
VDA

Verband der
Automobilindustrie

German Association of the
Automotive Industry

European CO2 approach and possible transfer to South Korea

Dr. Martin Koers

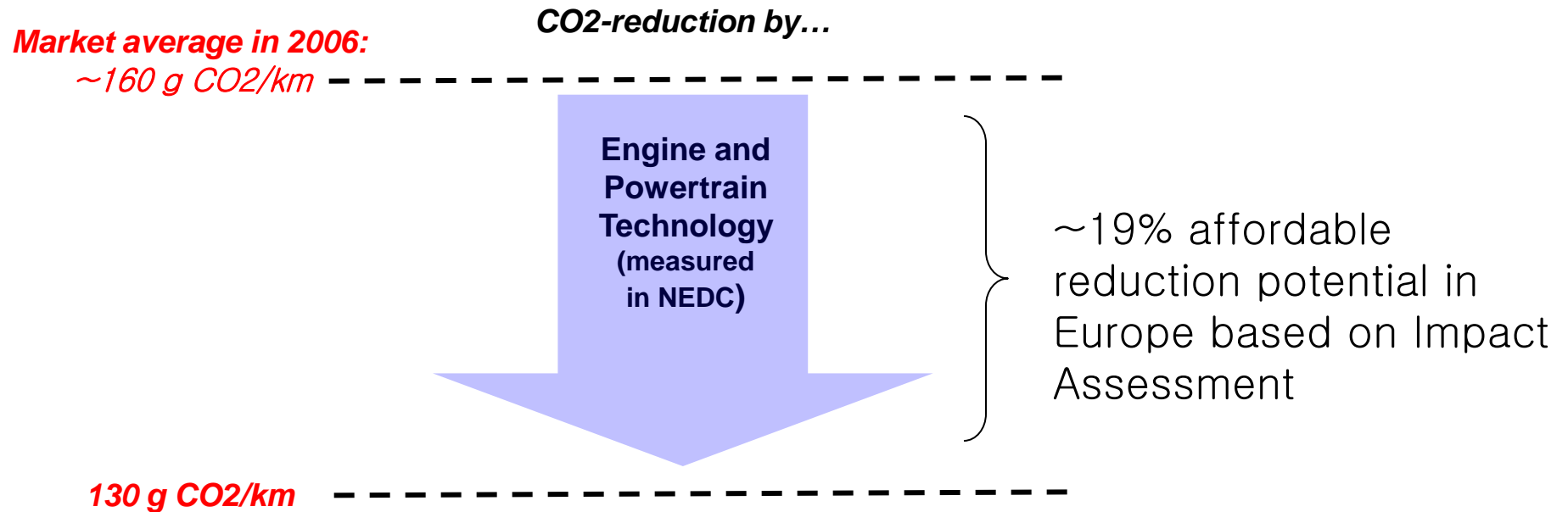
Head of Economic Policy and Climate Protection

German Association of the Automotive Industry

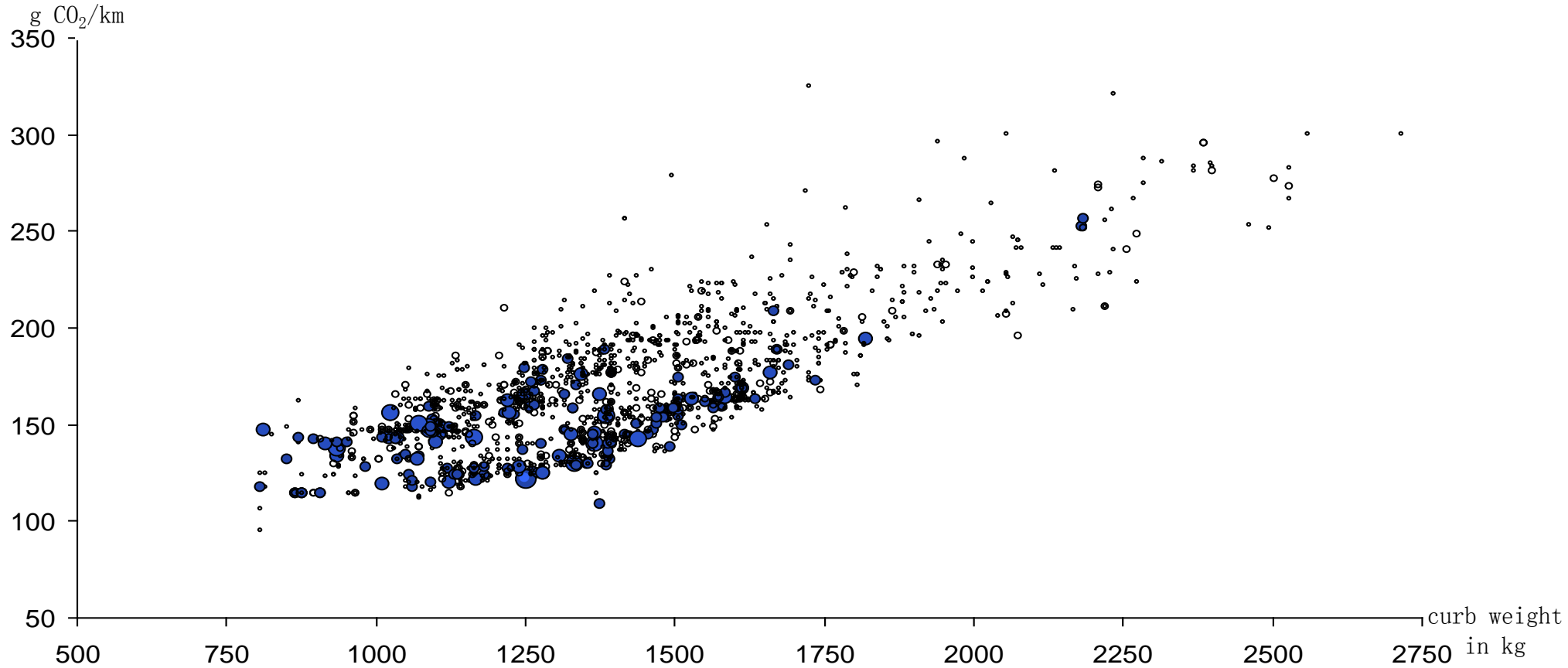
Agenda

1. Development of overall European CO₂-reduction target
2. CO₂ emissions – Korean versus European traffic sector
3. Transfer of European regulation to South Korean Market
4. Conclusion

