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Emission reductions resulting from the implementation of the Euro standards

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Air quality and emissions subject to international observation and action

- WHO, UNEP, UNECE, OECD, CLRTAP...

On EU level AQ and global emissions are regulated by:

- Air Quality Directive (dir 2008/50/EC)
- National Emission Ceilings Directive (dir 2001/81/EC)

Major emission reductions were achieved from 1990 on

Yet major incompliance still exists....
But significant exceedence persists (2010)

Annual average

PM10

NO2

Which causes serious health risks

Loss in statistical life expectancy attributable to exposure to PM2.5 from anthropogenic sources (in months for year 2000)

Health costs of air pollution: €23 Billion/yr

Annual average
Sources of NO$_2$ and NO$_x$

- ETC/ACC 2009: main reason for exceedances

Diagram:
- Local traffic: 69%
- Domestic heating: 14%
- Long range transport: 6%
- Industrial emissions: 6%
- Other: 6%
- Not indicated: 6%
Transport contributes considerably to air pollution

Antwerp, NO2, 2012
Evolution of NOx light duty emission limits

in line with Regulation EC 715/2007 “the Euro 5/6 regulation” and preceding
Evolution of PM10 emission limits (Light duty Diesel)

in line with Regulation EC 715/2007 “the Euro 5/6 regulation” and preceding
Following reduced emission limits and other Euro X measures, the PM 10 transport problem gets under control.

We see PM concentrations decrease by 2020, 2025.
Diesel cars are the main cause of NO$_2$ exceedence and are the main obstacle for reaching the standards set forward by the Air Quality Package.
Two main causes for the divergence

1) The test cycle used for type approval:

- Reg 715/2007 makes reference to “normal conditions of use” (i.e. no specific test cycle) for meeting regulatory criteria on the pollutant emission limits.

- An implementing decision has introduced a test cycle called ‘NEDC’ in 2008

- Commission shall monitor situation of RDE and amend test procedures, if necessary

- If the test cycle does not deliver the regulatory objectives set by Euro 5/6 co-decision regulation, it should be changed

Figure 1: Speed profile of the New European Driving Cycle (NEDC)
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2) “Possible” tampering and cycle beating during the type approval test

- REG 715/2007 prohibits “defeat devices”
- A very idealised, repetitive and idealised cycle, set up for repeatability reasons invites for cycle beating.

Conclusion:

Emission control is less representative for real driving when run on test cycle and is influenced by its design or by “negligence”.
The retained Method for “Real Driving Emission testing” for i.a. type approval: 
 порtable emission measurement sytems

- “PEMS” testing: put all measuring equipment on the car and run.
- Selection of driving routes
- Boundary conditions, driver’s temperament
- Statistical methods for treating PEMS data
 Timing of the RDE (Real Driving Emissions) project

• Euro 6 emission limit values come into force on 1/9/2014

• A testing procedure is needed in order to replace the NEDC cycle by a real-world emission testing, primarily for NOx

• Start of the work of the RDE expert group composed of MS, experts & Commision in 2011, aiming at developing a full RDE procedure.

• ... not ready before Euro 6 kick off data 😞

• "CARS2020" Commission Communication put forward in 2013:
  • 2014 -> 2017: continue to use NEDC cycle for type approval of new cars
  • 2014 -> 2017: run new cycle in parallel for method assessment and public information (publication of emission results)
  • 2017 onward: Euro 6 type approval using RDE methodology

• Last discussion in the (TCMV) Committee in October 2014

• Legal proposal expected in December 2014, kick off 1/1/2015
Euro 6 is more than RDE testing for NOx

- RDE procedure will apply for: NMHC, CH4, CO, PM, ...
- In service conformity testing
- Hybrid car testing
- Sole NO2 emission testing (as opposed to global NOx testing)
- Testing in application of PN new standards 2014/2017 (Gasoline-DI)
- ......
Conclusion:

Meeting with Commission and MS on 1 July showed that all parties are very motivated to get RDE regulations in force

- We face AQ problems and infringements.

- Member States say they cannot comply unless the RDE issue is resolved.

- The RDE issue is an obstacle for reaching better air quality and reaching the targets of the Air Quality Package.

- All technology needed to reach the Euro 6 Standards is available at reasonable cost.

Thank you for your attention ...