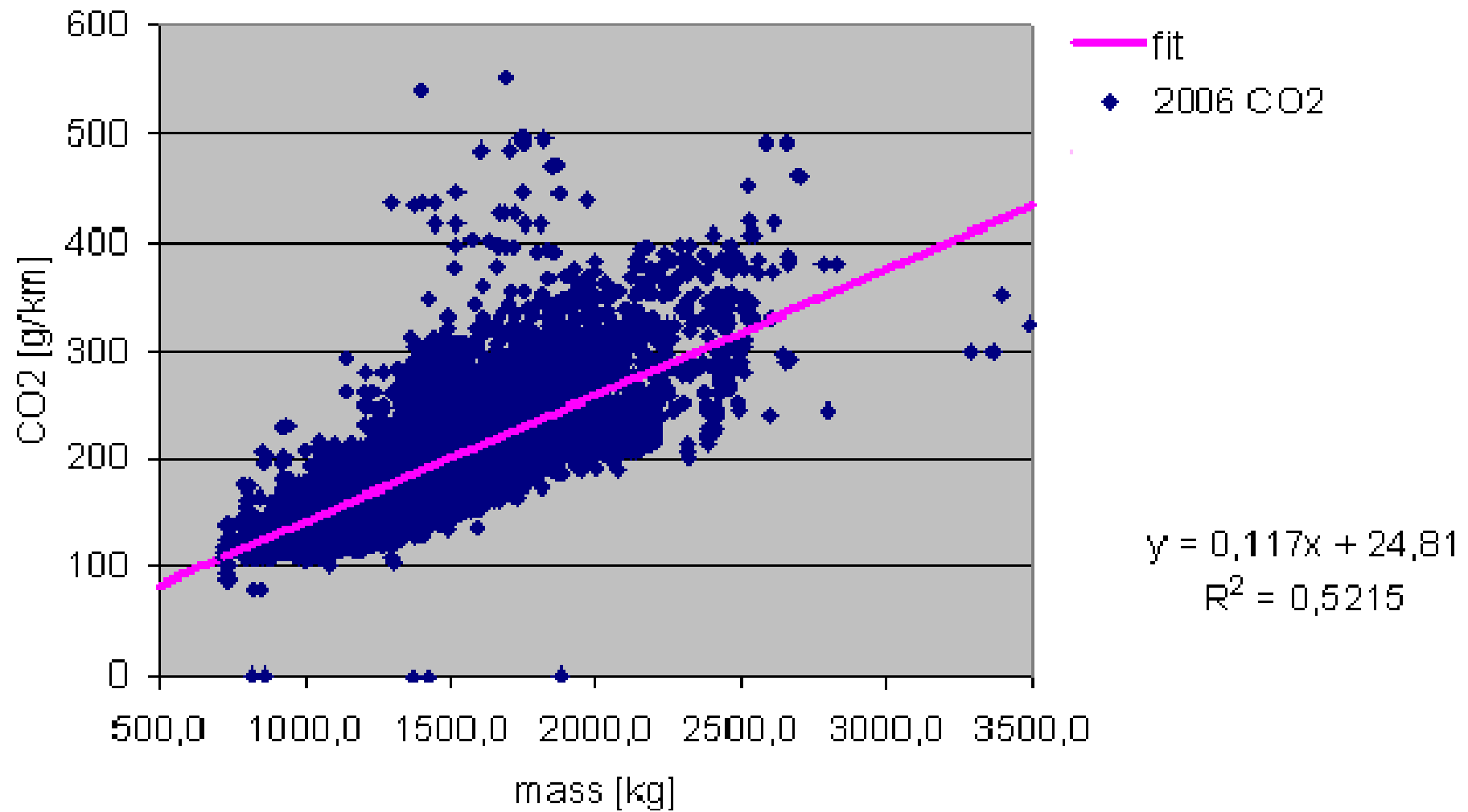
This would correspond to a new car fleet average of 95 g/km.