Basic Principle of European CO2 Reduction

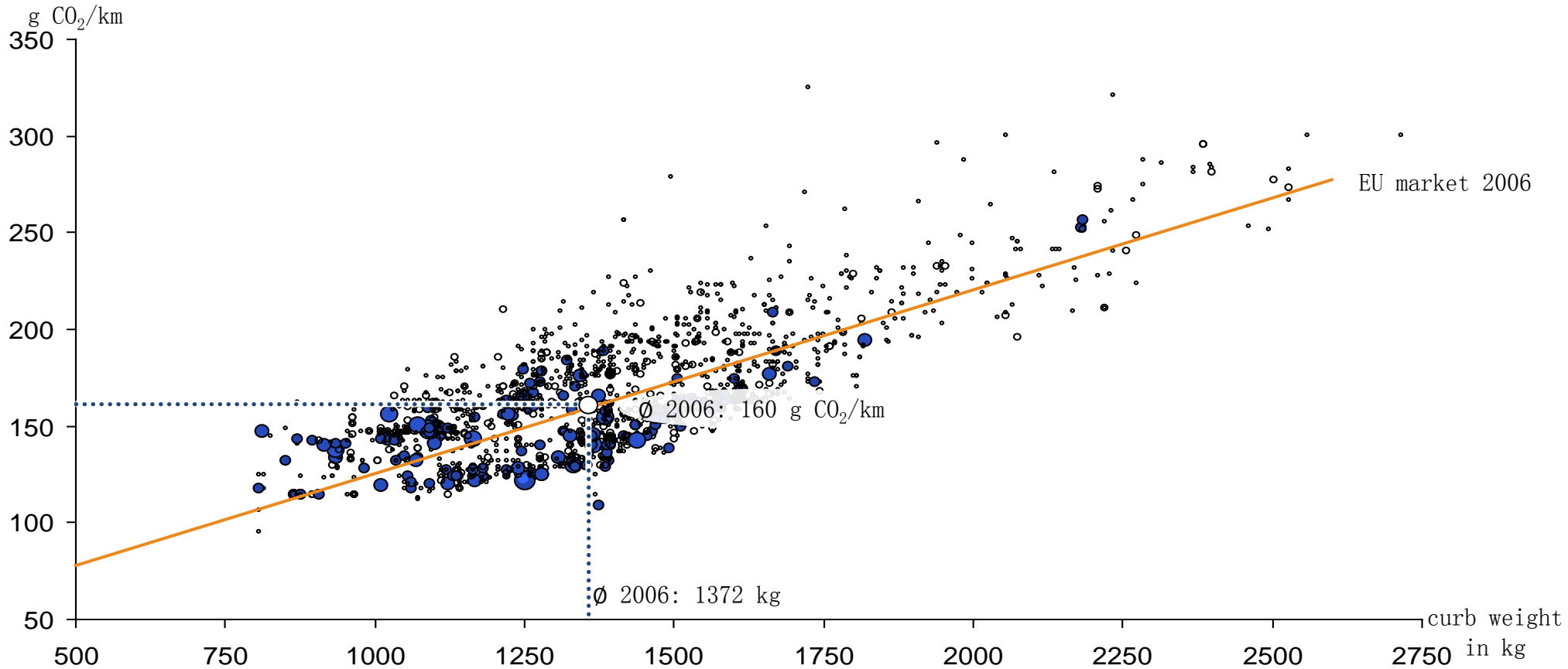


EU market 2006



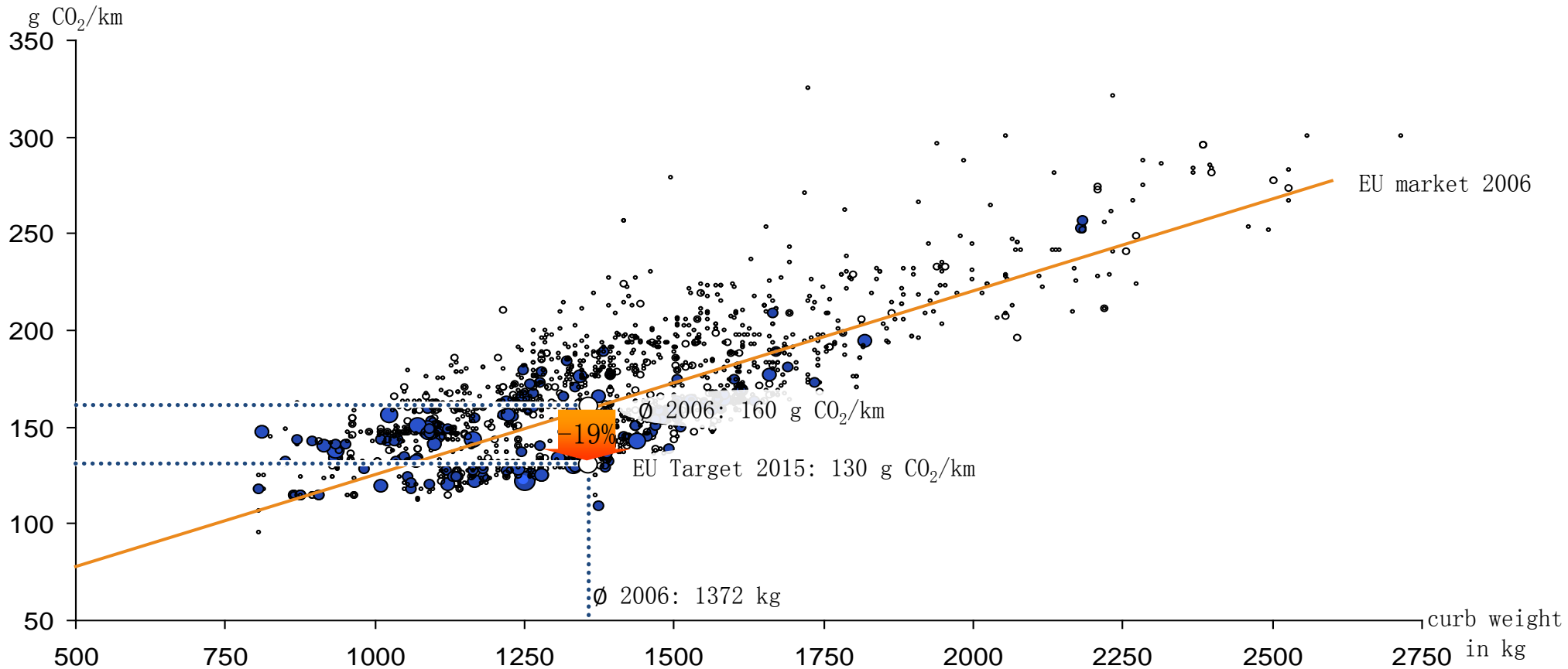
European Fleet in 2006

EU market 2006: Market Line



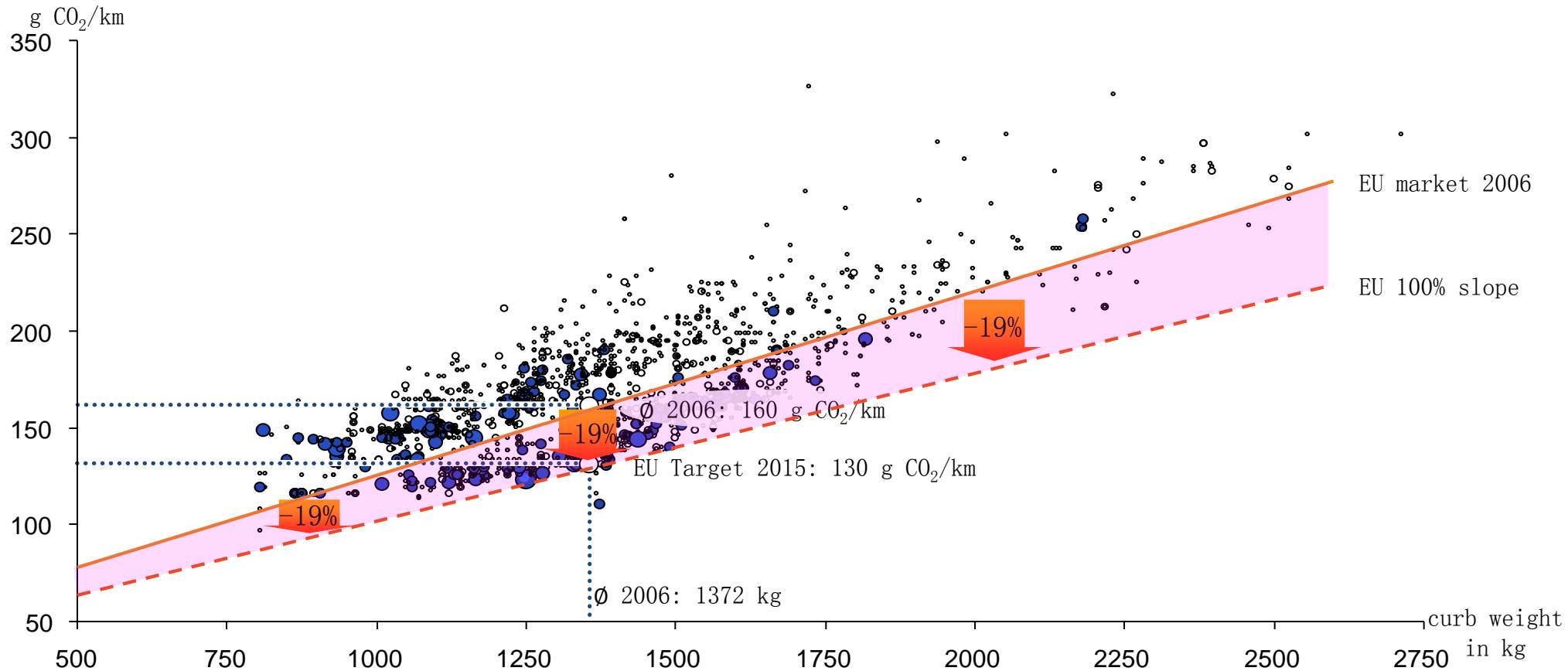
Average emissions per km in the EU 2006: 160 g CO₂/km

