

NEDC/WLTP correlation process

**CO2MPAS workshop, Ispra, 24-25
November 2016**

A huge challenge ahead ...

WLTP enters into force 2017

NEDC based CO₂ target applies until 2020

NEDC/WLTP correlation procedure applies during the transition

State of play

- **WLTP: positive vote in TCMV 14 June**
- **Correlation procedure for cars: positive vote in Climate Change Committee on 23 June**
- **Target translation mechanism endorsed by the CO2 Expert Group**

<https://circabc.europa.eu/w/browse/0a8edb91-1436-41d9-aa28-2cb5f2dd9ffc>

- **Correlation procedure for vans to be voted 2017**
- **Adoption by the Commission spring 2017**

WLTP – why?

- **NEDC: outdated and no longer representative of real world emissions**
- **WLTP: more robust and precise test conditions**
- **More realistic CO₂ emission and fuel consumption values**
 - **for consumer purposes**
 - **for new CO₂ emission standards**

Transition from NEDC to WLTP

1 September 2017 (M1 and N1 class 1):*

- **New vehicle types: WLTP approved**
- **Existing vehicle types: NEDC approved**

1 September 2018:

- **All vehicles: WLTP approved**
- **End-of-series: NEDC approved**

1 September 2019:

- **All vehicles: WLTP approved**

(*N1 class 2 and 3 – one year later)

CO2 emission standards for cars

EU fleet average targets are based on NEDC:

- 130g CO₂/km in 2015
- 95g CO₂/km in 2021 (phase-in from 2020)

Individual manufacturer targets

- set annually to reflect the EU fleet targets

Compliance with individual targets

- a manufacturer's annual average emissions

Non-compliance

- 95 euro/gCO₂ in excess of the annual target

Effects of WLTP introduction

- 1. CO2 emission values increase (on average) but impact differ between different manufacturers**
- 2. How to ensure CO2 target compliance during the transition period when vehicles will be type approved according to either NEDC or WLTP?**
- 3. How to ensure comparable stringency when defining WLTP based CO2 targets?**
- 4. How to facilitate the transition?**



Correlation procedure 2017-2020

- NEDC based CO2 standards are maintained until 2020
- All new registered vehicles should have both NEDC and WLTP CO2 emissions determined at type approval
- WLTP test results to be recalculated into NEDC values taking into account relevant NEDC test conditions: CO2MPAS + physical tests
- Creation of comparable WLTP and NEDC datasets to be used for target translation in 2021

CO2MPAS correlation tool

- **Facilitates transition to WLTP by avoiding extensive double testing campaigns**
- **Uses robust WLTP test data as input for the NEDC calculation**
- **Includes key NEDC test conditions that are explicitly regulated or confirmed by national type approval authorities**
- **Stream-lines other NEDC test conditions and removes some flexibilities**

WLTP test results

Conversion into NEDC input values

**Correlation tool output
vs. OEM declared value**

**NEDC value for
TVH or TVL**

Physical vehicle test

**NEDC interpolation of CoC
values**



Physical tests

- **Same test conditions as for the correlation tool**
- **Correlation tool output exceeds the OEM declared value by more than 4%**
- **Random physical tests in 10% of the cases where the NEDC TVH/TVL value is based on the OEM declared value as confirmed by the correlation tool output**
- **Physical verification tests if technical services / type approval authorities considers there are grounds for verification of input data**

Random tests - deviation factor

- **Prevent abuse of too low correlation tool outputs**
- **Verification of the deviation between the OEM declared value and the measured value**
- **If the deviation exceeds 4% this will lead to an increase in the average emissions of the manufacturer and may affect target compliance**
- **Every random test generates a deviation factor to be recorded in the type approval certificate**

Verification factor

- **Type approval authorities & technical services to ensure that the input data is correct, in particular the presence of**
 - Fuel saving gear for automatic transmission
 - Start-stop activation time
 - Brake energy recuperation
- **Exercise expert judgement**
- **Record where physical test results are not consistent with the input data declared**

Interpolation of CoC values

- **Correlated NEDC CO2 values to be attributed to test vehicles high and low of a WLTP interpolation family**
- **OEMs to interpolate the NEDC CO2 values for each individual vehicle and record these values in certificates of conformity**



Transition to WLTP based targets

WLTP fully applicable from 2021:

- **From 2021, WLPT based manufacturer targets are determined and compliance is checked on the basis of WLTP CO2 emissions**
- **From 2021 NEDC CO2 values are no longer determined or monitored (exception super credit vehicles)**



2021 WLTP based system

EU fleet target of 95gCO₂/km NEDC applies but OEM specific targets are translated into WLTP values using 2020 as reference year:

- **All vehicles have both NEDC and WLTP CO₂ emission values**
- **Compliance with NEDC based OEM target in 2020 is checked against the average emissions = excess emissions or overachievement?**

Target translation 2020

The OEM average WLTP CO₂ emissions in 2020 is used as a basis for calculating the WLTP OEM target for 2021:

- 1. If the NEDC target was exceeded, the WLTP 2021 target = WLTP average emissions in 2020 decreased in proportion to the exceedence**
- 2. If the NEDC target was met, the WLTP 2021 target = WLTP average emissions in 2020 increased in proportion to the overachievement**

THANK YOU!

Correlation test conditions

NEDC test conditions included:

- Vehicle inertia
- Pre-conditioning effect
- Set lab temperature
- Battery state of charge
- Tyre pressure
- Tyre tread depth
- Inertia of rotating parts

NEDC flexibilities removed:

- No NEDC coast down test - WLTP coast down results used as input to the correlation
- NEDC driving profile tolerance
- Test track slope
- Lab temperature range

TARGET TRANSITION