Preparing the legislation...

- **Legislation to be designed:**
 - To ensure competitively neutral, socially equitable and sustainable reduction targets
 - Equitable to the diversity of European car manufacturers
 - Avoid any unjustified distortion of competition
 - Compatible with the achievement of Kyoto
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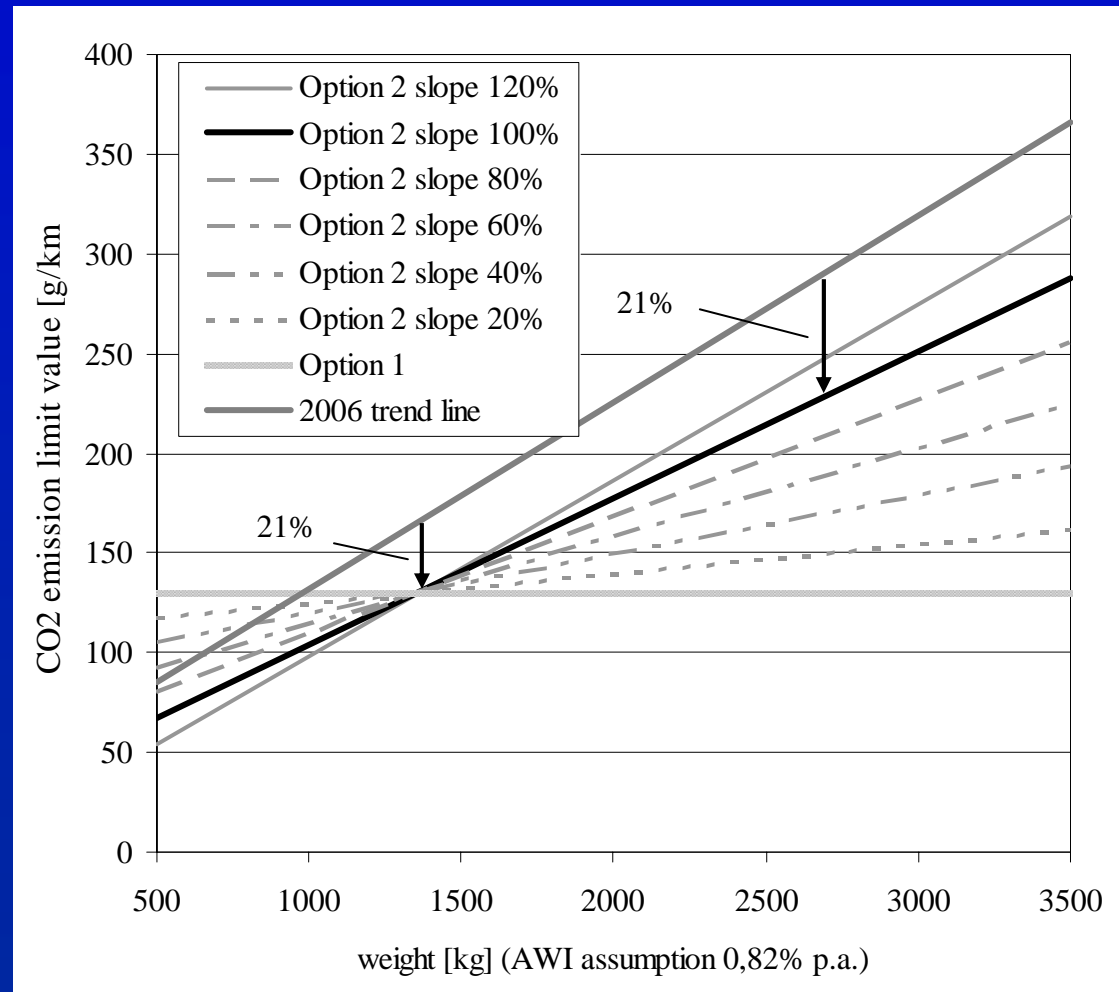
2006 CO2 vs mass