EU reduction target 2015: 130 g CO₂/km



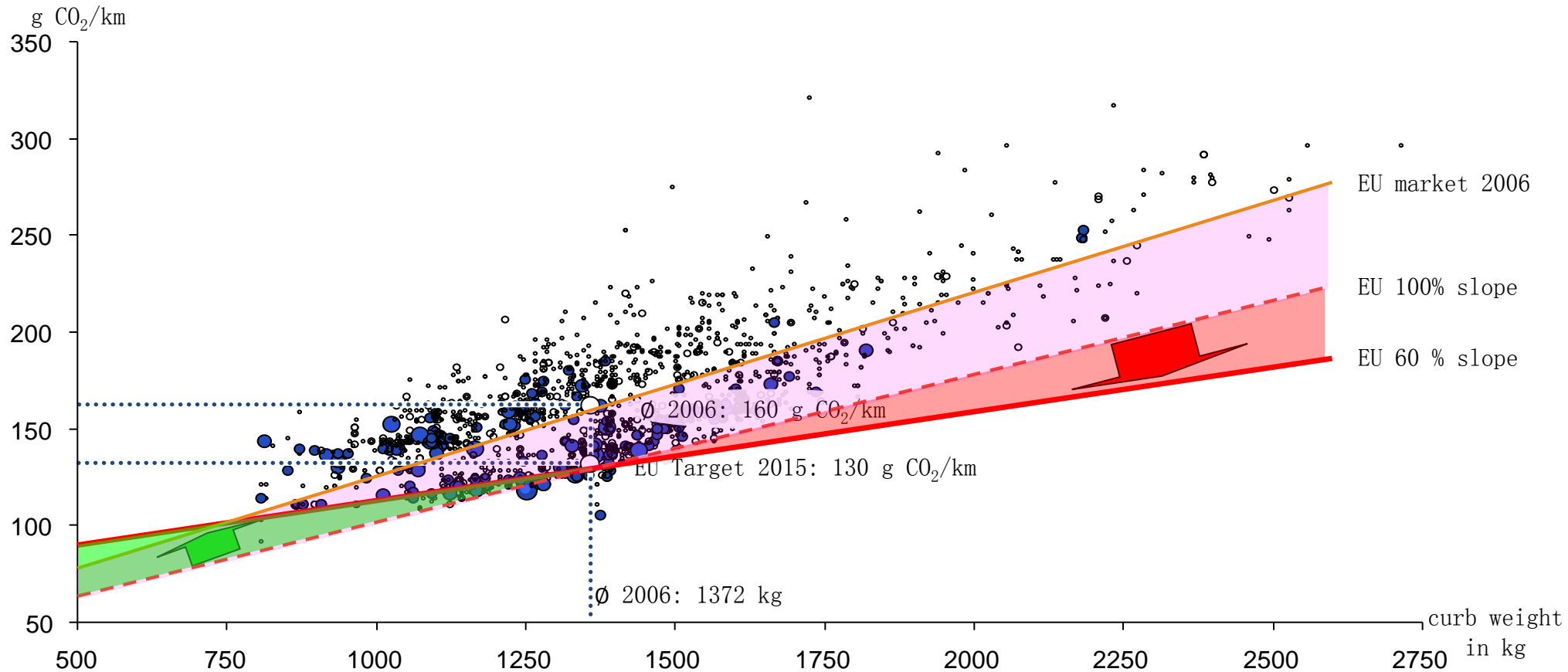
EU Target of 130 g CO₂/km implies an overall reduction of 19 %

EU reduction target 2015: 130 g CO₂/km



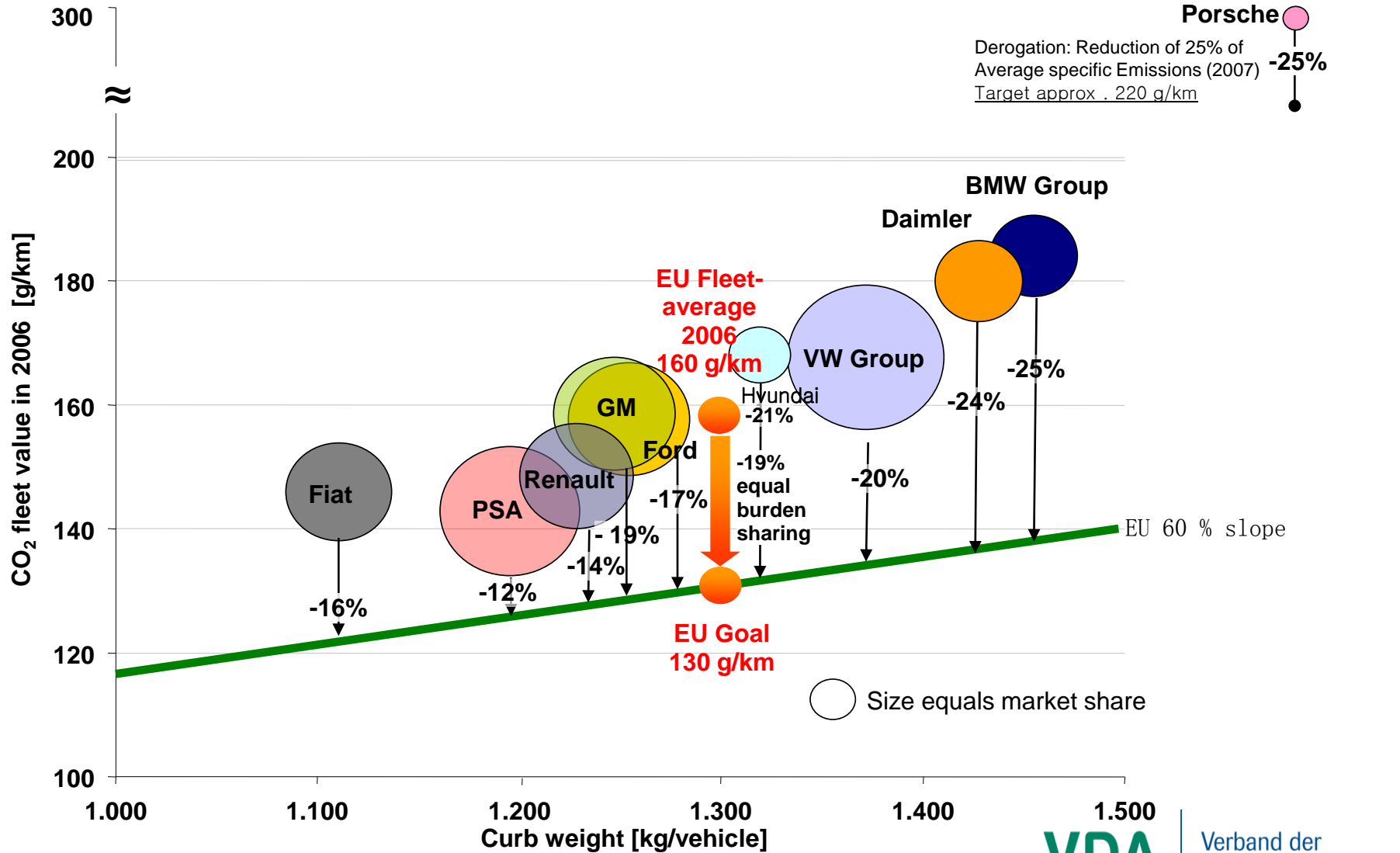
EU Target of 130 g CO₂/km implies an overall reduction of 19 %

