



**CLRTAP 52<sup>nd</sup> WGSR, 30 June -3 July 2014**

# Emission reductions resulting from the implementation of the Euro standards

**Jan Cortvriend**

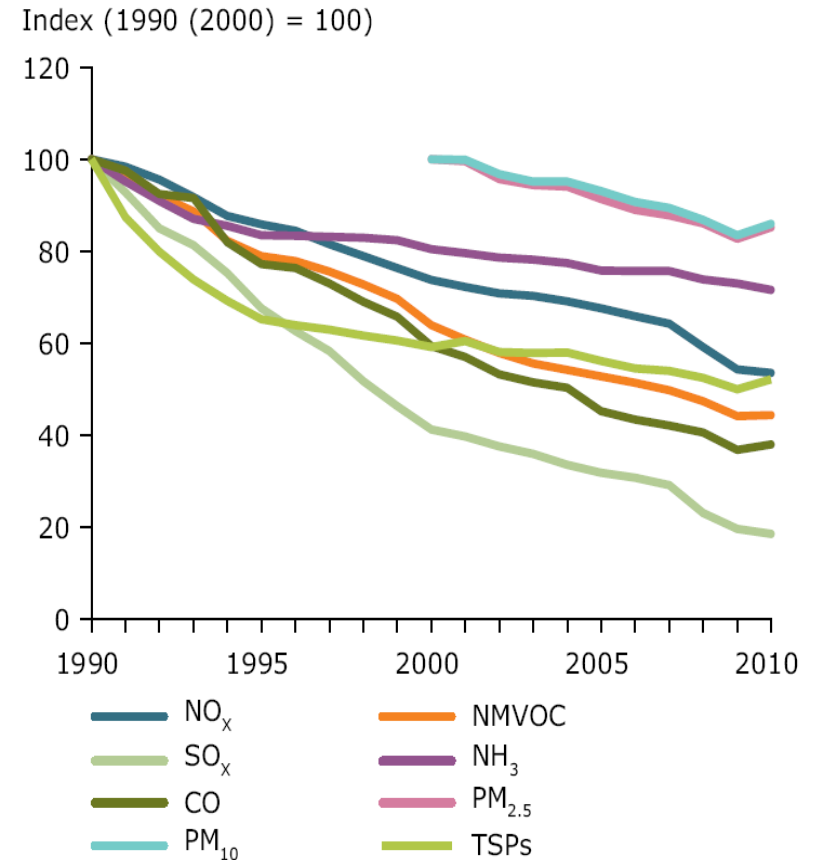
**DG Environment, European Commission**

V2

# Context



- ✓ 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  
....

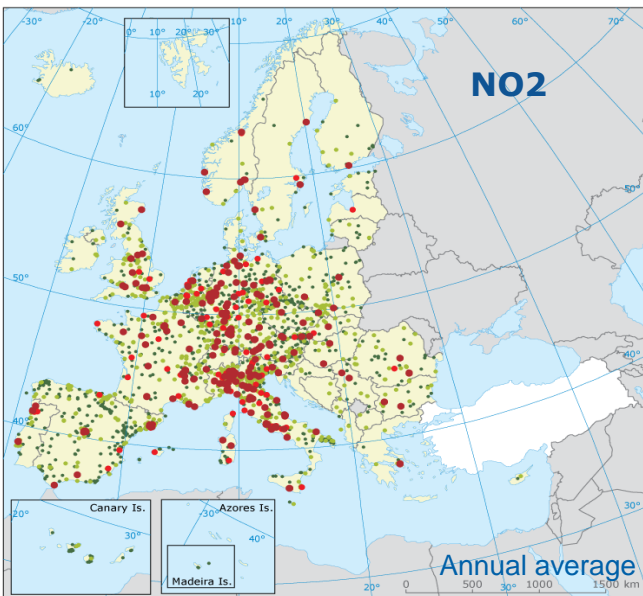
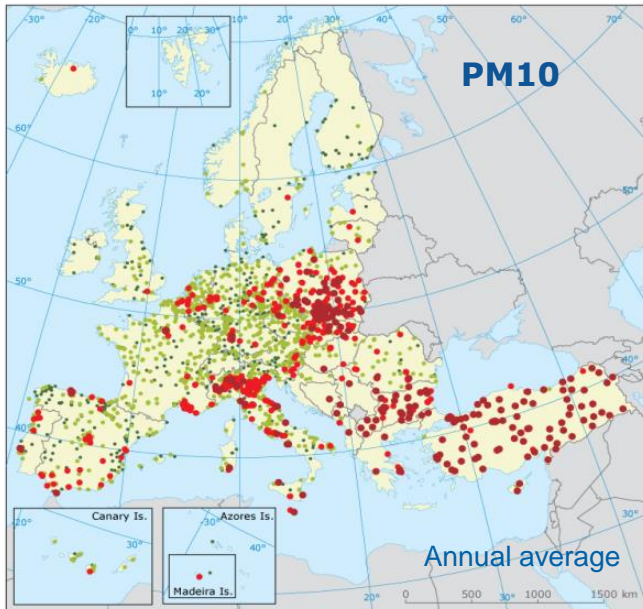


