

Light-duty vehicles: Frequently Asked Questions

1. What exactly did the update of the methodology to calculate average fuel consumption of new light duty vehicles (LDVs) comprise?

The update comprised:

- The consistent inclusion of all LDVs including passenger cars, pick-up trucks, Sport Utility Vehicles (SUVs) and Light Commercial Vehicles (LCVs) up to a gross vehicle weight of 3.5 tons across all regions
- The use of updated test cycle conversion factors based on the 2014 ICCT publication "Development of test cycle conversion factors among worldwide light duty vehicle CO₂ emission standards"
- The normalization of all fuel consumption values to the new World Light duty vehicle Test Cycle (WLTC)
- The improvement of the coverage of vehicle sales with fuel consumption data, in particular for the years 2005 and 2008.



2. Did the update of the methodology affect fuel consumption values presented in earlier GFEI reports?

Yes. The changes in methodology to calculate nation and region wide average values of new LDV fuel consumption (in Lge/100km) resulted in the following changes:

- The improvement of the data coverage leads to slightly higher absolute fuel consumption values especially in the baseline year 2005, both for national results and regional aggregates. Non-OECD countries are particularly affected by this effect.
- The consistent inclusion of all LDVs (passenger cars, pick-up trucks, SUVs, and LCVs) within all regions leads to an increase of absolute fuel consumption values and a slight decrease of the annual improvement rates, particularly in non-OECD countries.
- The main reasons for this are:
 - The inclusion of pick-ups in the national averages was already in place, former GFEI reports, in the United States, Canada and Australia
 - The share of pick-ups is high (and therefore having a larger impact in the change of results) in many non-OECD countries in Latin America (e.g. Mexico, Brazil) and Southeast Asia (Thailand).
 - The normalization of all fuel consumption values to the WLTC increases significantly the absolute fuel consumption and reduces the annual improvement rates.
 - There is also a change in the difference between the fuel consumption of OECD and non-OECD regions. This is due to higher gaps in the WLTC conversion formulas for gasoline rather than diesel engines, and the higher relevance of diesels in the calculation of the OECD averages (because of the European markets, having high diesel shares).

3. Why are the differences between NEDC based fuel consumption values and WLTC based fuel consumption values not similar across different countries?

This is due to two main elements:

- Differences in the conversion of the consumption of gasoline and diesel fuelled vehicles to WLTC, and varying shares of gasoline and diesel vehicles across markets.
- The share of vehicles whose fuel economy results from estimates based on different test cycles (NEDC, CAFE and JC08), and differences in the conversion formulas allowing to estimate values normalized to the WLTC when starting from each of the original cycles.

4. Why are the differences between fuel consumption estimated based on the NEDC and those normalized to the WLTC varying over time in some of the regions?

As mentioned under point 3, the differences between the NEDC based and the WLTC based test values depend on the shares of 1) diesel vehicles and 2) vehicles originally tested under different test cycles (NEDC, CAFE, JC08) within the countries' new LDV fleet. With varying shares of diesel vehicles and vehicles originally tested under different test cycles, the differences between NEDC based and WLTC based fuel consumption vary over time.

5. Why does the use of the new methodology shift the global improvement rate closer to that of the non-OECD countries?

When evaluating differences of the global improvement rates before and after the update of the methodology, various factors have to be taken into account. These include:

- Changes in the absolute fuel consumption values in the OECD and non-OECD regions
- Changes in the fuel consumption improvement rates in the OECD and non-OECD regions
- Changes in the relative market size of OECD and non-OECD regions.

The use of the updated methodology to calculate average new LDV fuel consumption leads to an increase of absolute fuel consumption values in both the OECD and the non-OECD regions, but the impact is more pronounced in the non-OECD region (see FAQ 2), making the difference amongst the two regions smaller. Trends over time are not significantly different. The growing market share of the non-OECD, not any longer coupled with a large gap between regions, has a lower capacity to lead to a reduction of the global average than in earlier assessments.



6. Why is this report based on the new WLTC?

Fuel consumption (in Lge/100km) and CO₂ emissions (in gCO₂/km) are shown based on the NEDC and WLTC test cycle for all countries throughout the report. NEDC values are reported for continuity with earlier assessment. Providing results based on the WLTC aims to acknowledge that the WLTC will be the cycle of reference in the foreseeable future. Estimating results based on the WLTC early is also expected to provide a stable framework for the continued monitoring of the global development of average fuel consumption of new LDVs over time.

7. Why are there no more African countries included in the detailed analysis?

Unfortunately, detailed data on new LDV sales are not available for most African markets (with the exception of South Africa, the main car market on the African continent). Although Egypt is included in the report, the quality of the data does not allow for detailed country analysis.