Solutions to the failed system of vehicle testing

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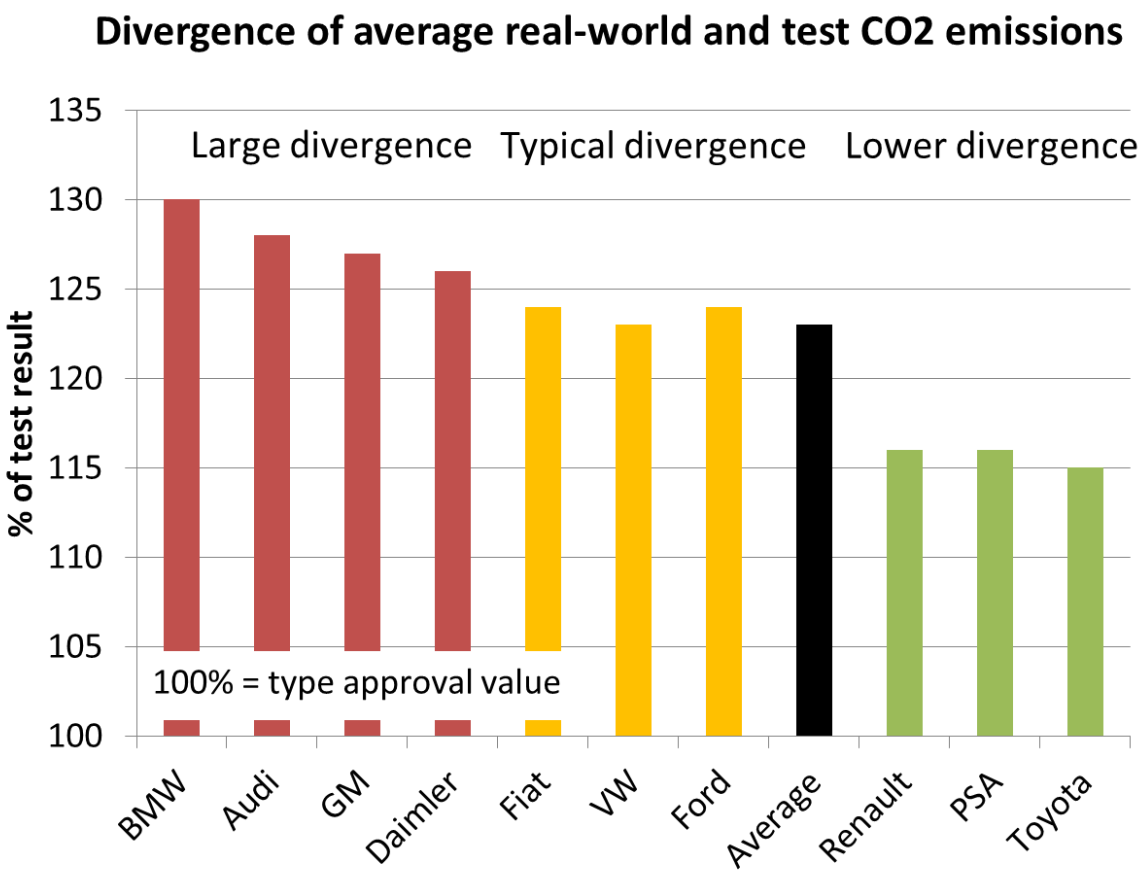
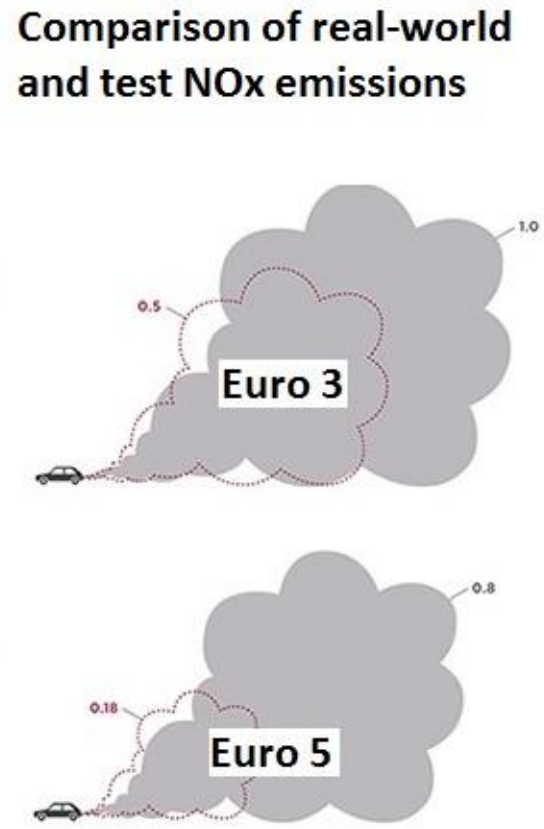
The current system of emissions testing is not fit for purpose





T&E, 2013

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ICCT, 2012

The introduction of WLTC only addresses a limited range of issues

Largely resolved

- Test cycle more representative
- Test procedures for ICE vehicles much more robust

To be resolved

- Date of introduction in EU
- Conversion of 2021 targets
- Administrative procedures in EU
- Hybrid and electric vehicle testing
- Phase 1b procedures

Unresolved

- Significant gaps between test and real-world emissions (>20%)
- Equivalent performance of production cars not guaranteed
- Testing framework inadequate
- Inappropriate basis for good consumer information

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A strengthened framework to ensure environmental regulations are met on the road is essential

Type approval framework	• European Type Approval Authority with oversight of National Type Approval and Testing Authorities • OEMs responsible for performance of the vehicle on the road for 5 years / 100k km
Type Approval	• Strengthened system of testing under WLTP • No contractual relationships between OEMs and National Type Approval and Testing Authorities
Production conformity	• 20% inspection regime including whole vehicle tests • Performance within 4% of type approval for CO2 and air pollution emissions
In-service conformity	• On-road vehicle PEMS testing and performance requirements for CO2 and air emissions
Periodic technical inspection	• Avoidance of OBD • Strengthening of testing methods • Real-world measurement of vehicle fuel economy?
Driver information	• On-board information • Car buyer information • Advertising standards

Real-world driving emissions tests must reflect the range of conditions experienced on the road and how the car is used

- "Typical driving" (normal boundary conditions) based upon WLTC parameters
  - Large number of tests (small families)
  - Testing of vehicles up to 5 years / 100k km
  - 2 tests with and without use of auxiliary equipment
- "Extreme driving" (extended boundary conditions):
  - High altitude, slopes, low temperatures, high speeds and instantaneous accelerations
  - Limited number of tests (larger families)
- Testing for full suite of air pollutants and CO_2
- Testing using PEMS
- EMROAD approach to adjust for driving style

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Conclusions

- The current system of emissions testing in the EU is not fit for purpose
- The introduction of WLTC only addresses a limited range of issues
- A strengthened framework to ensure environmental regulations are met on the road requires improvements to:
  - The framework and system of type approval
  - Increased conformity of production checks including whole vehicle tests
  - On-road in service conformity checks for vehicles up to 5 years old and 100k km using PEMS
  - Strengthened periodic technical inspection tests
- The European Commission is presently only focused on the introduction of WLP for CO2 and RDE for NOx emissions

"I'm sorry, It failed on a dodgy magic tree"

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