



› VERSIT+ UPDATES

ERMES | Norbert Ligterink

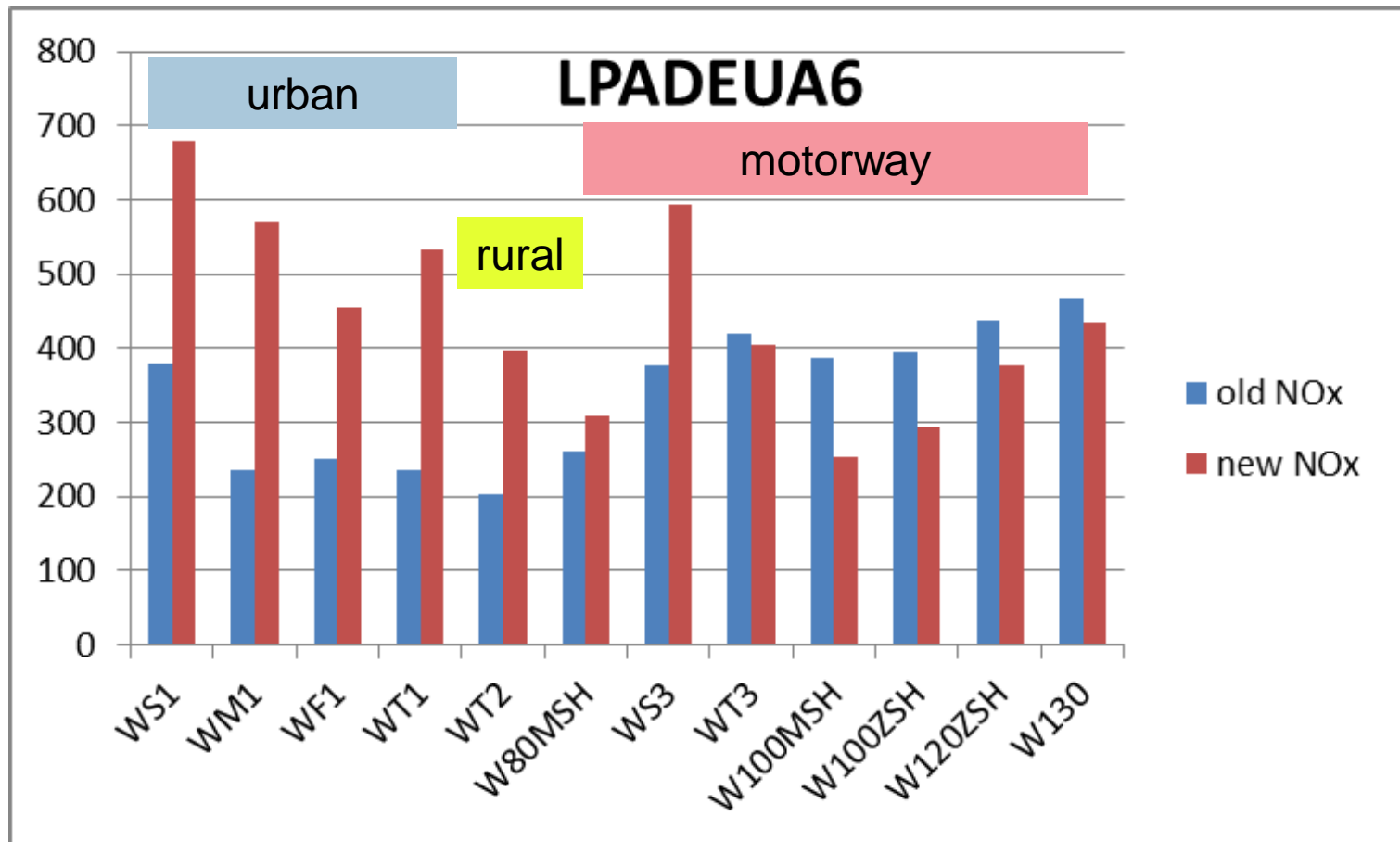
TNO innovation
for life

VERSIT+ UPDATES

ANNUAL PROCESS FOR 15 MARCH NATIONAL UPDATE

- › Emission factors for Euro-6 adjusted upwards, mainly for urban conditions
 - › mainstream vehicles tested March 2016: another upward adjustment expected in March 2017
- › EC/OC fractions in filters are determined (EUSAAR/SUNSET method):
 - › GDI, Euro-4, PTW, and Euro-V
- › Driving behaviour of passenger cars updated with a large test program.
 - › driving behaviour of heavy-duty vehicles will be updated
- › Fuel samples analysed for energy and carbon content:
 - › large variation and unexpected low energy for petrol (see TAP)
- › Minor adaptations for heavy-duty vehicles:
 - › Euro-VI performing slightly worse than before, but still below the limit