EU target 2015 and the 60 % slope

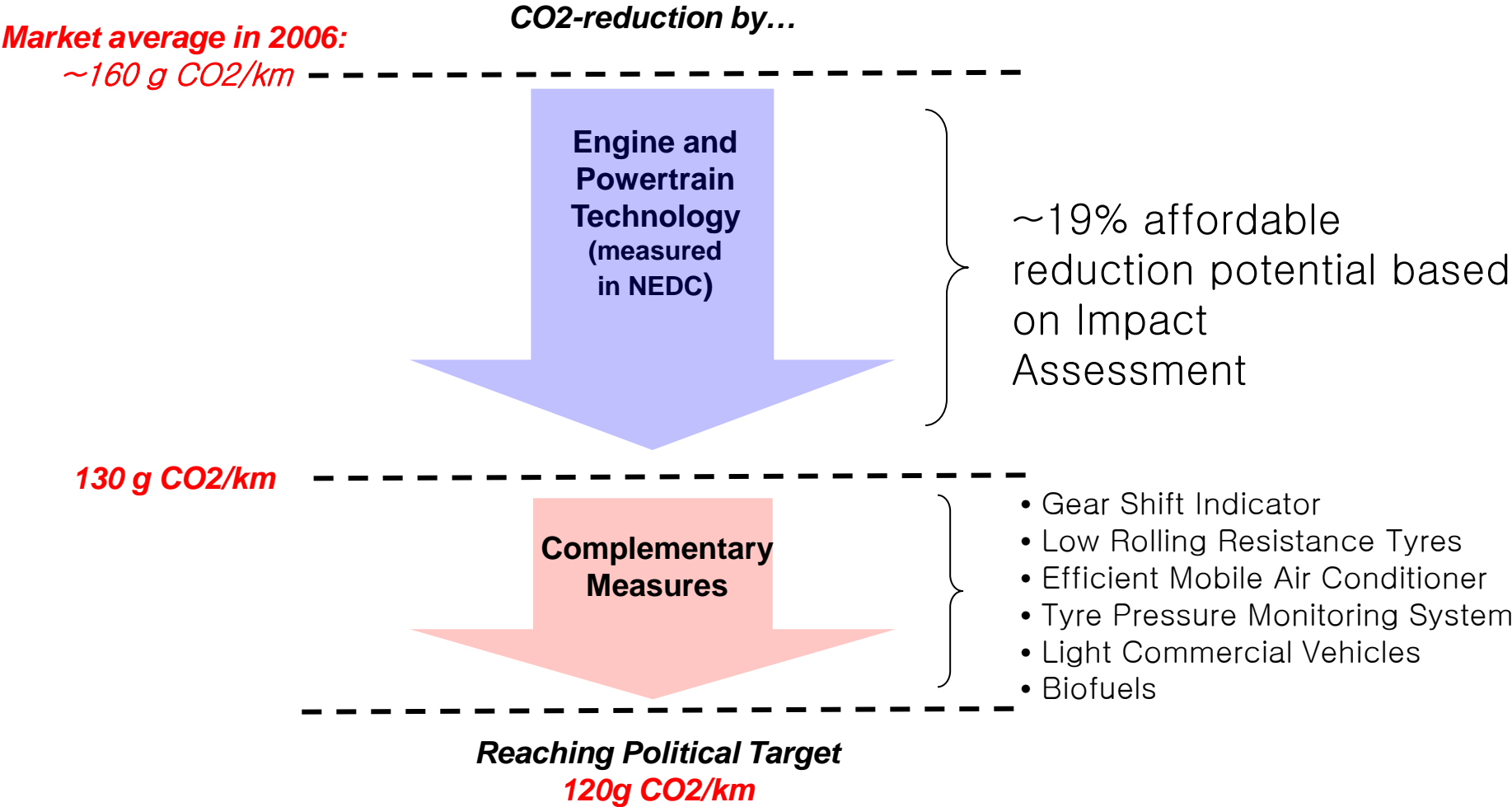


The final curve of the EU legislation was set with a 60 % slope. Therefore, heavier vehicles have to improve more in relation to lighter vehicles

Key Element of European CO₂-Strategy: Not each manufacturer has to reach 130 g CO₂/km



Basic Principle of European CO2 Reduction



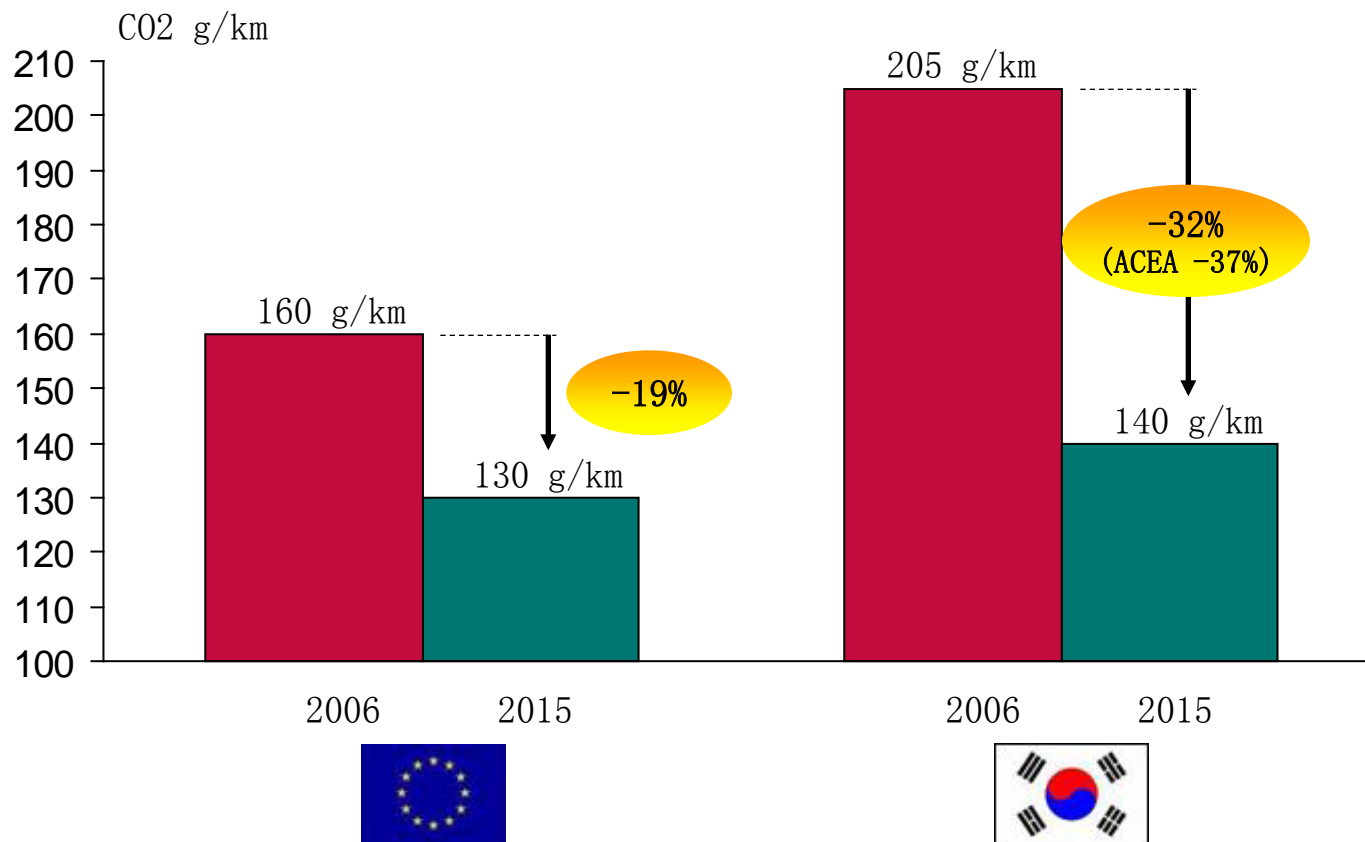
Summary CO2 target finding

- Weight based approach is recommended. The target formula should use curb weight as parameter.
- In Europe, not each car has to reach 130 g CO2/km. This is the fleet average of the overall European market.
- Each car gets an individual target based on the calculated target function. The addition of the CO2 values of all cars sums up to 130 g CO2/km.
- European reduction target was based on an Impact Assessment. Based on this assessment, a reasonable reduction target of 19% via in-cycle technology was derived.
- To meet political target, further mandatory complementary measures will be introduced.