Determining the limit value curve

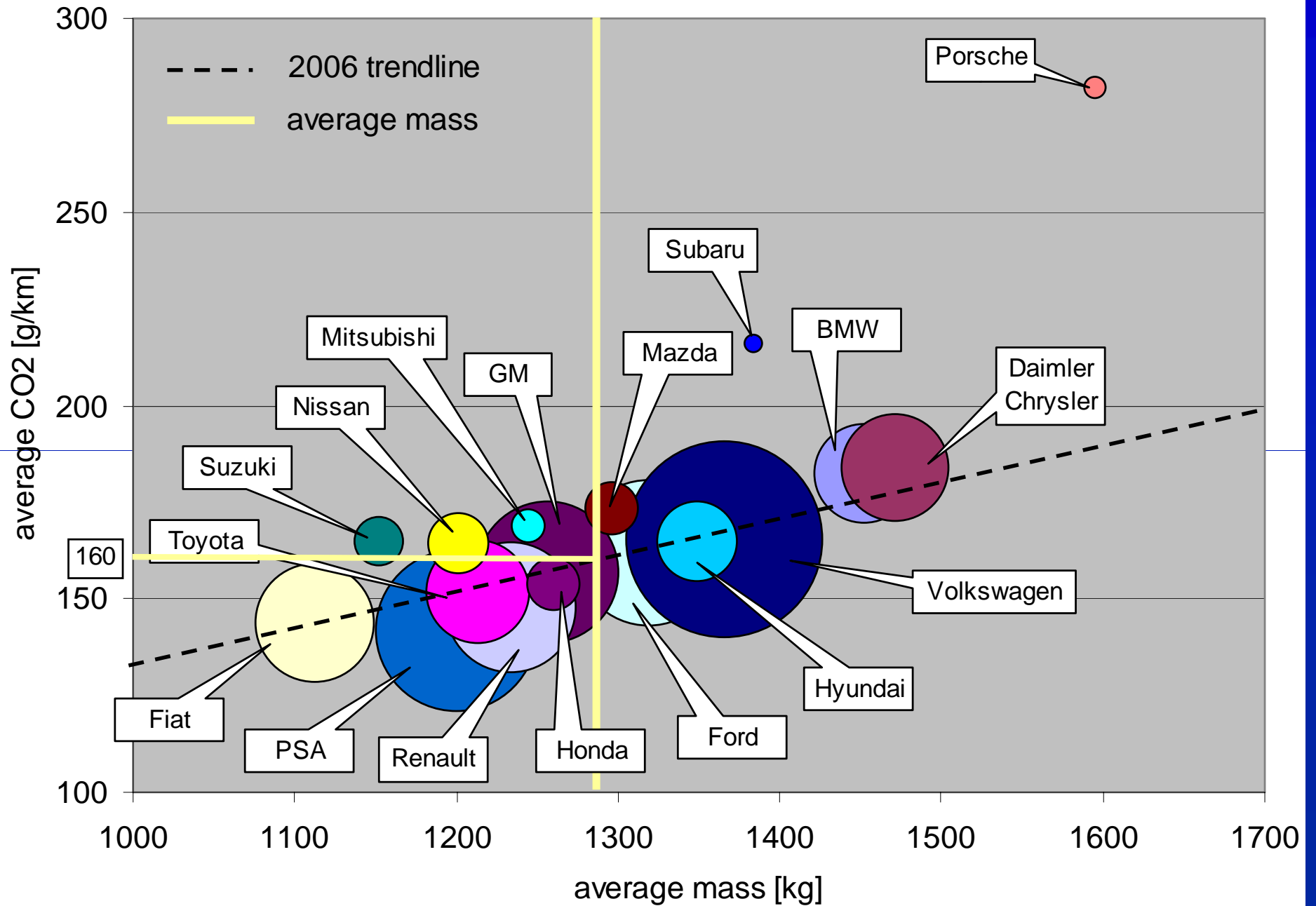
- Starting point: 2006 trend line
- Scale the curve to achieve 130g/km no average in 2012: this is the “100% curve”
- Consider Option 1 (uniform target) as “0% curve”
- Slope can be varied by applying different % values