# But significant exceedence persists (2010)

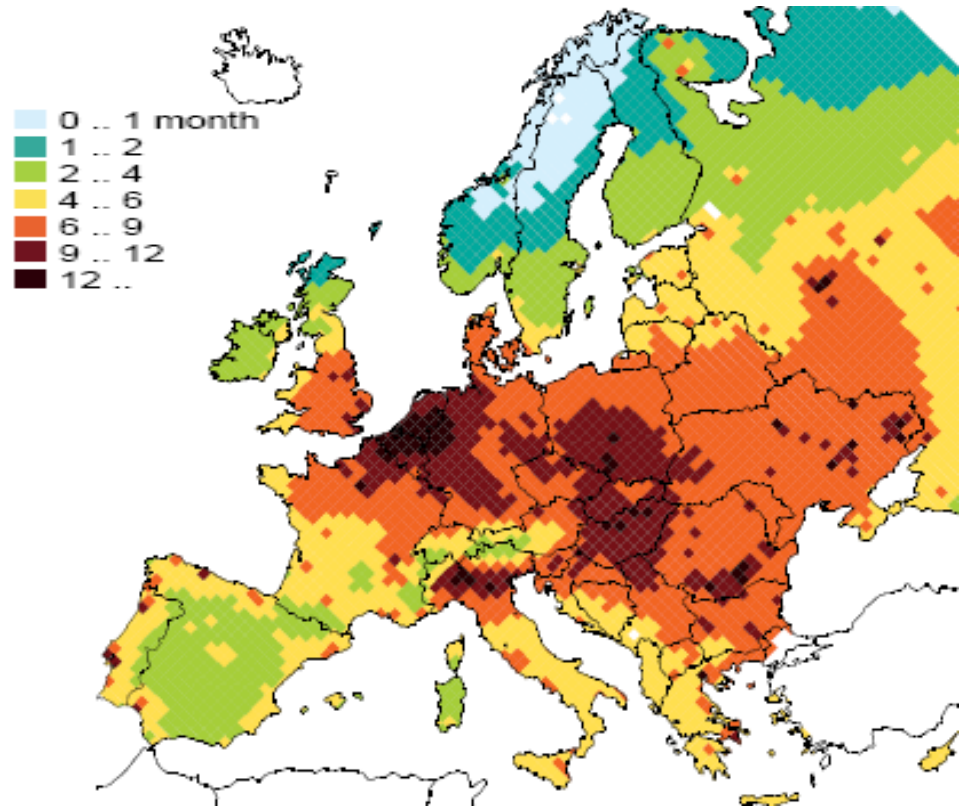


European  
Commission

# Which causes serious health risks



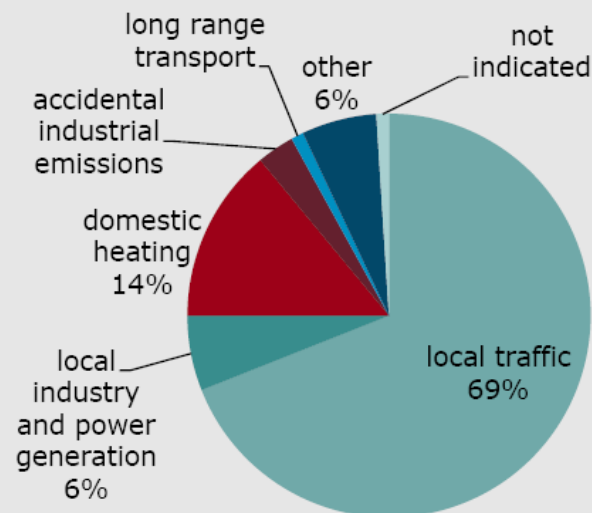
Loss in statistical life expectancy attributable to exposure to PM2.5 from anthropogenic sources (in months for year 2000)



