GFEI Working Paper 15: Fuel economy trends 2005-2015: Ten years of fuel economy benchmarking

Global trends

GFEI's latest analysis, published in January 2017 for the years 2005-2015 indicates that on average global fuel economy improved by 1.5% a year. This is around half the improvement rate needed to meet GFEI's target to double average fuel economy by 2030 which would have required an annual improvement rate of 2.8%. This means further action is needed.

While the average fuel economy of vehicles continues to improve, the rate of progress has slowed in recent years. The average amount of fuel required to travel 100 km improved by 1.1% in 2014 and 2015, down from 1.8% between 2005 and 2008. This is linked in part to an increasing shift towards 'crossover' vehicles (medium sized SUVs and pick-ups) that strengthened since 2010. It also reflects changes in the composition of sales globally, including increased sales in non-OECD markets and shifts occurring within the OECD, and comes in conjunction with a major change in comparison with the first half of the last decade: since 2014, non-OECD countries have achieved faster fuel economy improvements than the total of all OECD economies.

Light Duty Vehicles sold across all the OECD use less fuel than those sold in non-OECD countries: this reflects a technological gap in engine technology between the two regions. Despite this advantage, the popularity of large, heavy and powerful vehicles in the United States America and Australia results in fuel use per kilometer travelled in these countries greater than outside the OECD.

TABLE 1: GLOBAL FUEL ECONOMY DEVELOPMENTS 2005-2015

			2005	2008	2010	2012	2014	2015	2030
OECD and EU average	average fuel economy (Lge/100 km)		8.8	8.2	7.8	7.6	7.4	7.3	
	annual improvement rate (% per year)			-2.3%	-2.8%	-1.6%	-1.3%	-0.5%	
					-1.8%				
Non-OECD average	average fuel economy (Lge/100 km)		8.5	8.5	8.4	8.2	8.0	7.9	
	annual improvement rate (% per year)			-0.1%	-0.3%	-1.4%	-1.2%	-1.6%	
					-0.8%				
Global average	average fuel economy (Lge/100 km)		8.8	8.3	8.1	7.8	7.6	7.6	4.4
	annual improvement rate (% per year)			-1.8%	-1.6%	-1.3%	-1.3%	-1.1%	
					-1.5%				
GFEI target	required annual improvement rate (% per year)	2005 base year	-2.8%						
		2015 base year							-3.7%

Notes: OECD and EU = member states of the European Union and specified member countries of the Organisation for Economic Co-operation and Development (Australia, Canada, Chile, Japan, Korea, Mexico, Turkey and United States); Non-OECD = specified non-OECD countries (Argentina, Brazil, China, Egypt, India, Indonesia, Malaysia, Peru, Philippines, Russian Federation, South Africa, Thailand and Ukraine).