Choice of the slope of the curve

- **Environmental: ensure delivery of 130 g/km target**
 - Slope needs to remain well below 80% in order to avoid perverse incentive to increase mass
 - **Competitive neutrality between firms and affordability**
 - Lower slope better for smaller cars
 - Customers in lower market segment have less purchasing power and have less money available for the purchase of a vehicle (higher initial investment!): higher price sensitivity in lower market segment
 - Lower market segment subject to stronger competition
 - **Manufacturers of larger cars want 80%, manufacturers of smaller cars want 20%-30%**
 - **Chosen slope: 60%**
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Key elements of the proposal on CO2 and cars



What does the Regulation do?

- **Implements part of the integrated approach by establishing emission performance standards for new passenger cars**
 - **Ensures that the average CO₂ emissions from new passenger cars (as measured through type-approval) will be limited to 130g/km from 2012**
 - **Additional measures to deliver the other elements of the integrated approach will be proposed this year.**
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Scope

- **The Regulation would apply to vehicles which meet the following conditions:**
 - Fall with in category M1 as defined in Directive 2007/46/EC
 - Have a reference mass not more than 2610kg (or are the subject of an extension of type approval in accordance with Regulation 715/2007) and
 - Are registered in the Community for the first time and has not previously be registered outside the Community for more than 3 months
 - **The Regulation would not apply to special purpose vehicles.**
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Manufacturer's Obligation

- **The Regulation would set targets for specific emissions of CO₂ from new passenger cars as a function of their mass**
- **Each manufacturers would be obliged to ensure that the average emissions from its new passenger cars do not exceed the average of the targets for those cars.**



Limit value curve (Annex I)

$$\text{Permitted specific emissions of CO}_2 = 130 + a \times (M - M_0)$$

Where:

M = mass of the vehicle in kilograms (kg)

$M_0 = \del{1289.0} 1372 \times f$

$f = (1 + \text{AMI})^6$

Autonomous mass increase (AMI) = 0 %

$a = 0.0457$



Flexibility: pooling

- **Possibility for manufacturers to form a pool in order to meet their targets.**
 - **Pool will be treated as if they are one manufacturer for the purpose of assessing compliance with the Regulation.**
 - **Agreement can be for up to 5 calendar years**
 - **Manufacturers must inform the Commission indicating which manufacturers are in the pool and nominating one manufacturer as the pool manager and must notify any changes.**
 - **Agreement must respect competition rules**
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Derogation for small independent manufacturers

- **Specialist derogation available to manufacturers which are:**
 - **responsible for less than 10,000 new passenger cars per year**
 - **not connected to another manufacturer**
 - **Specific emissions target would be set for the manufacturer consistent with its reduction potential, including technological potential to reduce its specific emissions**
 - **Applications must be made to the Commission for a maximum of 5 years**
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Excess Emissions Premium

- **Manufacturers which fail to meet their targets will be subject to an excess emissions premium:**

$$\textit{Excess emissions} \times \textit{no of vehicles registered} \times \textit{excess emissions premium}$$

- **Staggered introduction of excess emissions premium over first four years:**
 - **2012: 20€ per (g/km)**
 - **2013: 35€ per (g/km)**
 - **2014: 60€ per (g/km)**
 - **2015+: 95€ per (g/km)**



Review and report

- **In 2010 the Commission will:**
 - review progress on the implementation of the integrated approach
 - Consider whether there has been a change in the mass of cars and if so amend the figure for autonomous mass increase in Annex I to be the average of any increase.
 - **In the longer term the Commission will consider how the type approval process should be amended to take into account technological developments**
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Economic impacts