Health costs of air pollution: €23 Billion/yr

## Sources of NO<sub>2</sub> and NO<sub>x</sub>

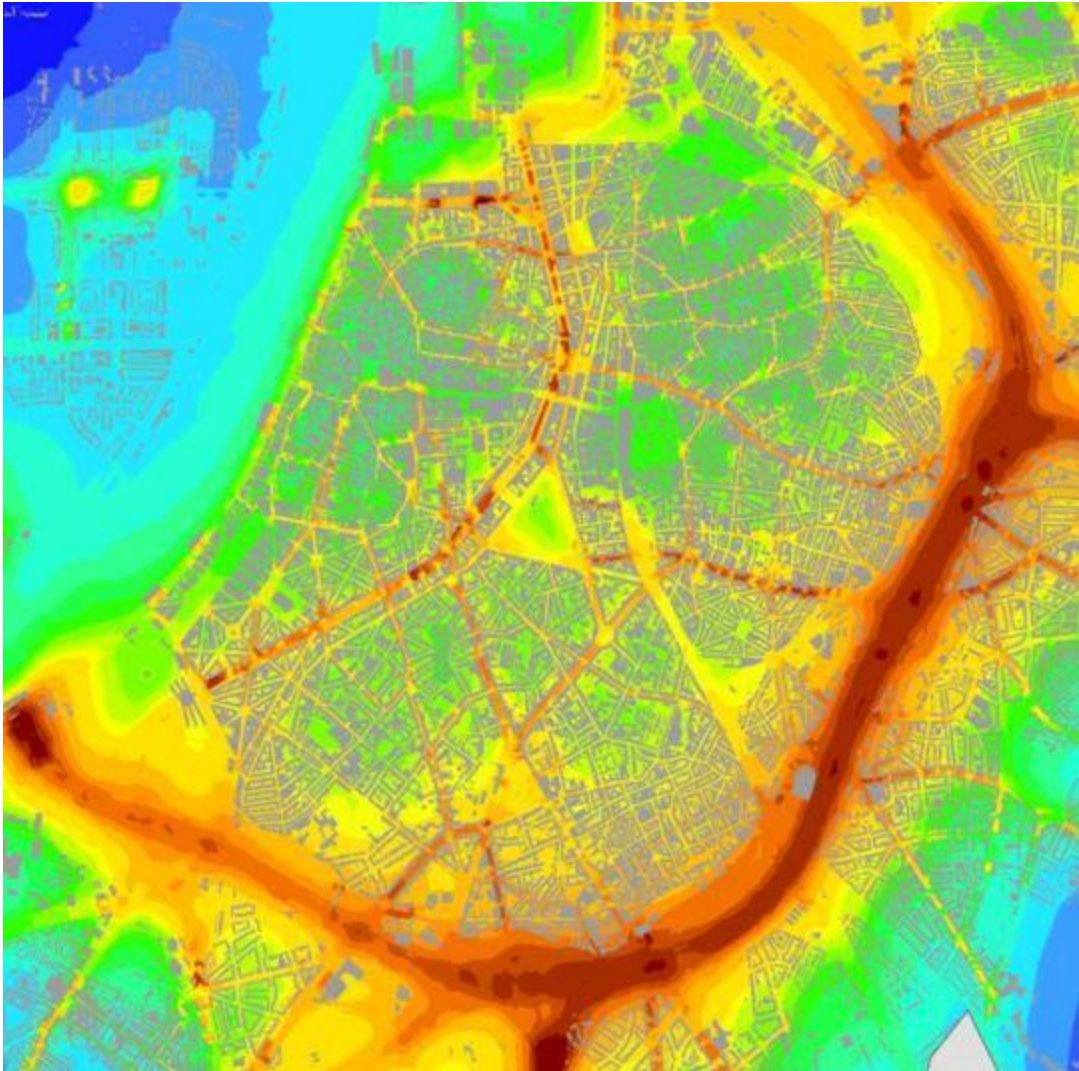
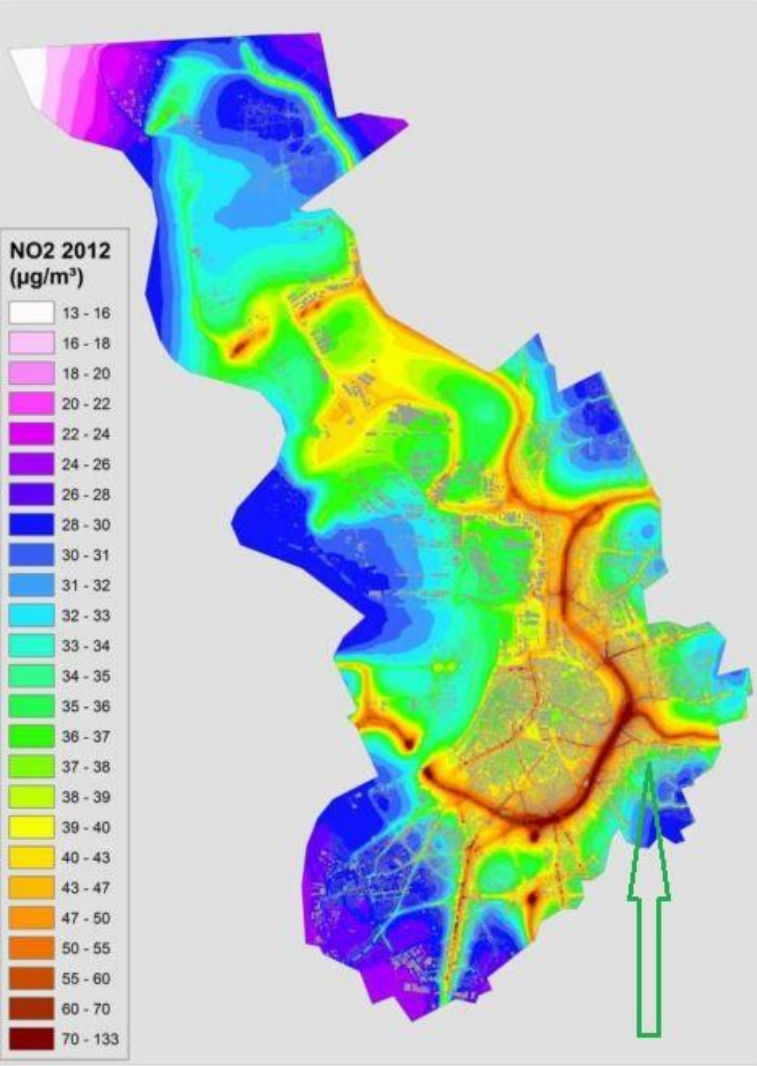
- ETC/ACC 2009:  
main reason for  
exceedances