Agenda

1. Development of overall European CO₂-reduction target
2. CO₂ emissions – Korean versus European traffic sector
3. Transfer of European regulation to South Korean Market
4. Conclusion

Comparison between Korean and European distance to target approach (2006 to 2015): Korea wants more than double the reduction of EU market



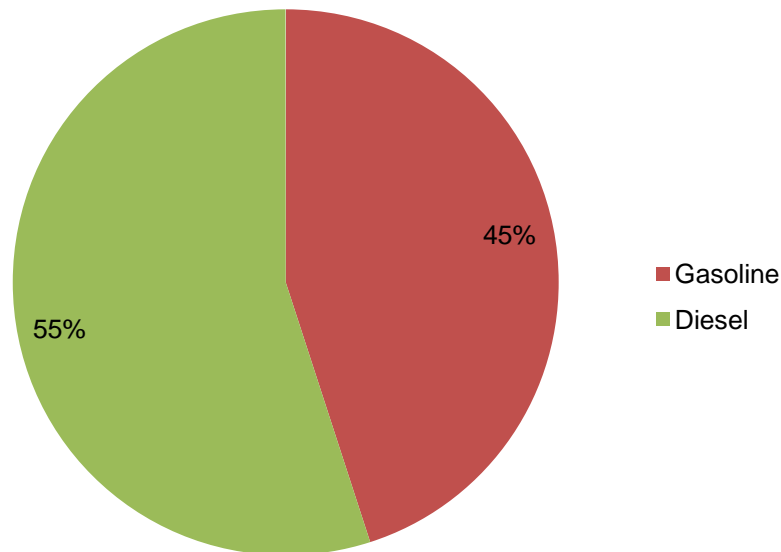
- Korean and EU targets are not directly comparable, because of different fleet characteristics.
- Targets have to incorporate country-specific conditions.

Korean versus European traffic sector

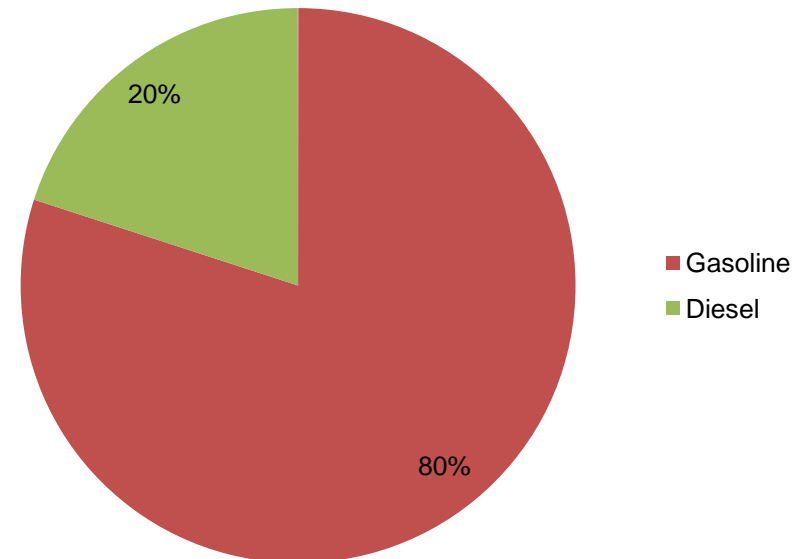
Key element of the EU's CO2 reduction is the success of Diesel (I)



PC gasoline/ diesel share 2008 EU market



PC gasoline/ diesel share 2008 Korean market



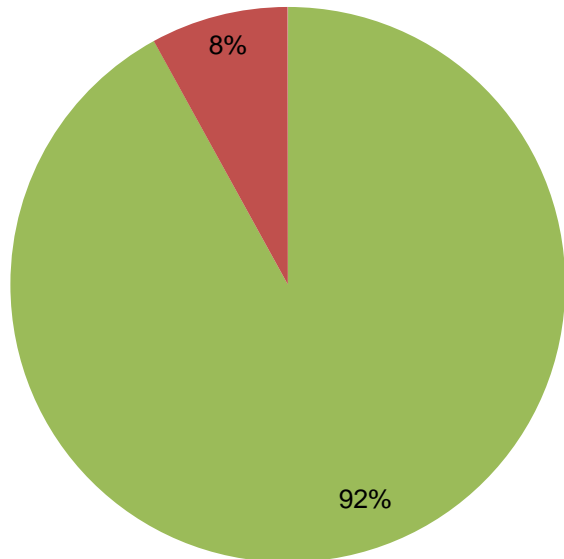
- High diesel share is indispensably needed to reach stringent EU targets in 2012.
- Numbers of EV are too small to sufficiently contribute to the target in 2012 to 2015.

Korean versus European traffic sector

2WD vs 4WD Korean and European market

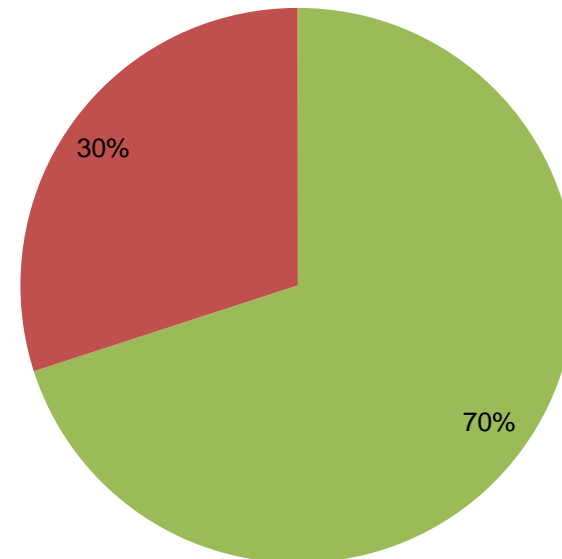


2WD- 4WD EU market



2WD- 4WD Korean market

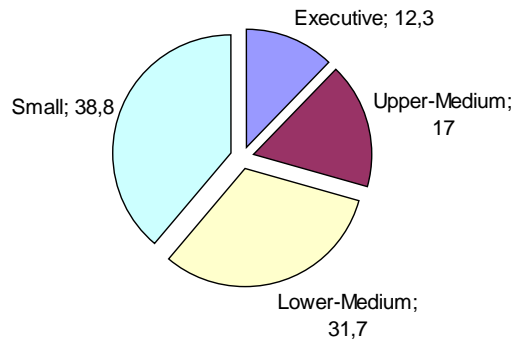
■ 2WD
■ 4WD



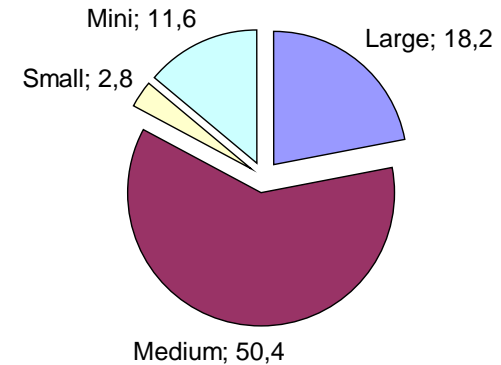
■ 2WD
■ 4WD

Korean versus European traffic sector

Domestic Sales by Type in Europe and South Korea (2008)



