FACT SHEET: EUROPE

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communications@theicct.org WWW.THEICCT.ORG

THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

REAL-WORLD FUEL CONSUMPTION AND CO_2 EMISSIONS OF NEW PASSENGER CARS IN EUROPE

"Real-world" fuel consumption and CO_2 emissions of new European passenger cars exceeded official type-approval values by approximately 42% in 2015, according to a new update to the International Council on Clean Transportation's *From Laboratory to Road* study. **Since 2001, the gap between official measurements of vehicle efficiency and actual performance in everyday driving has more than quadrupled**.

KEY FINDINGS

» **Average divergence of real-world from type-approval CO_2 emissions increased from roughly 9% in 2001 to about 42% in 2015**. The trend was particularly pronounced in recent years: The gap more than doubled between 2009 and 2015.

» As a result, less than half of the on-paper reductions in CO_2 emission figures since 2001 have been realized in practice. **Since 2010, hardly any real-world reductions in CO_2 emission values have been achieved**.

» Company cars generally show a higher divergence (approximately 45%) than private vehicles (approximately 40%). **The size of the gap differs significantly among vehicle manufacturers and market segments**. Plug-in hybrid electric vehicles stand out with particularly high divergence values.

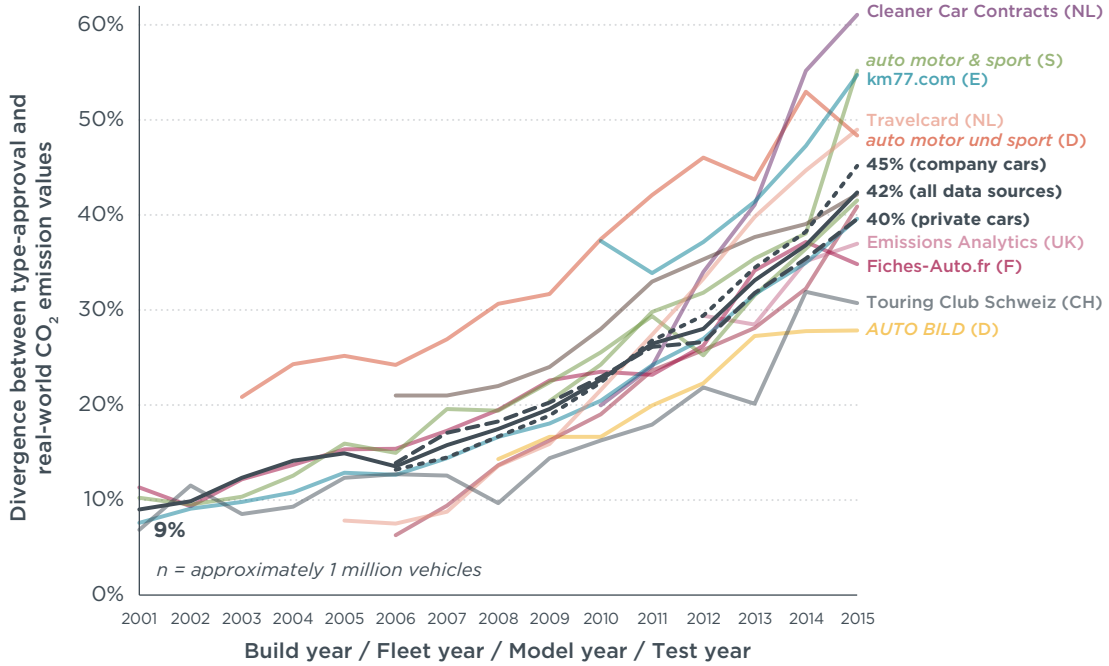

Figure 1. Divergence between real-world and manufacturers' type-approval CO_2 emission values for various real-world data sources, including average estimates for private cars, company cars, and all data sources.

- For an average vehicle owner, **the discrepancy translates into additional fuel expenses of approximately €450 per year**.
- **The gap is a result of increasingly unrealistic type-approval CO_2 values rather than changes in driving behavior**.
- **The discrepancy between real-world and official CO_2 emission values is expected to continue to grow unless the certification test procedure changes**. The average gap would likely grow to about 50% by 2020 under a business-as-usual scenario. If the Worldwide Harmonized Light Vehicles Test Procedure (WLTP) is implemented as planned by 2017, the gap would likely decrease to approximately 30% by 2020.
- But the WLTP will have its own shortcomings and should therefore be complemented by other forms of vehicle testing: **random conformity testing of production vehicles by independent bodies** (as already mandated by U.S. fuel economy regulations) and **on-road testing of CO_2 emissions** (as mandated for nitrogen oxide emissions in the EU since 2016).