# Transport contributes considerably to air pollution

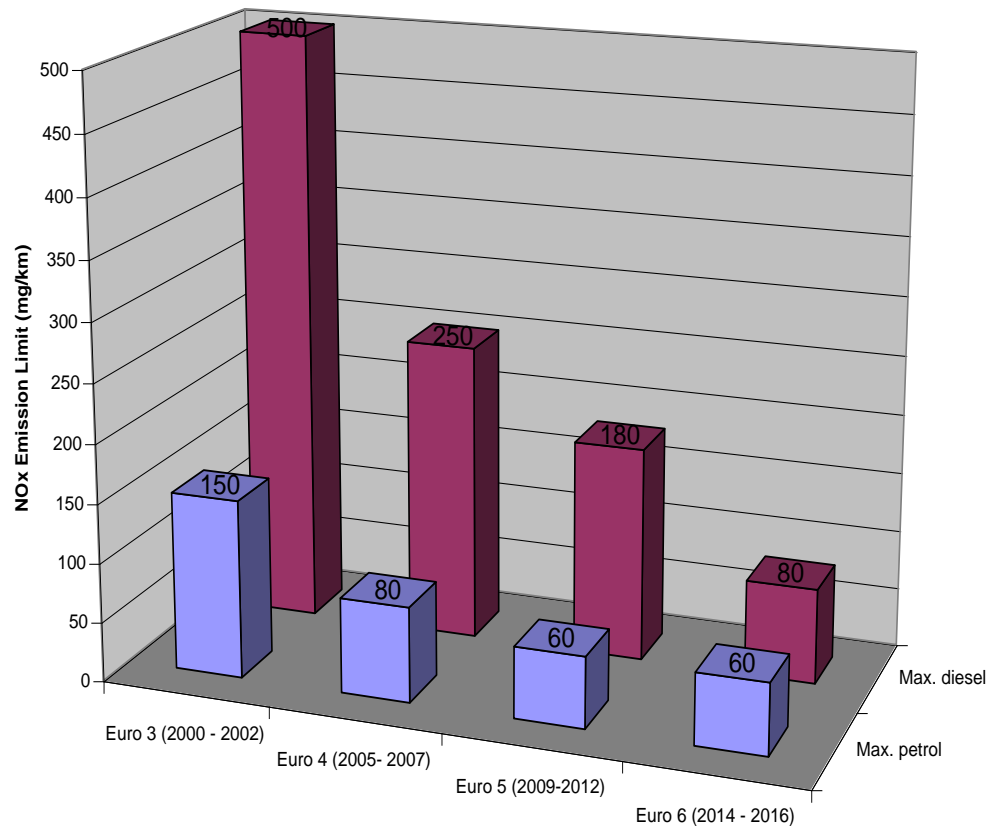


# Antwerp, NO2, 2012



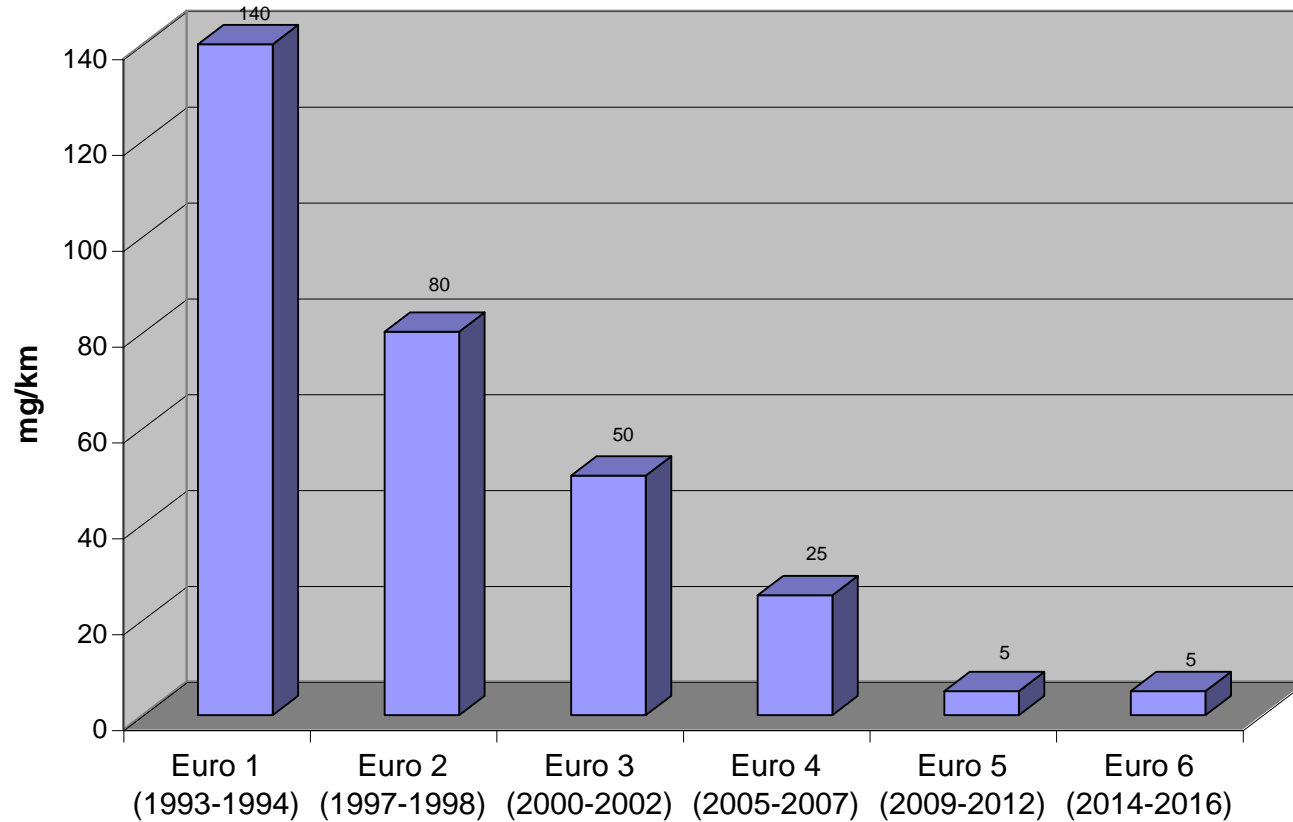
# Evolution of NOx light duty emission limits