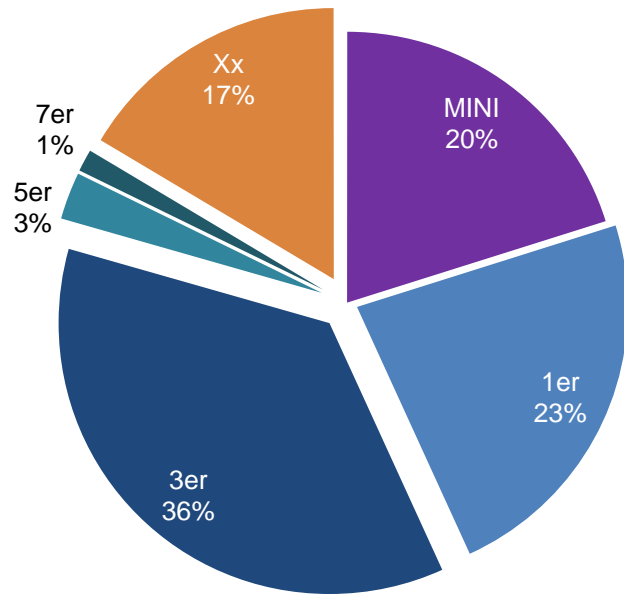
Sales 2008: approx. 13 Mio



Sales 2008: approx. 1,3 Mio

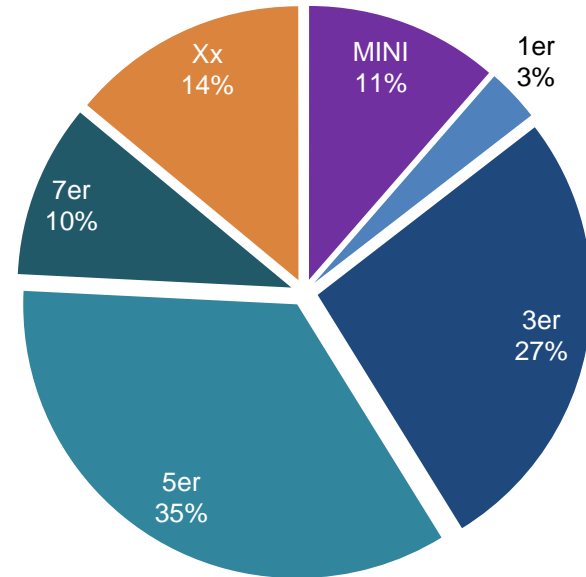
Korean versus European traffic sector

Product portfolio in EU and Korea (e.g.BMW)



EU market (2008)
market share of BMW small cars
(MINI and 1 series)

43 %



Korean market (2008)
market share of BMW small cars
(MINI and 1 series)

14 %

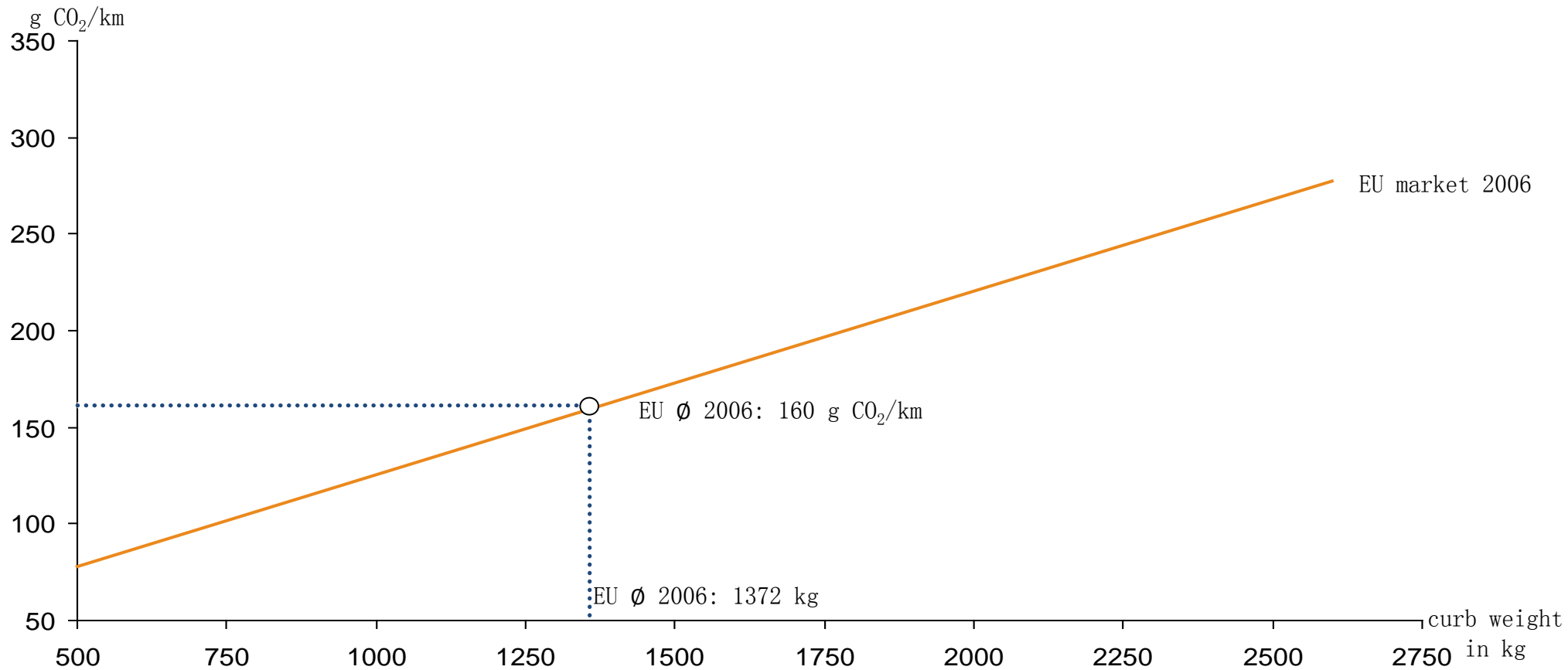
Summary market comparison of European and Korean market

- **Harmonization is required with respect to country-specific conditions**
- **The fleet characteristic of the European and the South Korean market is totally different. The South Korean market shows**
 - significantly higher gasoline share
 - significantly more 4WD cars
 - significantly more large cars
- **Due to the different fleet characteristic the starting point of finding a feasible reduction target is different**
 - Europe starts with an actual value of 160 g CO₂/km in 2006
 - South Korea starts with an actual value of 205 g CO₂/km
- **The different market structure has to be taken into account when calculating the target to avoid market distortions**

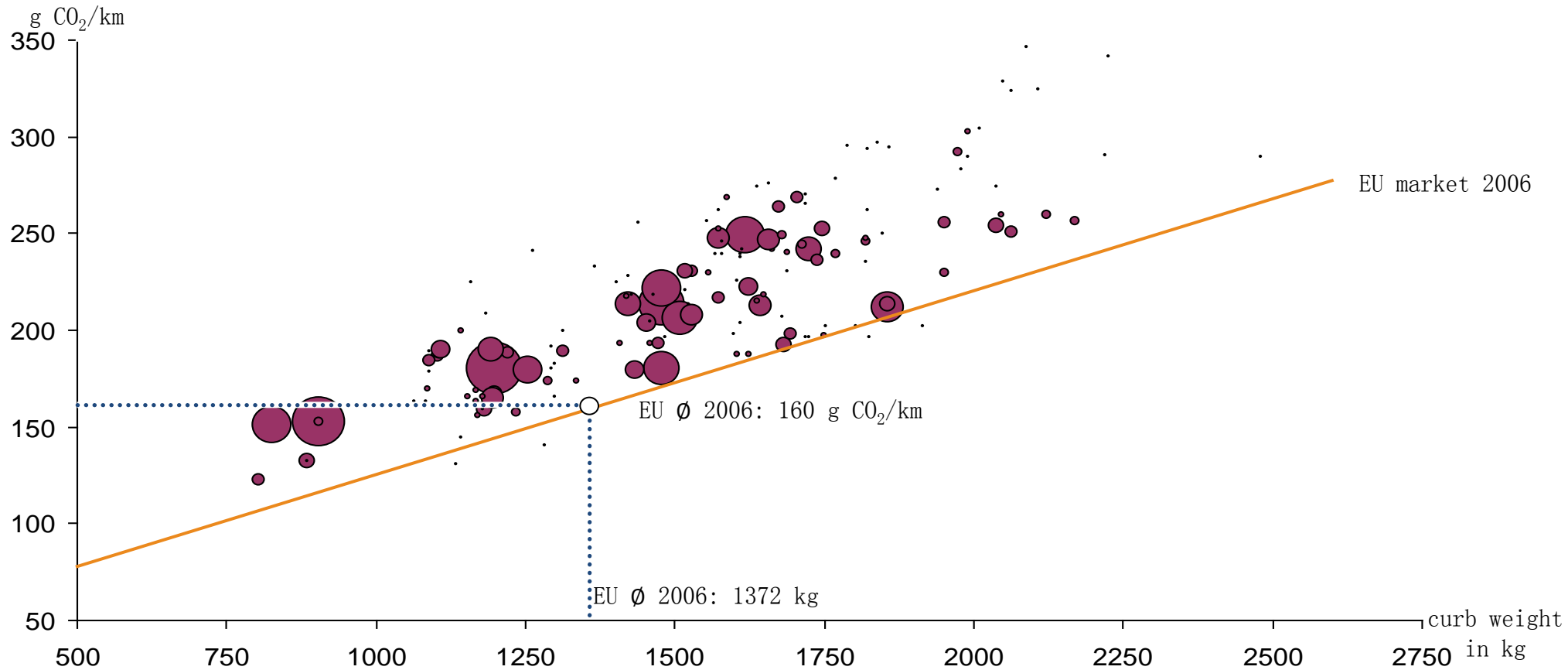
Agenda

1. Development of overall European CO₂-reduction target
2. CO₂ emissions – Korean versus European traffic sector
- 3. Transfer of European regulation to South Korean Market**
4. Conclusion