	Cost effectiveness in €/t CO ₂	TREMOVE			Supporting study (ex-ante)
		NPV Cost to society 2006-2020 (M€)	WtW CO ₂ eq Abatement 2006-2020 (Mt)	€/t CO ₂	
Option 1	Uniform target per manufacturer with trading	9.746	-624	15.6	45.6
Option 2	40% slope – Footprint	22.159	-638	34.7	39.8
	80% slope – Footprint	21.008	-634	33.1	36.4
	40% slope – Mass	21.674	-638	34.0	38.7
	80% slope - Mass	20.523	-634	32.4	34.8
Option 3	Percentage reduction per manufacturer	17.922	-626	28.6	34.3



Sensitivity analysis

- Autonomous mass increase (AMI).
 - Central calculation based on 0.82%/a
 - Sensitivity analysis for 0% and 1.5%
- Fuel price
 - Central estimates based on average fuel price before tax of €0.50 (petrol) and €0.40 (diesel) based on average prices in 2006-2007. A modulation of +/- 30% has been performed.
 - *[Average oil price 2006-2007 was \$64/bbl worldwide].*



Sensitivity analysis (2)

	Cost effectiveness in €/t CO ₂	Alternative Autonomous weight increase		Alternative fuel price	
		0.00%	1.50%	-30%	+30%
Option 1	Uniform target per manufacturer with trading	19.6	70.4	82.8	8.4
Option 2	40% slope – Footprint	14.3	64.2	77.1	2.5
	80% slope – Footprint	11.1	60.8	73.8	-1.0
	40% slope – Mass	13.3	63.2	76.0	1.4
	80% slope - Mass	9.6	59.2	72.1	-2.6
Option 3	Percentage reduction per manufacturer	8.4	59.2	71.5	-3.0



Main advantages of the Regulation

Good for the environment:

- **Effective contribution of the motor industry to the fight against climate change**
- **Reducing the average emissions of CO₂ from new passenger cars in the EU from around 160 grams per kilometre now to 130 grams per kilometre from 2012 will save more than 630 million tonnes of CO₂ by 2020 (savings will further accumulate beyond that date)**

Good for consumers:

- **Car owners will on average pay almost €2700 less for fuel over the car's life-time (based on average 2006-2007 fuel prices). Compared with an average price increase of €1100-1300 for a car, this gives a considerable net benefit for consumers (increasing with higher fuel prices).**
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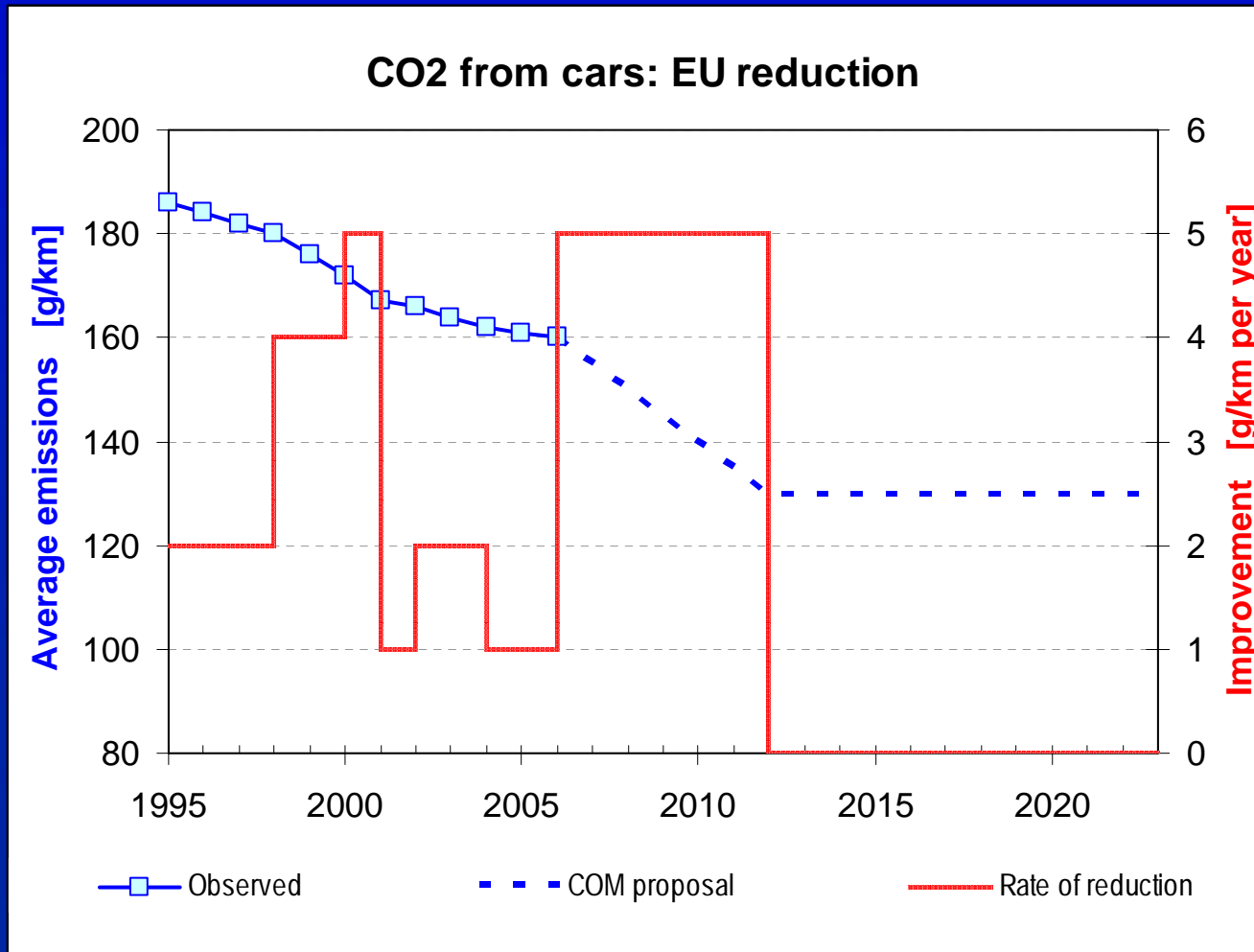
Main advantages of the Regulation

Good for the industry and for the economy in general:

- Incentive for more innovation in the EU and an opportunity for EU car manufacturers to become world leaders on fuel efficiency
 - Creation of highly-skilled jobs in the EU (e.g. for engineers in research centres)
 - Opportunity for the EU motor industry to gain first mover advantage and gain long-term competitive advantages
 - Energy security: less oil imports necessary
 - Industry profits generally not affected (assuming a low price sensitivity of demand, allowing for a high degree of pass-through of investment costs to consumers. Consumers likely to accept price increase as they will benefit from even higher fuel savings)
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Overview of CO₂ reductions





Longer-term outlook

Revised strategy on CO₂ from light-duty vehicles COM(2007)19

“...with a view to analysing the possibility of setting more ambitious objectives beyond the current Community target of 120 g CO₂/km at a later stage, research and development will be further promoted [...] The Commission will support research efforts towards reaching the ETRAC research target of [...] as much as a 40% reduction in CO₂ emissions for passenger cars for the new vehicle fleet in 2020”. This would correspond to a new car fleet average of 95 g CO₂/km.