in line with Regulation EC 715/2007 "the Euro 5/6 regulation" and preceding

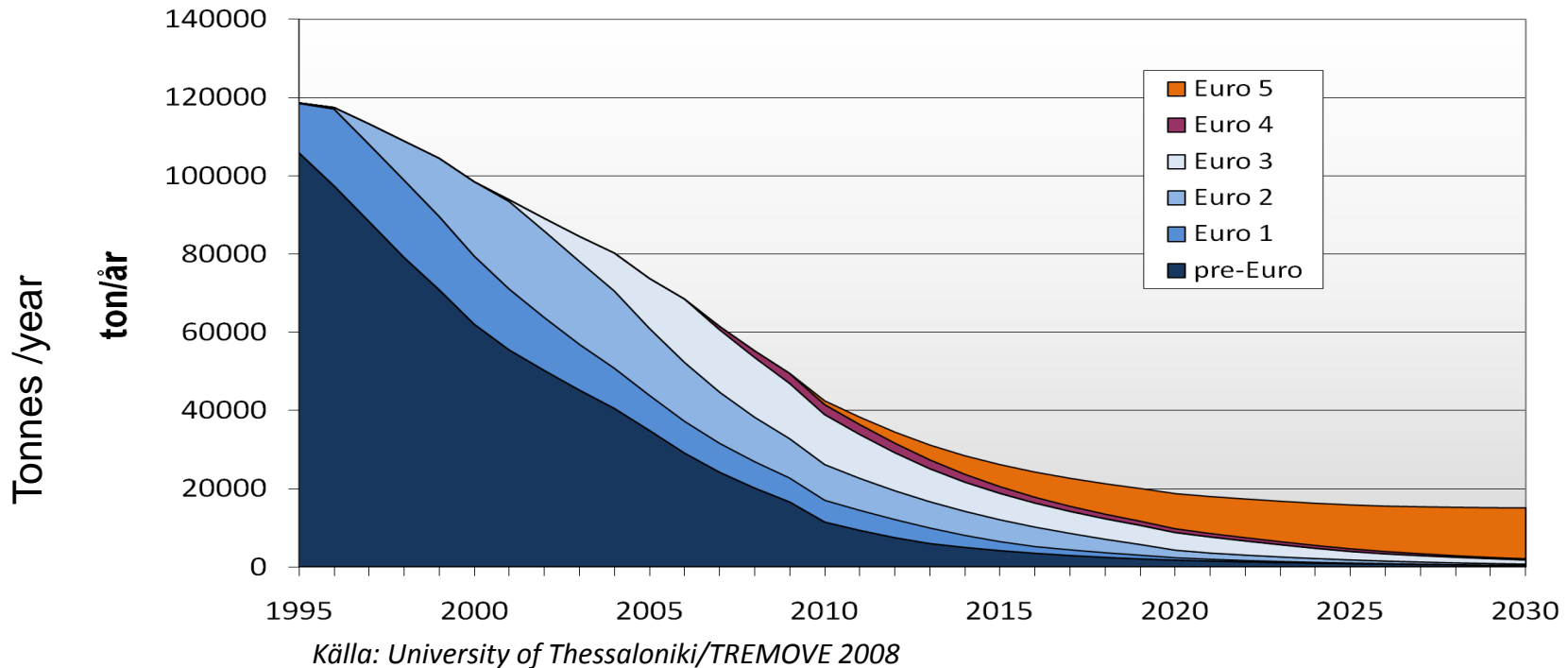


# Evolution of PM10 emission limits (Light duty Diesel)

in line with Regulation EC 715/2007 "the Euro 5/6 regulation" and preceding