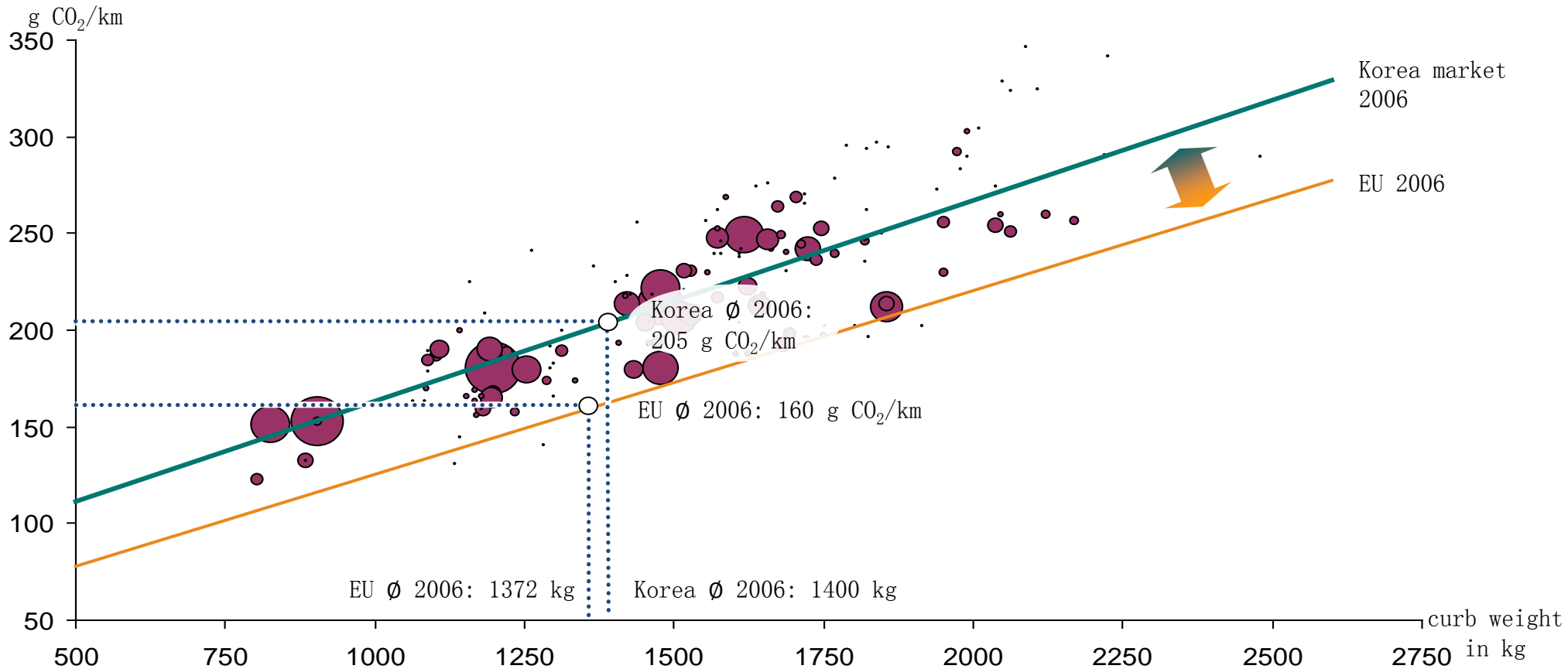
EU market 2006



Korea market 2006 compared to 2006 EU market

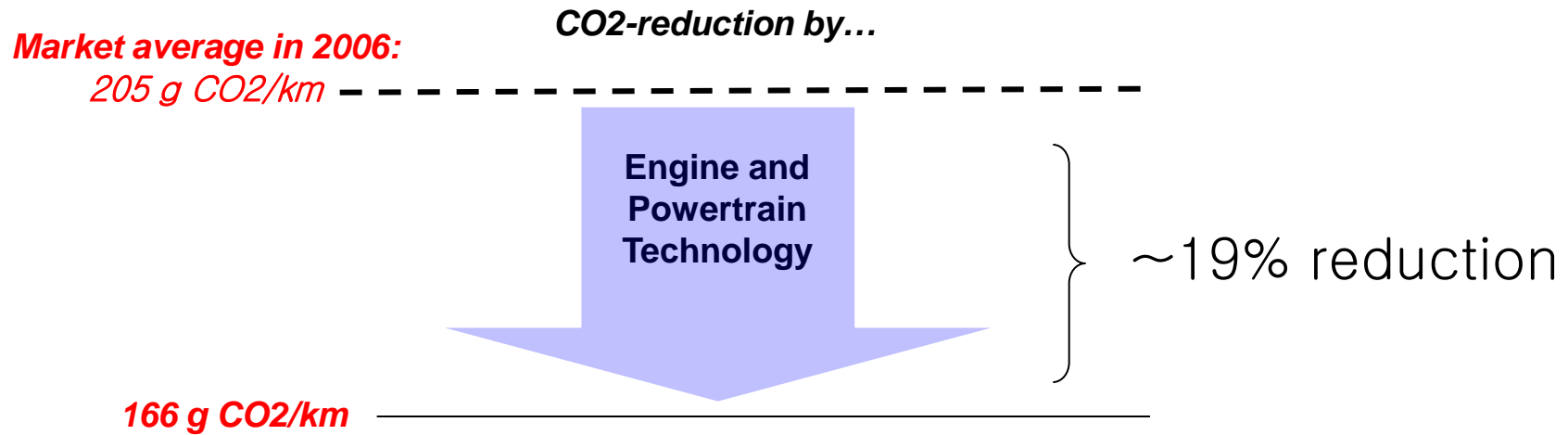


Korea market 2006 compared to 2006 EU market



Average emissions per km in Korea 2006: 205 g CO₂/km

Conclusion: Transfer of European regulation to South Korean Market




Summary Transfer of European regulation to South Korean Market

- Transfer of reasonable European 19% reduction target leads to 166 g CO₂/km in South Korea!
- But: there are possibilities of further CO₂ improvements which help to define a reasonable political target

Further Improvement of Co2 value


Complementary Measure

Market average in 2006: 205 g CO2/km
CO2-reduction by...



**Engine and
Powertrain
Technology**

166 g CO2/km



**Complementary
Measures**

- Gear Shift Indicator
- Low Rolling Resistance Tyres
- Efficient Mobile Air Conditioner
- Tyre Pressure Monitoring System
- Light Commercial Vehicles
- Biofuels

What are Advanced Technologies?

Advanced Technologies

- technologies for reducing CO₂
- not fully considered in the test cycle
- not part of the mandatory complementary measures

In Europe so called Eco-Innovations

Example for Advanced Technologies

LED & Solar Cells



LEDs (Light-Emitting Diodes)

- Light always means extra consumption. That is why efficient technologies have a great leverage here. Lights with **light-emitting diodes (LED)** are up to 20 times more efficient than using conventional lights. The regulations to date do not provide any incentives for bringing this technology onto the market quickly.



Solar Roof

- Integrated **solar cells** in glass roofs can supply electrical loads in the vehicle with power even when the ignition is switched off. Modern, thin-layer solar cells make it possible to use the increasing glass surface areas on vehicles with a high degree of efficiency. The draft Regulation does not so far envisage promotion of such technologies, however.

Further Improvement of Co2 value Advanced Technology

Market average in 2006: 205 g CO2/km
CO2-reduction by...