BACKGROUND AND METHODOLOGY

- Official CO_2 and fuel consumption values of new passenger cars (so-called *type-approval* or *certification* values) are determined in laboratory tests using the New European Driving Cycle (NEDC).
- In 2001, new passenger cars in the EU had an average type-approval CO_2 value of 170 grams per kilometer (g/km), which corresponds to a fuel consumption figure of roughly 7.3 liters per 100 kilometers (l/100 km). After mandatory CO_2 fleet targets for new passenger cars were introduced in the EU in 2008, average CO_2 emission values decreased sharply, to 120 g/km (roughly 5.1 l/100 km) in 2015. The 130 g/km fleet target for 2015 was reached two years in advance.
- In 2013, collaborating with the Institute for Energy and Environmental Research Heidelberg (IFEU) and the Netherlands Organisation for Applied Scientific Research (TNO), the ICCT published *From Laboratory to Road,* documenting for the first time a discrepancy between real-world and type-approval CO_2 emission values that was increasing over time. The report has been updated each year since.
- The 2016 update to the *From Laboratory to Road* series brings together data for approximately 1 million vehicles from seven countries and 13 data sources. The data includes user entries from free web services (Spritmonitor.de – Germany, honestjohn.co.uk – United Kingdom, Fiches-Auto.fr – France), fuel consumption measurements from company cars (Travelcard – Netherlands, LeasePlan – Germany, Cleaner Car Contracts – Netherlands, Allstar fuel card – United Kingdom), and vehicle tests from magazines and websites (*AUTO BILD* – Germany, *auto motor und sport* – Germany, *auto motor & sport* – Sweden, km77.com – Spain, Emissions Analytics – United Kingdom, Touring Club Schweiz – Switzerland).
- The divergence of real-world from type-approval values is expressed as a percentage of the type-approval figure. While driving style, vehicle characteristics, and driving conditions vary, aggregating large amounts of real-world data reveals clear trends in the average performance gap.

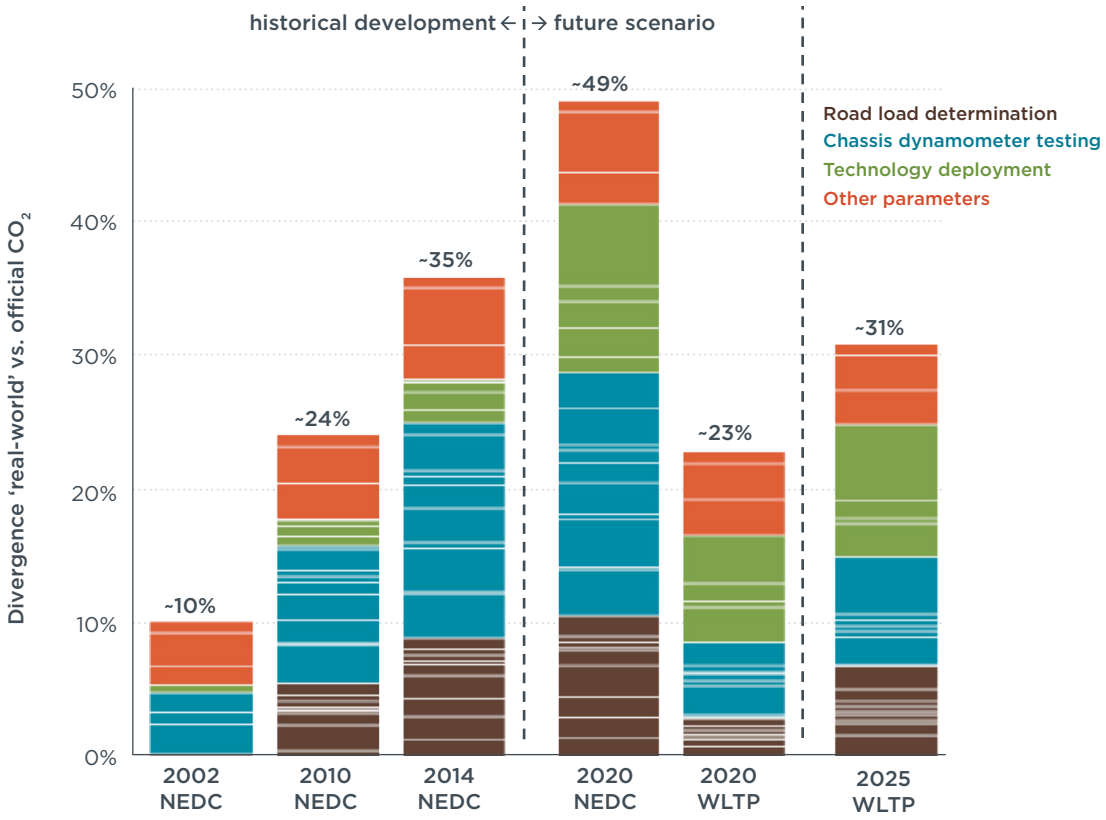

Figure 2. Estimate of the reasons for the discrepancy between type-approval and real-world CO_2 emission levels for new passenger cars in the past as well as in the future, with and without introduction of the WLTP.

FURTHER INFORMATION

From Laboratory to Road – A 2016 update of official and 'real-world' fuel consumption and CO_2 values for passenger cars in Europe

DOWNLOAD

http://www.theicct.org/laboratory-road-2016-update

AUTHORS

Uwe Tietge, Sonsoles Díaz, Peter Mock, John German, Anup Bandivadekar, Norbert Ligterink

CONTACT

Peter Mock, +49 30 847129-102, peter@theicct.org

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