## Emission of exhaust particulates, Heavy duty vehicles in EU-27 1995-2030 (Euro VI contribution not included)

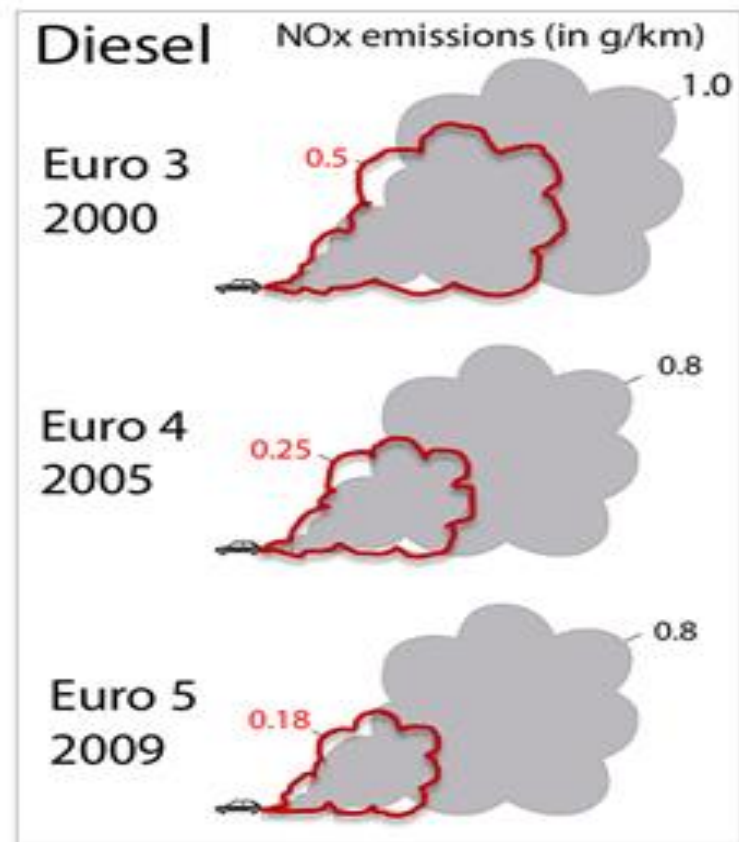
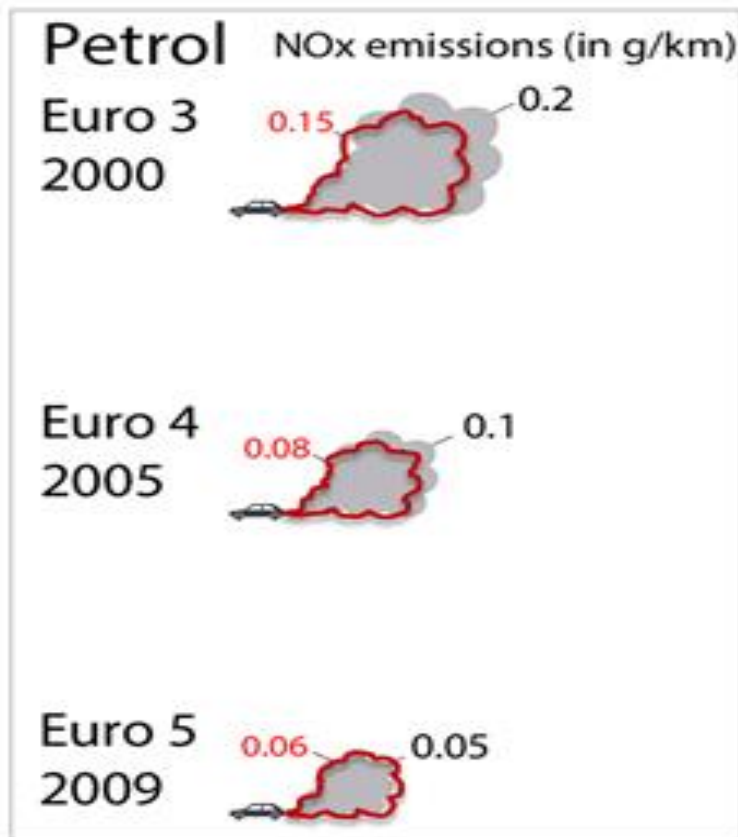