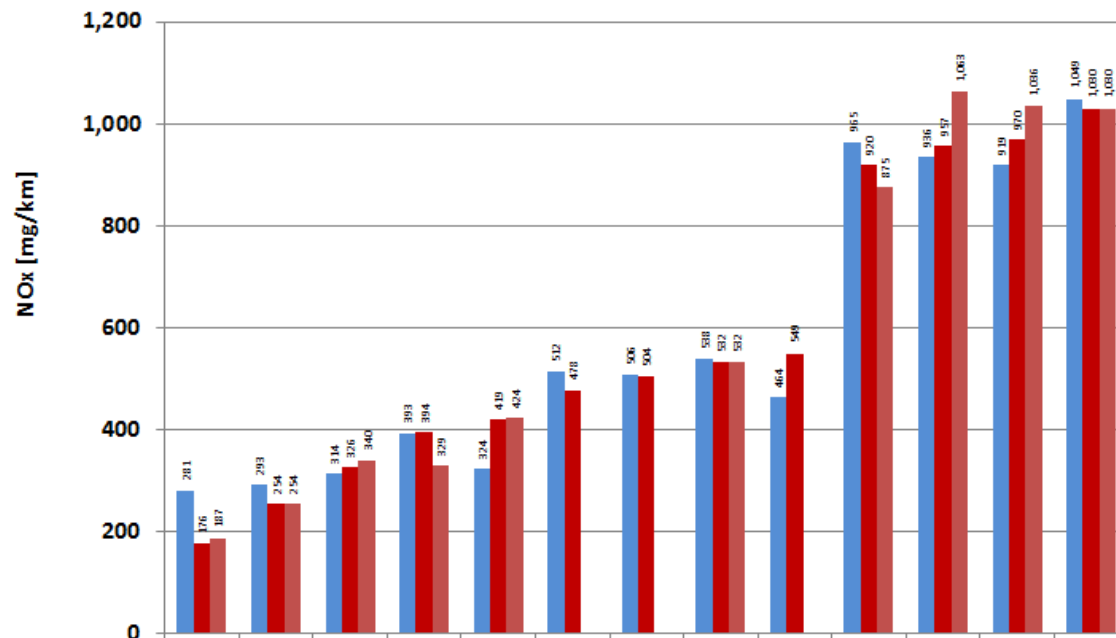
UPDATE OF EURO-6 EMISSION FACTORS



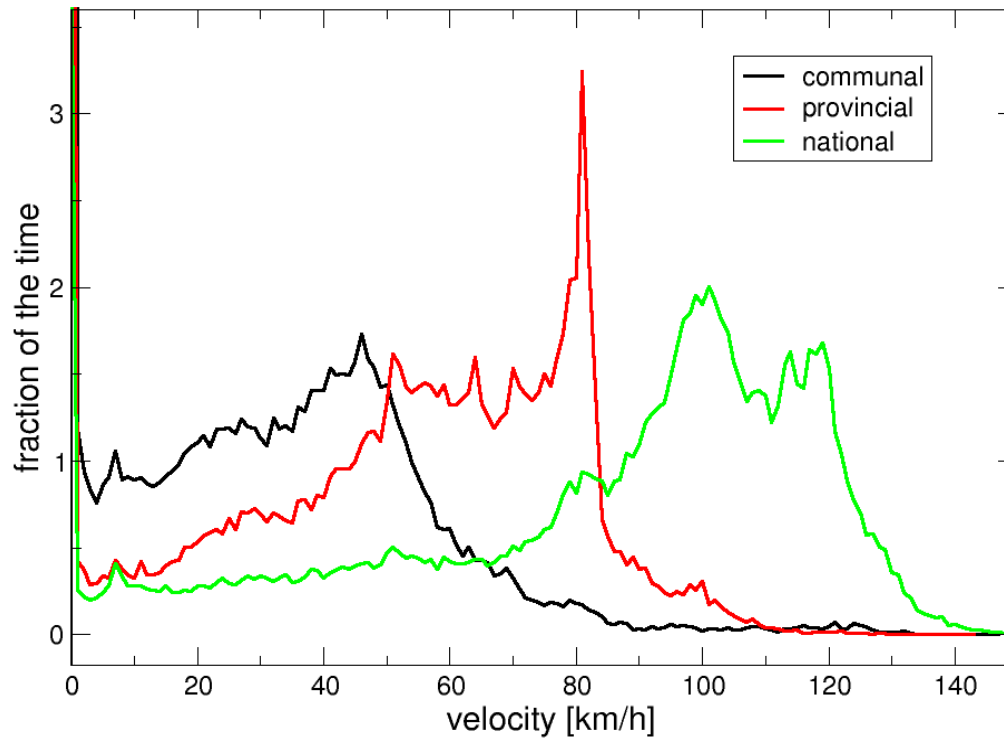
see also presentation of Gerrit Kadijk at the TAP

MAINSTREAM EURO-6 ENTERED THE MARKET SINCE THE SUMMER OF 2015

- › additional testing since then of mainly mainstream models (high sales):
 - › more variation in emission results: 200 mg/km to 1000 mg/km
 - › LNT seems the standard technology



RURAL DRIVING: HIGHER EMISSIONS THAN BEFORE
MOTORWAY DRIVING: DIFFICULT TO DETERMINE CONGESTION



PARTICULATES MATTER AND AIR-QUALITY

- › In the Netherlands Low-Emission Zones based on NO₂ are not viable or effective, and PM₁₀ does not recognize the toxicity of exhaust particulates

- using instead: **Black Carbon / soot / Elemental Carbon** concentrations
 - strongly related to traffic
 - localized near urban areas and roads

- › Determination method from air-quality measurements:
 - › EC/OC determination EUSAAR/SUNSET method (up to 800° C)
 - › using quartz filters in laboratory tests
 - › higher fractions of EC than previously assumed (method-dependent?)
 - › GDI: low emission, some cold start effects



› **THANK YOU FOR YOUR ATTENTION**

TNO innovation
for life