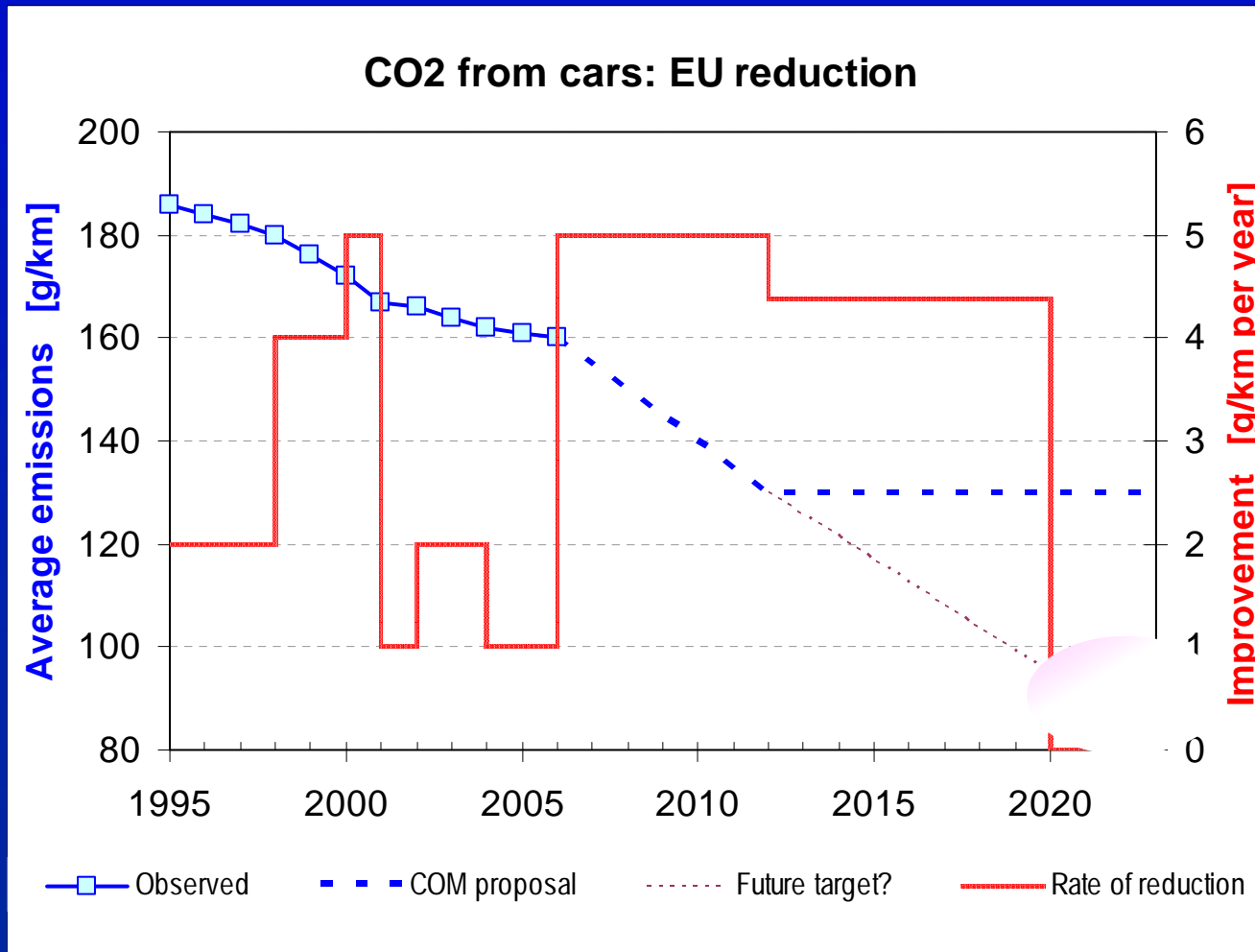
...

In 2010, the Commission will review the status of implementation and the potential for further measures to move beyond the stated EU objective.”



Longer-term target? Demand by certain Member States and Members of the European Parliament

Illustration:



N.B. The Commission proposal does not contain a longer-term target



Current status

- **Co-decision: the Commission proposal is being discussed by Council and European Parliament**

- **More information:**

http://ec.europa.eu/environment/air/transport/co2/co2_home.htm