- Following reduced emission limits and other Euro X measures, the PM 10 transport problem gets under control.
- We see PM concentrations decrease by 2020, 2025.





# Why Do We Then Have a Problem?



Diesel cars are the main cause of NO<sub>2</sub> exceedance 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

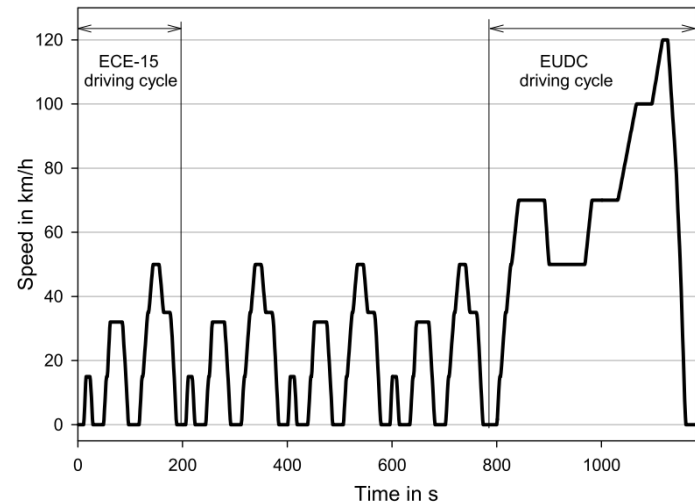


Figure 1: Speed profile of the New European Driving Cycle (NEDC)

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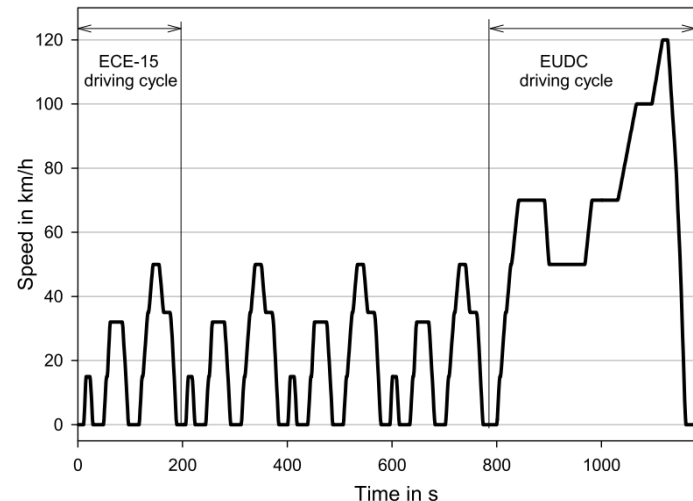


Figure 1: Speed profile of the New European Driving Cycle (NEDC)