CO2 reduction
within test
methodology

Engine and
Powertrain
Technology

166 g CO2/km

Complementary
Measures

- Gear Shift Indicator
- Low Rolling Resistance Tyres
- Efficient Mobile Air Conditioner
- Tyre Pressure Monitoring System
- Light Commercial Vehicles
- Biofuels

Advanced
Technologies

Reasonable Political Target

VDA

Verband der
Automobilindustrie

Agenda

1. Development of overall European CO₂-reduction target
2. CO₂ emissions – Korean versus European traffic sector
3. Transfer of European regulation to South Korean Market
4. Conclusion

Conclusion

The ability to achieve the future Korean standards is depending on different factors:

- overall reduction target based on specific fleet characteristics
- testing methodology
- acceptance of all CO2 reduction technologies

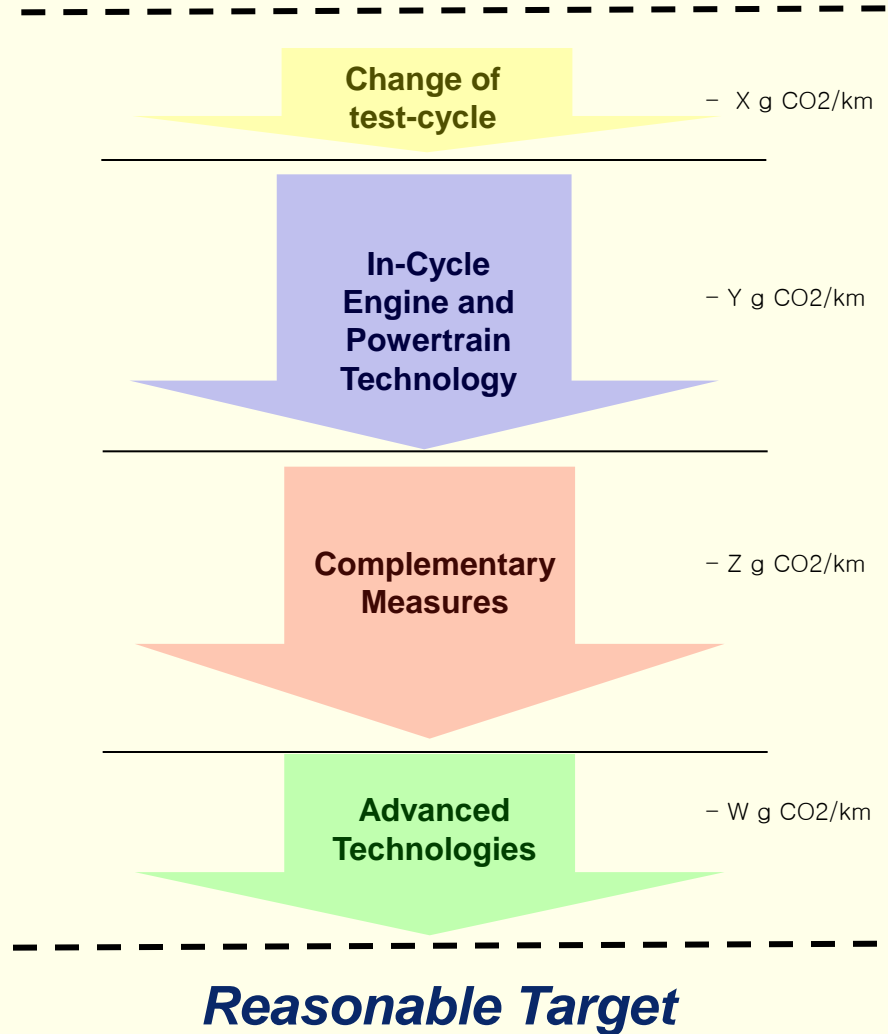
Achievable and competition neutral targets are preferred over derogations.

CO2 regulation of passenger cars in South Korea

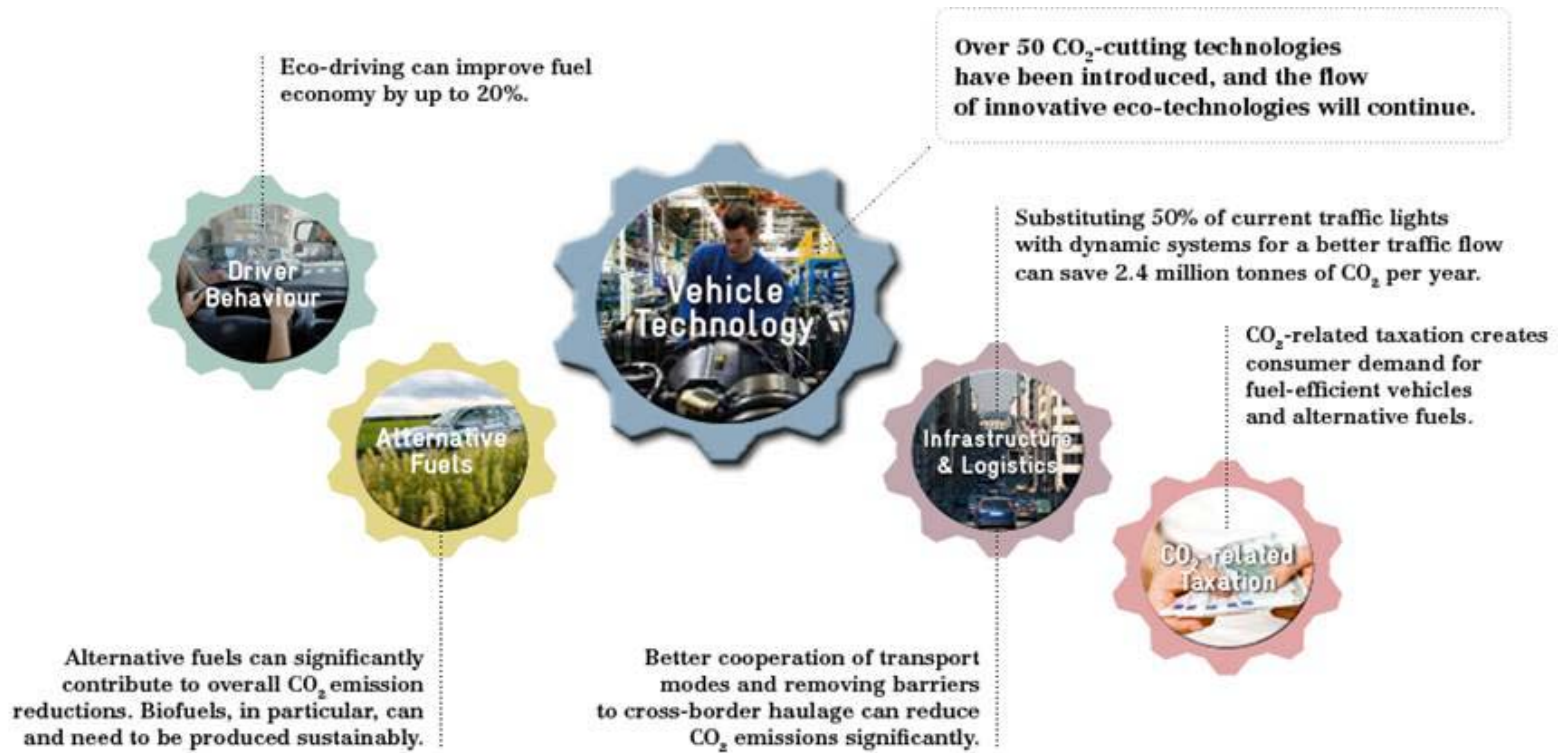
We kindly ask the South Korean Government for

1. having in mind the difference of the European and South Korean market when introducing a CO2-regulation
2. setting of a reasonable CO2 target based on impact assessment specific for Korean market
3. definition of appropriate test-methodology
4. alignment with EU Approach
 - Complementary Measures
 - Advanced Technologies (Eco-Innovations)
 - Implementing derogations for small volume manufacturers
 - Sufficient Lead Time

Korea Market Average in 2006: 205 g CO2/km
CO2-reduction by...



Better results in Europe with Integrated Approach



Combining efforts of all involved
+ including all cars on the road

=

Achieving environmental goals at
lowest cost to society

Thank you for your attention!