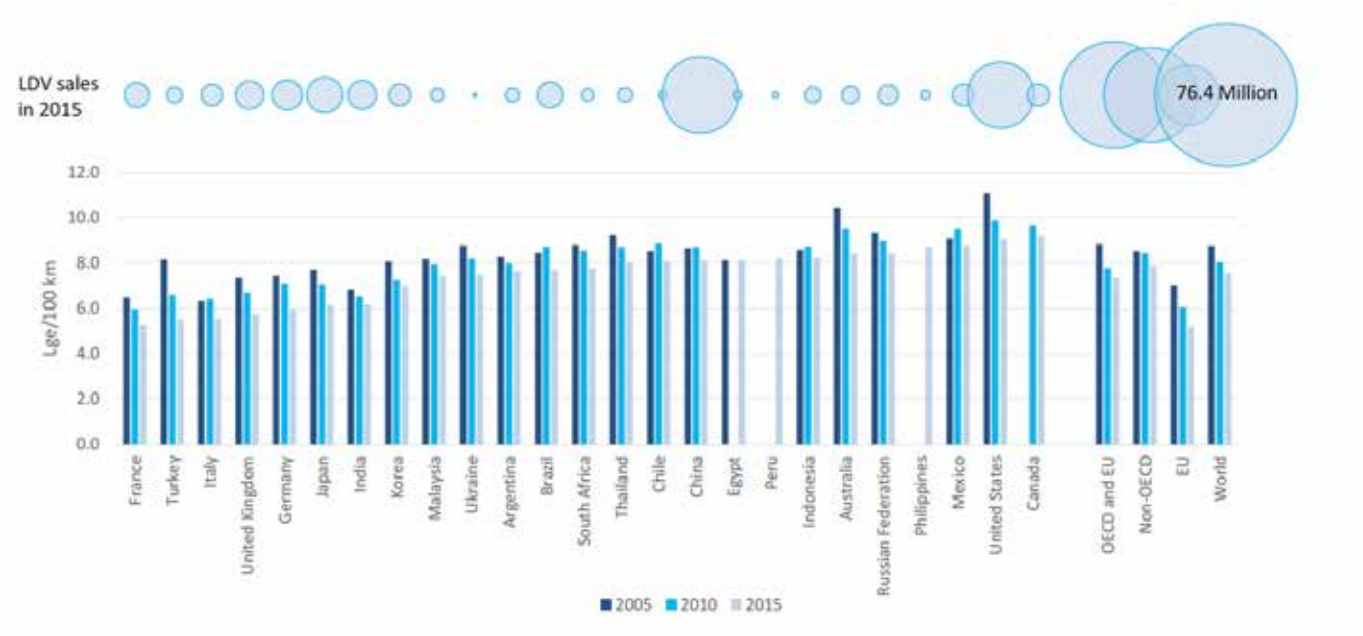
In 2015 LDV sales amounted to 88.5 million vehicles, a quarter more than in 2010 and a third more than in 2005. New LDV registrations were evenly split between OECD countries (51%) and non-OECD countries (49%) in 2015. The OECD sale shares declined from 54% in 2010and 69% of 2005. The global LDV stock exceeded 1.1 billion vehicles in 2015, up from 0.95 billion in 2010 and 0.82 billion in 2005. Nearly four in ten LDVs are now in circulation in non-OECD countries, up from 25% in 2005 and 33% in 2010. The increase in sales in non-OECD countries have contributed to changes in the global average, particularly as rising incomes in countries such as China led to increased sales of larger vehicles in these markets.

Country trends

Without exception, all countries showed an improvement in average fuel economy in 2015 compared with 2005. Over the past decade, the greatest progress (measured in terms of percentage improvement over 2005 values) occurred in Turkey, followed by the United Kingdom and Japan.

The acceleration in improvement observed in non-OECD countries is consistent with the major growth in market size of the non-OECD, the growing importance of markets (such as China and Brazil) that began to enact or tighten fuel economy policies over recent years, and the increasing relevance of China as a market. These factors outweighed the flattening average fuel economy in other major non-OECD countries, such as the Russian Federation and India.

FIGURE A: AVERAGE NEW LDV FUEL ECONOMY BY COUNTRY NORMALISED TO THE WLTC, 2005-15



Countries with the best average fuel economy tend to have a higher proportion of LDV sales with lower power and displacement engines, lower weight and a smaller footprint.

Country-level results, and in particular the large improvements in LDV fuel economy being achieved in the European Union and China, show that stronger action on the combined adoption of fuel economy policies (including regulatory instruments such as fuel economy standards) and fiscal incentives (such as vehicle taxes differentiated on the basis of emissions of CO2 per km) can deliver effective fuel economy improvements. This is especially important in a period characterised by a slowdown in fuel economy improvements in OECD countries.

The importance of real world testing

Policy actions that are measurable solely against test results will not close the gap in fuel economy between test and real-world driving conditions. Achieving greater accuracy and representativeness of tested fuel economy as against real-world consumption will require the use of on-road tests, similar to the real driving emissions (RDE) test procedure for air pollutants, and the introduction of in-use conformity tests of randomly selected production vehicles.