## Two main causes for the divergence

### 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”.

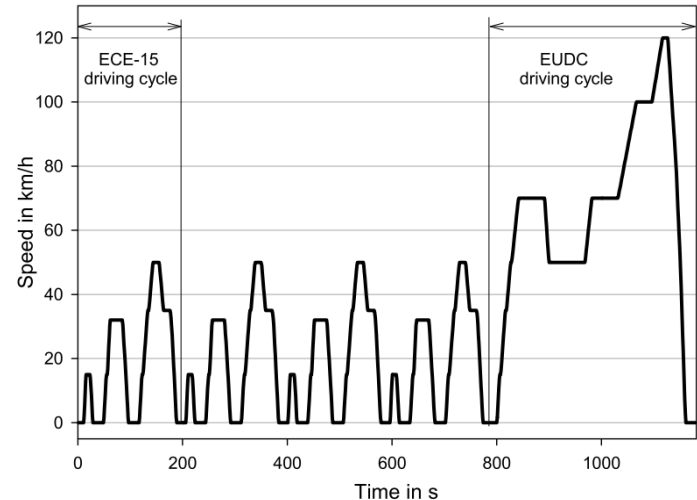
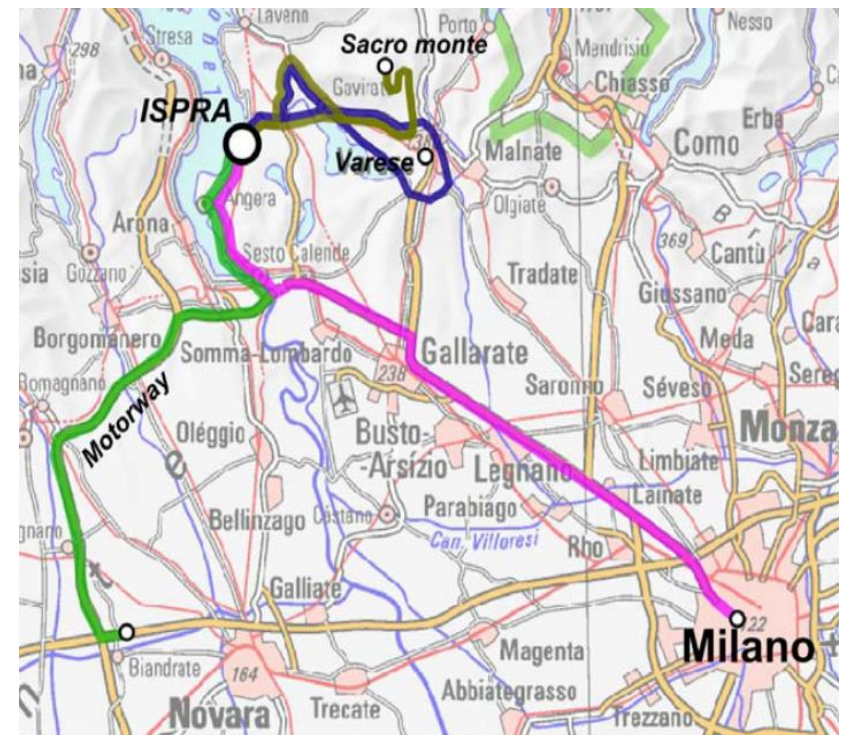


Figure 1: Speed profile of the New European Driving Cycle (NEDC)



## The retained Method for “Real Driving Emission testing” for i.a. type approval: **Portable emission measurement systems**

- “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



- Route 1: Ispra - Milano - Ispra
- Route 2: Ispra - Varese - Ispra
- Route 3: Ispra - Sacro monte - Ispra
- Route 4: Motorway

40km

## 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 & Commission 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

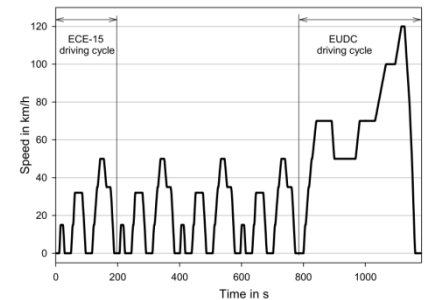
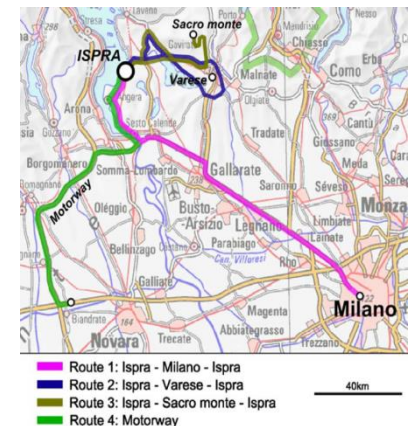


Figure 1: Speed profile of the New European Driving Cycle (NEDC)



## Euro 6 is more than RDE testing for NO<sub>x</sub>

- RDE procedure will apply for: NMHC, CH<sub>4</sub>, CO, PM, ...
- In service conformity testing
- Hybrid car testing
- Sole NO<sub>2</sub> emission testing (as opposed to global NO<sub>x</sub> 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 ...

